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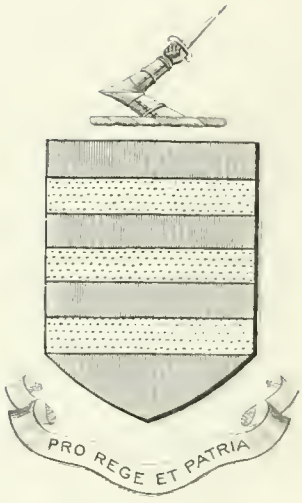

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MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

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Original Articles.

THE MIRACLES AT THE TOMB OF B. FRANÇOIS DE PÀRIS.*

By JOSEPH COLLINS, M.D.

NEW YORK.

To gain a satisfactory idea of the conditions that lead up to the miracles of which I shall speak it is necessary to know something of the conflict that existed at the time of their occurrence, in France, and to a lesser extent throughout other parts of Europe, between Jesuitism and Jansenism. The history of the former, still the most vigorous and aggressive institution within the Catholic Church, is well known. The cause of the Jansenists was buried in the grave of François de Pàris nearly two centuries ago. Practically the only evidences of its survival is the existence of such persons as Augustin de Chanteprie in Marcelle Tinayre's remarkable novel "Maison du Peche" and a few disciples of St. Augustine, the first great father of the Latin Church.

*Read at a meeting of the Charaka Club, February, 1908.

In 1640 Cornelius Jansen published his celebrated work on the teachings of the Sainted Bishop of Hippo. It had a great and an immediate success. In it the errors of the Jesuits were pilloried with the Massilians and followers of the British monk, Pelagius, whose doctrines had been refuted by St. Augustine twelve centuries before. The Jesuits parried the thrust by means of the bull of Urban VIII, which forbade the reading of the "Augustinus." The best advertisement for a book then, as it is now, was to say that it was not fit to read. It had a wide circulation, so they had its doctrines pronounced heretical by Innocent X in 1653. It was then that the famous Port Royalists, Antoine Arnauld, the theologian, who had been expelled from the Sorbonne, and Blaise Pascal, the philosopher, scientist, and litterateur, and others less known to posterity tried unsuccessfully to stem the tide was sweeping away Jansenism.

The controversy gave birth to a classic of literature, "Pascal's Letters to a Provincial by One of His Friends," which was, as Pater terms it, nothing less than a revelation to all the world of the capabilities, the true genius of the French language in prose. The Provincial letters had immediate suc-

FIG. 1.—The Tomb of B. François de Pàris. "Made illustrious by miracles without number and by startling conversions."

cess. "All the world sees them; all the world understands them." For a time they seemed to controvert the doctrine of "sufficient grace," in which the Jesuits had presented a view of the conflict of good and evil in the soul, but it was only a temporary victory. Pascal soon succumbed to a hopeless and inexplicable malady at the age of 39, the age fancifully noted as fatal to genius, and with him went the most valorous champion of the cause. The Jesuits were again in control. They did not take their security for granted, however. The Argus of the society was ever at his post in those days, and a generation later, when Quesnel's popular book "Moral Reflections on the New Testament," which was suspected of latent Jansenism, was published, they got the bull, "Imigenitus" (1713), from Clement XI, condemning its teachings as erroneous and heretical. This bull divided the French Church into two parties, the Acceptants and the Appellants. The Jansenists and their sympathizers were all in the latter camp, and as it included the cardinal archbishop of Paris it constituted a formidable party. Then the Jesuits played their winning card. They had the bull "Imigenitus" registered as a law of the kingdom and Jansenism was a matter of history, but before giving up the ghost it gave one universal shriek, louder than the loud ocean, like a crash of echoing thunder: the miracles wrought upon the grave of a young Appellant deacon, François de Pâris. The Jesuits could defeat men but not God. If miracles were performed at the grave of dead Appellants through the mediation of the holy spirit of the sacred interred, no argument was needed to convince that they were the elect. Miracles had been somewhat in their line before as testifies the cure, otherwise inexplicable, wrought in May, 1656, upon little Marguerite Périer, niece of the famous Pascal. A fragment of the crown of Christ, preserved at the celebrated Cistercian Abbey, Port Royal, cured her of a lacrymal fistula which had resisted all known treatment. The Jesuits were much mortified at this miracle, which, as it was officially recognized, they could not deny. But it was not until after 1730 that the occurrence of miracles menaced the Jesuits' existence as the controlling power within the Church. For nearly twenty years the grave of the sacred Deacon de Pâris was the Mecca of the lame, the halt, and the blind. Thousands visited it daily. The State and the Church both tried to suppress the enthusiasm of the throngs that visited the grave each day.

Fig. 2.—Dom Alphonse de Palacios; ill.

Fig. 3.—Dom Alphonse de Palacios, recovered.

Many of them were thrown into prison, the place was walled up, Acceptants thundered against it, but all to no purpose.

The records of some of the cures that were wrought at this grave are contained in three large volumes entitled "La Vérite des Miracles Opérés a l'intercession de M. de Pâris et Autre Appelans démontrée contre M. l'Archevêque de Sens" (Languet), published in Paris 1737-1741. Some of the more striking illustrations contained in these volumes are here reproduced.

The author of this remarkable work, Carre de Mongeron, was born in Paris in 1686. He was an only child, and, judging from his own statement, his young life was very licentious. In reality he was a petted and indulged youth. He went through the customary phases of puberty, including the religious phase, when he convinced himself that he was a pillar of atheistic strength. A fright, induced by the running away of a pair of horses which he was using to aid him in abducting a girl, led him to go into a monastery that he might there atone for his sins, but as soon as the effects of this jar to his courage and to his vanity wore off he found that he was still a bad man. He returned to Paris and there continued to live the life of a libertine, meanwhile trying to win his father to his irreligious views.

In 1731, viz., in his forty-fifth year, he first heard of the miracles performed at the tomb of M. L'Abbé de Pâris. At first he attempted to ignore them, his attitude toward such things being wholly sceptical, but it finally occurred to him that if miracles were worked by the dead body of a Roman Catholic there must be something in that faith which he did not appreciate. He decided to put by his convictions of scepticalness and to visit the tomb and see for himself. Overwhelmed with religious ardor, chastened by the thought of the possibility of

Christ's miracles and the result of them, he experienced an inward illumination while kneeling at the tomb of the sacred deacon which gave him at the same time a benign humility and a majestic exaltation. Like the poet, he thought:

"Could I find a place to be alone with Heaven
I would speak out: 'Heaven is my need;
Every woodland tree is flashing like the dogwood,
Flashing like the white beam, swaying like the reed."

He must tell someone of this wonderful transformation that has gone on within him, and he seeks his religious instructor, who tells him that such sudden illumination must be a miracle, which M. de Mongeron is only too glad to believe. From this time henceforth he devotes himself to a study of the miracles that had been and were being performed at this tomb and at the tombs of other sacred Appellants and to defending the verity of them against the Archbishop of Sens, who made it his business to attempt to ridicule and deny them.

De Mongeron's work is a monument to his piety, an earnest of his faith, and a permanent testimonial to his industry. Apparently he did not believe that God would hedge in the way to one to whom light was given. For us it has a peculiar interest, insomuch as it contains the most graphic accounts of major hysteria that have ever been depicted by the hand of a layman. The illustrations that accompany them are no less remarkable than the text, and they compare favorably with the illustrations from the Salpêtrière that set forth the manifestations of this majestic psychosis. Taken all together, they depict practically every form of physical incapacity and disorder which are now called the stigmata of the disease.

The frontispiece of Volume I is a picture of François de Pâris kneeling in his room before an image of Christ. The facial expression and the attitude of his body indicate an abandonment to the will of the Lord and a willingness to accept any message which may come from Him. This celebrated penitent, son and brother of counsellors of Parliament, had carried the cross of the Sufferer from his tenderest youth, and even in infancy had given indications of singular piety, with a taste for mortification of the flesh which has rarely been surpassed. All these virtues, says M. de Mongeron, were augmented during the course of his life. Prayers, study, and retreat were the deliciousness of his soul, and to the indulgence of them he gave himself wholly. Although he is said to have loved his parents, it became him better to live in the mansion of his Saviour, and, like St. Francis of Assisi, for the accomplishment of this he distributed to the poor all his worldly possessions and devoted himself to the Lord. To this state of humiliation he added penance and austerity, prostrating himself at the foot of the cross, and he despised not the chastening of the Almighty!

He mutilated his body by instruments of penitence in order to obtain the clemency of God, and, that light from Him might penetrate his soul. According to our author, his soul soon became flooded with light from above and treasures of the Almighty expanded within him in profusion. The heavens opened and there descended upon him a wealth of marvels which still last. Light was given to him that was in misery, and life unto the bitter in soul. Death, which has obliterated the recollection of most of the great people of his century, only made him celebrated throughout the entire world—this illustrious penitent, obscure and unknown during life. Scarcely had his soul separated from his body than a great number of persons were inspired to bespeak his intercession with the Lord in order that their infirmities might be overcome. His illustrious tomb became the sanctuary of most striking miracles, the great and the rich vied with the poor and those of no distinction save profound humiliation to lay themselves upon it in order that they might get miraculous aid. Theists and atheists, astonished by the new light which presented itself to their souls, prostrated themselves humbly in the dust and made public the abjuration of their incurability.

Fig. 4.—La Demoiselle Thibaut; ill.

Fig. 5.—La Demoiselle Thibaut; recovered.

The second illustration in Volume I represents the tomb of the sacred Deacon (see Fig. 1). It bears the legend from Isaiah, "Say to them that

are of a fearful heart, Be strong, fear not; behold your God will come with vengeance, even God with a recompense. He will come and save you. Then the eyes of the blind shall be opened, and the ears of the deaf shall be unstopped."

The next illustration (Fig. 2) represents Dom

Fig. 6.—Marie Anne Couronneau ill.

Alphonse de Palacios, a young Spanish grandee, who, suffering from an inflammation of the right retina to such an extent that he could not tolerate the slightest light, was taken, on the 30th of June, 1731, to M. Gendron, a celebrated surgeon of Auteuil, who pronounced the disease incurable or, at least, one that could be benefited only by very protracted treatment. This young man's history is interesting: Six years before, *i.e.* in 1725, he had an inflammatory condition of the left eye which destroyed its function. He lived in constant fear that something might happen to the other eye, and that he would become blind. Despite his precautions he received a blow on the right eye and he became blind for eight days. This terrorized him profoundly, although the right eye recovered. But, says our author, "The left eye having been entirely destroyed, and as the optic nerve which goes to this eye is joined to the optic nerve which goes to the right eye, it gradually communicated its destructive process to it. Dom Alphonse, reduced to a state of most profound despair, particularly after the unsatisfactory consultation with his physicians, begged to be allowed to go to the tomb of the Diacre de Pâris, but many obstacles were put in his way, particularly by the Church. Nevertheless, he finally accomplished his purpose and made a nine-day devotion at the tomb at St. Menard, but it availed him not. His eye got worse. Then it occurred to him that if he bound up his eye with a part of the shirt in which the sacred penitent had died he would get well. Almost immediately after the application he got relief. Then he bound it up a second time, and when he awakened from the sleep which came over him he appreciated that he was cured. He went at once to the tomb, and there he gave himself up to overwhelming feelings of gratitude and to transports of ecstasy and then his recovery was complete (Fig. 3). Two days later, like a considerate patient, he went to see M. Gendron so that he might bear witness to his recovery. M. Gendron, who was in his garden, seeing him from afar walking without anyone to guide him, his eyes without bandage and wide open, apparently reveling in the rays of the sun, was so astonished that he

Fig. 7.—Marie Anne Couronneau; recovered.

scarcely gave credence to his own vision, but he ran to meet him crying, "What have you done, Monsieur, your eye seems to be in good shape?" Dom Alphonse told him the story and related his experience. M. Gendron examined the eye with the most exact attention and declared that the interior was as perfect as the exterior, and that he was entirely cured. He also modestly added that M. de Paris, dead, had done in a night what he or the most talented surgeon of the world could not do in three months, all of which shows that M. Gendron not only had the humility that is characteristic of his cult, but that he was a sly old fox as well, for at the previous interview he had pronounced the disorder hopeless. He also added that the cure was a miracle, no doubt about that, from which the inference is legitimate that M. Gendron was almost up to miracles himself.

This is really a most interesting case; an impressionable boy had had his left eye put forever out of commission, then he worried constantly lest he should lose the other. He got a slight blow on the other and total transitory amblyopia was the result. This passed away and then gradually there developed what was probably a concentric limitation of the visual field until the sight became practically obliterated, and with this was associated photophobia and other manifestations of hysterical blindness. The illustrations depict the bandaged youth led by an able-bodied young man to M. Gendron, who is being implored by both of them and by another to do something for his relief. The second illustration depicts Dom Alphonse entirely restored at the tomb of Diacre de Pâris with outstretched hands and uplifted head, gazing into the heavens, where the sun is shining brilliantly. His companions, who had led him to the surgeon, knelt behind him and joined with him in giving expression to their gratitude for this miraculous cure.

The Archbishop of Sens made a remarkably acute observation concerning this case: "Never," said he, "was a miracle so ridiculously imagined. If God wished to make a miracle, why would He cure one eye and not the other?" The writer of the book, however, says we have no right to inquire into the motives that prompt the Lord to make such discrimination. Upward of a hundred pages of closely printed matter are taken up with a description of the case, demonstration of the cure, testimonials of innumerable people who knew the boy before and after, and all the other paraphernalia that tend to lend verity.

The second cure was even more striking than the first. Miss Thibaut, 05 years old, had been afflicted since her sixtieth year with a universal dropsy which reduced her to such a state of feebleness that she was unable to move. "Her legs were as large as the body of a child, her feet round as her head, the left side in a state of complete paralysis and contracture, the fingers of the left hand ankylosed and covered with ulcers" (Fig. 4). The patient, in this state, was brought to and placed upon the tomb of M. de Pâris on the 19th of June, 1731, and wrapped in a sheet which it was thought would be her shroud. On the tomb itself were placed her slippers, of the most approved Cinderella pattern, and with exaggerated Louis XV heels! She was cured almost immediately. The dropsy melted from her swollen members, in full view of the spectators, like the mist before the morning sun. She got up and, sitting on the side of the tomb, joined her hands in prayer, thus demonstrating that the left hand, which had been paralyzed, and the fingers, which had been covered with ulcers, were cured. Her servants put the exquisite objects of art called slippers upon her feet, while she and the others about her gave vent to their astonishment and wonderment, each in his own way (Fig. 5).

Fig. 8.—Marguerite François du Chêne; ill.

Hysterical edema, paralysis, and contracture are common stigmata of major hysteria, and Mlle. Thibaut's case presents no difficulties of interpretation, particularly when we learn that her illness began with a profound "apoplexy," from which she recovered only to develop vomiting, swelling of the abdomen and of other portions of the body, and finally new attacks of "apoplexy," followed by extraordinary trembling in all the extremities, and later rigidity of the left upper extremity. The attacks of apoplexy were the ordinary syncopal manifestations of major hysteria, while the peculiar deformity of the fingers of the paralyzed hand occurs only in hysteria, not in organic hemiplegia.

The third miracle was that of Marie Anne Couronneau, an old women of 68 years, completely paralyzed on the left side. She went to St. Menard on the 13th day of June, 1731. She could walk only on two crutches, and she had a harness as well suspended from her neck. At each step she was obliged to support herself not only on the crutches, but to throw herself backward, making most violent efforts in order to draw her left leg forward (Fig. 6). Two surgeons decided that the paralysis of her left leg was complete and absolutely incurable, but she was suddenly and perfectly cured on the day she went to the tomb. The second picture (Fig. 7) shows her mounting the stairs with an alacrity that would befit a maiden of fifteen, the crutches waving aloof—one in either hand—the harness falling useless at her side, and a sort of a battle-cry-of-freedom expression upon her face.

The fourth case was that of Marguerite François du Chêne, who for three years had most frightful hematemesis, caused by the rupture of several blood-vessels in her stomach. For five years she had been consumed by a continuous fever and tormented by a pain in the side, which caused constant insomnia. To add to her misery her entire left side was paralyzed and her entire body was pervaded with the dropsy (Fig. 8). Several attacks of apoplexy and of lethargy had reduced her to such a state that she was considered to be *in extremis*.

Fig. 9.—Marguerite François du Chêne; recovered.

Within three days she was entirely cured at the tomb of the sainted Deacon. Her figure so far resumed its serpentine form that she was obliged to fold her mantle around her to give it anything approximating a fit (Fig. 9).

This is one of the most striking of the cures, hysterical hematemesis, paralysis, convulsions, and edema being the most common stigmata of major hysteria. The detailed description which M. de Mongeron gives of the various symptoms and the way in which they displayed themselves at various

Fig. 10.—Philippe Sergent; ill.

times reminds one of a typical case from the Salpêtrière. We can readily imagine the stage of desperation she reached when physician after physician failed to give her relief. The description of the way in which cure came to her is no less graphic than that which depicts her symptoms, while the documentary attestations of her cure would put any modern Thomas to shame.

The fifth miracle is one of the most brilliant of them all. Philippe Sergent, whose left side was paralyzed, the knee being firmly ankylosed and the muscles of the lower extremities atrophied (Fig. 10), was instantly and completely cured on being conducted to the tomb on the 10th of July. He flung down his crutch and cane, mounted the tomb, and sang lustily a *Te Deum* (Fig. 11).

The sufferings of M. Sergent were not to be compared with those of Pierre Gautier de Pezenas, the victim of the sixth demonstration, which was moreover a double miracle, as both of his eyes were cured. Since his early youth the pupil of his left eye had been entirely covered with a scar resulting from smallpox. An injury to the right eye later in life had put that out of commission, so that he was totally blind. Convinced that he had nothing to hope from the masters of medical science, he had recourse to the intercession of M. de Pâris. He was cured in two sessions, April 22, 1733 (Figs. 12 and 13).

The seventh miracle is one of the most instructive, for it is an example of ulceration of the skin, more particularly of the nipple, a clinical sign of malignant tumor of the breast, which is very uncommon in hysteria. Demoiselle Coirin, an attractive young woman, if we may judge from the portrait which purports to be of her, had two falls from a horse in 1716; the second time she fell with full force on a heap of stones, striking the left side of her abdomen. Three months later her left breast began to swell, and all the successive symptoms of cancer declared themselves, the inflammation finally surrounding the nipple, which fell off. Two years later paralysis of the whole left side declared itself, and in 1720 surgeons wished to operate, but her mother objected, convinced that her daughter was doomed

Fig. 11.—Philippe Sergent; recovered.

(Fig. 14). She remained in this state until 1731, fifteen years, and then, after touching the shirt of François de Pâris and applying some earth from his tomb to her breast, she made a complete recovery in the night from the 12th to the 13th of August. The nipple even grew again, although it always remained smaller than the right one. She arose on the morning of her deliverance and made her toilet. Her servant brought her breakfast but wouldn't leave it because, she maintained, her mistress was ill and in the adjoining room (Fig. 15). She was convinced only on seeing the empty bed. No detail is too trifling and no evidence too puerile for M. Mongeron to pass it by.

The sequence of events in this case would seem to have been hysterical attacks of syncope, blue edema of the breast, causing gangrene of the nipple, secondary infection of the wound, hemiplegia, and inactivity atrophy, all of hysterical origin. Hysterical gangrene is very rare, but a number of authentic cases are on record.

The last miracle of Volume I. is the most dramatic. Miss Hardouin, completely paraplegic since 1725, and hemiplegic since 1730, and having lost entirely the faculty of speech for many days, was carried to the tomb on the 2d of August, 1731 (Figs. 16 and 17). She fainted in the armchair in which she was being carried to a carriage, so they had to forego that means of transportation and carry her. On being put upon the tomb on the 3d of August, all her members paralyzed, she was seized with a typical hysterical convulsion and almost immediately recovered her speech and the use of her extremities.

The sudden recovery of function after a hysterical crisis, such as a convulsion, is not at all uncommon. One thing that strikes even the casual reader is the duration of many of the symptoms. In the case just related the paraplegia had existed

six years. It had set in with violent symptoms and "attacks of apoplexy" when she was 20 years old. These attacks, which were in reality hysterical crises, *i.e.* syncopal and convulsive, were of frequent occurrence during the next six years until her deliverance.

The next miracle is one that does not lend itself so readily to interpretation. Marie Carteri had been reduced by two lacrymal fistulæ to such a state of weakness, insomnia, and pain that life was a burden. Finally caries of the bone developed and the left side of the face became enormously swollen (Fig. 18). She was cured on the fourth day of September at the tomb of the sacred deacon. All the pain disappeared. The next morning she noted on removing the bandages that the size of the fistulæ was much less and that the only reminder of the previous eye trouble was slight redness. At the end of eight days all trace of it and of the fistulæ had disappeared and she worked in the fields with a strength that she before had not known (Fig. 19). Five representations of her are given, two before and three after the miracle. Whether or not occlusion of the lacrymal ducts is of hysterical origin I do not know. That occlusion of these ducts may be overcome without supernatural intervention or without invoking aid of any kind is known.

In bringing Volume I. to a close the author gives a long disquisition on miracles and attempts to sweep aside the objections that have been made to the verity of those related. Miracles, he says, are the voice of God. It is by miracles that God communicates with man and makes His presence visible. It is by miracles principally that Christ proved His divinity. It is by miracles that He has promised to preserve and sustain until the end of time the sacred trust of faith, and, finally, it is by miracles in times of doubt and trouble in the Church that God has made known in a most striking manner what the real truth is. All of which should be construed to mean that God was on the side of the Appellants, in the opinion of M. de Mongeron; but apparently M. de Mongeron was in error.

It was evident that the cause of the Jansenists was not being advanced by the so-called miraculous occurrences. Despite the apparently overwhelming interest in the tomb at St. Medard the bulk of the population, or at least that portion of it that constitute the *vox populi*, did not take the miracles very seriously. Whether or not all that denied the verity of them were Acceptants cannot be said, but there were many who by virtue of their positions had much to do with shaping public opinion who made fun of the whole business. Meanwhile miracles began to be effected at the graves of other sainted Appellants; and gradually a change came over the entire subject.

Volume II. contains a long, fervent prayer, a dissertation on the authority of miracles, and a detailed account of four miraculous cures. The case of Anne Augier is the most interesting, for it shows how severe hysterical lesions may become and how quickly all indications of such lesions may disappear.

The miracle was wrought at the tomb of M. Rousse, priest and canon of Avenai in the Diocese of Reims. Anne had been paralyzed for more than twenty years, consumed by a cancer of the breast for seven years, infected for two years through a fistula which opened from the axilla, and tormented for a long time by an infinite number of other complaints. The way in which the paralysis developed is typical of hysteria. "This pious girl, then 25 years old, being in the parish church of Mareüil, absorbed in the divine service that was being celebrated, was suddenly stricken with paralysis of both legs and fell to the floor as if dead. Never from that moment did she have any use of them." When surgeons examined her they found entire loss of sensibility in the lower extremities as well. This discovery created a sensation among her friends and acquaintances and she was often demonstrated as a human pin cushion. At the end of eight months her legs had wasted so much that they were only skin and bones. In addition she suffered from crises which deprived her of consciousness for three or four days, during which time she would take neither food nor drink. Anne had been in this state, and worse, for fifteen years, and her appearance and general condition were so repulsive that they beggared description, but this did not deter a

Fig. 12.—Pierre Gautier de Pezenas; ill.

Fig. 13.—Pierre Gautier de Pezenas, recovered.

chevalier d'industrie, who passed her home, to covet possession of her. Despite her resistance, which was so great that she got cancer of the breast from one of the blows that he rained upon her, she became pregnant. The misery and agony of several years we pass over. She made all sorts of efforts to get

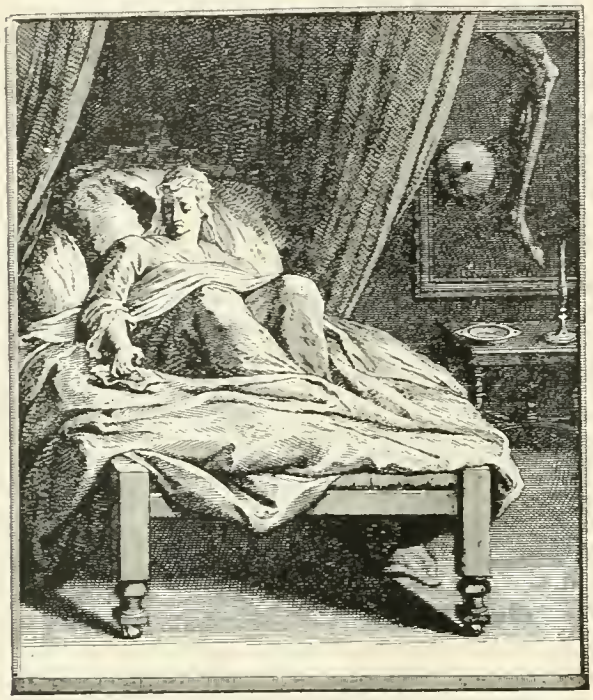

Fig. 14.—La Demoiselle Coirin, ill.

Fig 15.—La Demoiselle Coirin; recovered.

healed, but without avail. Finally she was placed in a basket, laid on an ass' back, and, supported by two lusty youths, she was brought to the tomb of M. Rousse. The picture she presented was most striking: Visage pale, livid, and cadaverous, eyes half open from weakness and defection, her head hanging limply and without strength to hold it; the body bent in a semicircle; the clicking of her bones as they struck one another was audible to passers by, and she made a terrorizing impression on everyone, many of whom asked "Where do you take this dead girl?" The illustrations depict her being brought thither and kneeling on the tomb of M. Rousse behind a priest who is saying mass. At the moment of the offertory her shriveled legs are released and she is cured. In one corner her visit to the Abbess of Avenay, who was a doubter, is depicted, and in another her restoration to full strength and health is testified to by her work; threshing grain.

Her cure caused a great furor. Gentlemen, peasants, ecclesiastics, laymen, judiciary, all came, save the Abbess of Avenay. She said it was against the law, but she had to admit the cure, nevertheless.

She was discomfited because Anne would not say she had prayed to a saint, not to an Appellant, but Anne would have none of it. She stayed eight days after her restoration, then walked home, a two-day journey. There she received an ovation that must have been very gratifying if her hysterical disposition had not been cured as well. Verily, her strength was the strength of stones, and her flesh was of brass!

The next cure related was of a much simpler state of affairs, and much more typically hysterical.

The Dame Stapart had been paralyzed for ten years in the left eye, which, from obstruction and atrophy of the optic nerve and other nerves, had lost its capacity for seeing, moving, and feeling. She also had constant headache, and finally lost the use of one arm and one leg (although it is not at all clear that she was hemiplegic). She was carried to Avenay on the 16th of May, 1828, to implore the intercession of M. Rousse. The ardor with which she prayed in the church before going to the tomb made them suspicious, and she was refused communion. The same day she went to the chapel in which M. Rousse was buried but admission was refused her. A small boy who was about to show her a secret way was pursued by his schoolmaster and given a trouncing. At this moment God cured the lady, all of which is graphically set forth in the illustrations.

The scene again shifts back to Paris, and now a new element is introduced into the *modus operandi* of the cures. Up until this time they had been wrought with great simplicity. The individual made a nine-day meditation, implored the intercession of the sainted deacon and kissed the earth in which he was buried. Sometimes they applied the earth to the apparent seat of their ailments. Then the cure occurred suddenly or gradually. In 1731, however, cure seemed to flow directly out of convulsions. Among the first of these cases was that of Miss Fourcoi. She had been cured once of dropsy by convulsions, but a deformity and contracture of her left foot had remained. Five surgeons had testified that the ankylosis was incurable, but she went into a convulsive state at the tomb of M. de Pâris and when she came out of it she was entirely cured.

Convulsions, especially what may be called the epidemic variety, have usually been attributed to demoniacal possession. Such attribution, and the attempts made to overcome it, constitute the foulest blot on the pages that record the progress of man in the era of modern civilization. In 1731 the Appellants interpreted convulsions as the intervention of the Divine Spirit, and from this time until the 27th of January, 1732, when an ordinance of the king closed the cemetery of Saint Medard not only to visitors, but for purposes of interment, the con-

vulsionists had the center of the stage. That these convulsions are the most typical of the epileptoid and contorsionist periods of major hysteria one may fully convince himself by examining the writings of M. de Mongeron and comparing them with the writings of Charcot, Richer, Gilles de la Tourette, *et al.*

A typical case of hysterical deafness is that of Catherine Bigot, who, it is said, had always been deaf and mute. Her deafness was so complete that she could not hear the slightest noise when a pistol was shot beside her ear, "evident proof that the tympanum and the nerves necessary to the hearing of sound had never been formed in her head." When she was placed on the tomb of M. de Pâris she was seized with movements of extreme violence. On the fifth day she became unconscious. After the convulsions and during the time of unconsciousness "God formed an organ of hearing in a perfect way." As soon as she recovered from this unconsciousness she understood perfectly and repeated everything that was said to her. The instant she was placed upon the tomb her face became pale, as if dead, she swooned, and a moment later she was seized with movements of such violence that she could scarcely be restrained. She showed by her appearance and her gestures that she was suffering most violent pains in the head, ears, and chest. Her head turned from right to left with such prodigious rapidity that one could no longer see her features, and the color of her mouth seemed to irradiate her entire face. Her companions, afraid, took her away from the tomb, but the deaf mute soon made it known she wished to be put back. The character of the testimonials is above suspicion. A description of the convulsions that occurred is taken from a letter written by the Bishop of Senez, who was a man that M. de Mongeron held in high esteem. "The object that struck one most forcibly and which held the eyes and the mind in astonishment was the spectacle of convulsions and violent agitations which took possession of the patients the moment they were put upon the tomb, and which ceased the moment they were taken off, and which began anew when they were put upon the tomb again. These patients were nearly always accompanied and observed by a great number of physicians and surgeons of renown, who studied the phenomena with much attention and assiduity. "Naturally," says M. de Mongeron, "such carefully trained observers were always on guard against surprise, imposture, and imagination—a bone to the watch-dog of the infernal regions. They utilized the opportunity of their thousand experiences in order to discover the source and the origin of such extraordinary agitations. They consulted together on everything that passed before their eyes, they mutually communicated their views and their reflections; the result of it all was the conclusion that convulsions and the contortions were supernatural manifestations, the work of God, and mediated through the virtue of the tomb."

The contagiousness of the disorder made itself distinctly manifest only when the king closed St. Medard. The element of persecution then forced itself into the distorted minds of the convulsionists and its effect was the same as that of a spark in a powder magazine. M. de Mongeron says that when they began to persecute the convulsionists, attacks increased enormously, and persons on every side, many of whom had never been ill, became affected. Thus the Lord displayed His bounty and His prodigality. He opened the mouths of a multitude of infants and of simple and ignorant persons, and from them came beautiful discourses, and warnings concerning the future that had the import of prophesy. Not only did these young convulsionists pronounce their discourses with dignity, but their visages, their gestures, and their attitudes portrayed in a keen and striking manner the various sentiments embodied in the discourses. Often, indeed, it was noted that the convulsionists became the living portrait of the passion of Jesus Christ. They held their arms as if upon the cross in an immobile manner, while the representation (which is the name they give to attitudes of passion) and the entire attitude of the body took on the features of the crucifixion. The lively and tender pains supported

Fig. 16.—La Demoiselle Hardouin, ill.

Fig. 17.—La Demoiselle Hardouin; recovered.

with the most heroic patience and the most perfect resignation was characteristically depicted in the leaden visage, the dying eyes, and the agitating thrills of the body. After remaining in this state for a long time a deathlike pallor covered the entire visage, the lips became withered and bluish, the most necessary to be on guard lest they be used for immoral purposes, and particularly convulsionists of great simplicity and confidence should be safeguarded." He further points out that the devil is constantly roaming about looking for innocent and tender convulsionists to devour, and that the com-

Fig. 18.—Marie Carteri; ill.

Fig. 19.—Marie Carteri recovering and recovered.

light of the half-closed eyes seemed entirely to go out, and the head, no longer able to sustain itself, fell upon the chest. Once even the author saw the tongue so completely retracted into the throat that one could see no part of it in the mouth, which remained half open. The supernatural is more marked and more striking in the living pictures which pass before our eyes of the tortures that had often to be endured by the disciples of the prophet Elias; pictures which are scarcely less calculated to excite our piety than those that set forth the suffering of our Divine model.

The third volume is devoted largely to explanation and defense of the convulsionists and to an attempt at interpretation of the "Secours Violens." After the convulsionists had reached a certain stage of development, *i.e.* after their antics had become most bizarre, it dawned upon them and upon their sympathizers apparently that they were given strength, resistance, incapacity for injury and violence, that could be accounted for in no other way than on the supposition that it was a divine emanation. As M. de Mongeron puts it, "God puts prodigous strength into certain convulsionists so that even the tenderest fibers, and the most feeble and delicate persons are able to withstand the most violent blows." God does this in order to make evident His divine might and mercy. That which He gives them the French call *secour*, and which we must translate as aid or succor, and of this *secour* there are two kinds, the little and the big. The little *secour* consists of touches, pressure, trifling blows, all of which are administered on certain parts of the body. There can be no doubt that oftentimes they mediate lubricity, for the author says: "In regard to the 'aids' which are capable of exciting concupiscence, either in the convulsionists themselves or in those who give the 'aids,' it is mon way of devouring them is to deprive them of their virginity. Even in those days, as in the days of Job, Satan came from going to and fro in the earth, and from walking up and down in it!

Grand secours, or violent "aids," which consist of blows with a hammer or mallet, pieces of iron or wood, and blocks of stone, thrusts with swords and other sharpened instruments, nailing on the cross, etc., were apparently very much used, and the illustrations of the third volume depict many of those. For instance, the frontispiece illustrates a lady known as La Petite Aubigan giving her left leg, which has a curvature, evidently due to a spasm of the peroneal muscles, a whack with a mallet, which cured it. It bears the legend quoted from Deuteronomy, "I wound and I heal."

The second illustration is that of Madeline Durand, who had a cancer of the mouth. The first picture represents her with an enormous edema of the mouth, while the second one shows her clipping a part of it off with a scissors. Then she immediately became cured. On the opposite side of the page is M. Fournier, the surgeon who pronounced her disorder beyond his aid, sitting in his study marveling at the transformed picture which Madeline presents, for now she is represented as a most attractive little creature.

The third illustration depicts a series of "aids" given to Gabriel Moler, and a wonder Gabriel must have been. The first represents her on her knees and beside her a powerfully-built young man, who wields the big stick which he is apparently about to bring down upon her head, while a number of observers stand around in various attitudes of awe and consternation. The second represents her lying flat upon the floor while two men are placing a rock, about as large as her body, upon her head. The third represents her lying on her back, a gentle-

man on his knees above her thrusting a long sharpened instrument into her abdomen, while in the fourth she occupies the center of the stage and a number of ladies and gentlemen about her are pricking her body in various places with swords, a procedure which she seems to enjoy. It is not possible here to give in detail all the manifestations of hysteria which this remarkable creature gave until she finally became cured. The illustrations depict them quite as well as words.

"It is evident that it is by violence or *grand secour* that it is pleasing to God to stop the pains of the convulsionist, to restore their shrunken limbs, and to overcome and cure their maladies. It is also pleasing to Him that proof of these aids should make a strong impression in other persons. Therefore, the most violent aids produce not only the effect of stopping the suffering of the convulsionists, but they represent symbolically the light, the faith, the courage, the confidence, love, and desire of eternal salvation in the souls of others. I have already shown in my first proposition that God makes use visibly of these terrible aids to operate many of his most marvelous cures. There have been seen any number of emaciated and useless infants acquire a regular symmetry, badly constructed bones become straight, too short bones elongated, humpbacks disappear, enormous hips become small, legs and feet form even after the age of fifty years, and absolutely incurable maladies cured by means of *grand secour.*"

The emotional equivalents of these aids constitute an important feature of the occurrences.

The stage known as ecstasy, into which the convulsionists pass, especially those who receive the *grand secour*, corresponds with the ecstasy of hysterics and cataleptics of the present day. In these ecstasies, at least in those which are marked by the most dictinctive traits, the convulsionists are suddenly struck by the unanticipated aspect of some object the sight of which ordinarily fills them with joy. They eagerly fix their gaze and their hands on high. They jump toward the heaven, they appear to wish to fly there. To see them absorbed afterwards in profound contemplation one would say that they were admiring celestial beauty, their faces illumined by a sparkling and brilliant fire, and their eyes, which one cannot force them to close so long as the ecstasy lasts, remain always immobile, open, and fixed upon that which occupies them. They are in some way transfigured, they apear to be quite different; even those who are not in this state, those who normally have something low and repulsive about them, change so entirely that they are scarcely recognized. Their exaltation has nothing which does not edify, nothing which does not inspire piety, nothing which does not lead to God. This supernatural state represents vividly in the person in which it develops, so detached from everything that is only terrestrial and transitory, a soul which aspires only to supreme happiness, a state of bliss which one might say it is already enjoying. Frequently it is during this ecstasy that convulsionists make their most beautiful speeches and their principal productions, but they speak in varying languages when they discourse the secrets of hearts, and even sometimes make them a part of their "representations."

M. de Mongeron says: "In the strongest of their ecstasy many convulsionists make speeches in an unknown or varying language. I should add that they do not themselves understand the sense of it at the instant and while they are pronouncing it, and they do not recall them, except, perhaps, in a general way, after the speeches are finished. The only proof that we have that they understand what they utter is that often they express in the most vivid manner the sentiments contained in these speeches, not only by their gestures, but often by the attitude which their body takes and by the expression of their faces, upon which the different sentiments are expressed—traits and characters of the most striking kind. The greater part of these speeches are a prediction of the coming of the prophet Elias, the trials that they have made Christ as well as his disciples, the conversion of the Jews, and, finally, of the establishment of religion over all the earth. It has only been necessary to discover that these subjects in an unknown language were for the most part prophesies of great events; to conform the different expressions that have been seen upon the faces of convulsionists while they are making their discourses, and the gestures with which they have accompanied them, with similar impressions and parallel movements that have been made by them while they were pronouncing their discourses in French, in which they have announced events which have been confirmed by the declaration of many convulsionists to appreciate the depth and significance of their discourses. Moreover, many inspired ones improvise without presenting signs of ecstatic rapture. The explosion of a simple hysterical crisis suffices to throw them suddenly into a sort of intellectual exaltation, whose accompaniments force them to give vent to their ideas. In these moments the over-excitation of the nervous centers of the brain give them the capacity to externalize their discourse with a fluidity of expression, a wealth of figures and of imaginery which does not fail to produce a lively impression upon the populace who follow the convulsionists. In convulsion their soul is much more detached from their senses than in their natural state. It is a well-known fact that convulsionists have much more mind, penetration, and intelligence while in convulsions than in their ordinary state. One sees often extremely timid girls whose makeup is but ignorance, stupidity, and low birth who, as soon as they are in convulsion, speak, nevertheless, not only with great exactitude, but with fire, elegance, and grandeur, freed as they are from the corruption of man by original fire. One can recall a multitude of facts which prove incontestably that the ordinary effect of the convulsion is to give to the soul more light, activity, more facility to conceive things, even the most elevated. A young child not in convulsion was first so timid and so terrorized that one could not get a single word out of her, and she appeared to be almost an imbecile. However, as soon as she was in convulsion she responded to everything with so much alacrity and justice that one would have taken her for a person who had great natural talents and a most perfect education.

It has been abundantly shown by trustworthy historians that in many instances the discoveries of the convulsionists were neither chaste nor edifying. M. de Mongeron thinks these were either the result of an overheated imagination or the suggestion of the devil.

The deportment of some of these individuals known as *grand secours* is to be gathered from the descriptions which the author gives of others besides those here mentioned.

A convulsionist of the first order was holding a very beautiful discourse in an unknown language. At the same time she assumed a most remarkable attitude. The body was bent backward to form

an arch, supported on the head and the heels. In this position she said a mass from one end to the other with peculiar dignity, but in an unknown language. She then extended herself upon the ground on her back, occasionally agitated so profoundly that it was necessary that someone should hold her feet, to watch and to prevent all intimacy, and to hold down her clothes. The convulsionist recited a De Profundis in French, but before reciting it she asked that they put her head down and her feet up in the air. After having recited with great demonstration of piety this prayer she wanted them to help her throw a somersault in the air, and was so little embarrassed that she was keen to have them help her do it again. Finally she said, with great unction and gratitude, that what she had just done was a mystery to be interpreted symbolically and represented the topsy-turvy state of matters in the Church. A convulsionist named The Invincible chanted praises to God while making somersaults. Poncet saw a convulsionist who said her prayers while pulling out the tongue like one possessed, and upon whose face was displayed the most horrible contortions. He had seen another whose exaltation seemed to come from despair who was transported by the convulsion to tear her face with her nails and to throw herself out of the window. Nothing was more striking, according to Lataste, whose "theological letters" is a reliable source of information, than the manner with which convulsionists asked miracles of God; sometimes they prayed to God while clipping the hair, while eating soup, or while doing a thousand other banal things. Sometimes they prayed while choking themselves to the point of putting out the tongue, while hanging from a hook with a cord around the neck, while being beaten upon the back or upon the belly, while being pushed and pressed and balanced, sometimes while having their arms, legs, and breasts pulled, while twirling, their heads down, their legs in the air, while giving a thousand other signs of indecency to persons not only of their own sex but to men. Such conduct was not confined to the laity; religious people and ecclesiastics participated as well.

"At St. Medard," says Lataste, "one sees men pray for their health in shaking rudely their heads, in clapping their hands, in shaking wildly their legs, and tormenting themselves like real demons. I have seen there women who implore miraculous cure while running about like a mad person or one possessed. Others sit upon men's knees or extend themselves at full length upon the tomb of Pâris in a most indecent way, situations which often disconcert the modesty of spectators. Others are held up by the middle by men who let them fall or pirouette them from time to time. A preacher remained extended upon the ground in preaching most sublime sermons. From time to time he lifted his feet, which he placed upon another convulsionist. The consulting doctors," adds Lataste, have records that it is in that moment that the convulsionist makes beautiful discourses, touching prayers, edifying representations. At the same moment that they make all these things they are doing indecent somersaults in the air with very disgusting attitudes."

In 1845, *i.e.* soon after this work of Carre de Mongeron was completed, public interest in the convulsionists began to die out. Their antics and gyrations ceased to be a matter of wonder and their conduct became offensive, and, in some instances, intolerable. There is much evidence from reliable sources to show that many individuals utilized it as a means to lubricity through unnatural channels. After general interest in them had ceased, and more particularly after many of the most conspicuous Secouristes had been thrown into prison, the Church—meaning the Acceptants—frowned very severely upon anything in the shape of violent aid, and the epidemic was over.

Studied in the light of our present-day knowledge of the clinical manifestations of hysteria, there is very little in the records of the miracles wrought at the tombs of sacred Appellants or by "Secour" that transcends our understanding. The investigations of neurologists, and particularly those of France, have shown that the subjective and objective symptoms which the various individuals whose histories are related in such detail by M. de Mongeron, are those that constitute the signs and the symptoms of the "attack" of the disease. These signs have such definite characteristics and associations that they are rarely to be confounded with those of organic disease. Such characteristics and associations are to be found in every case related *in extenso* by de Mongeron. The "representations," the ecstatic states, the epileptoid state, the state of contortions and passionate attitudes, and the state of delirium, which are described in such detail in the volumes that we have been examining, are no less and no more typical and characteristic than those described in such monographs as that of Paul Richer on major hysteria.

After an examination of these volumes and of similar literature of previous centuries, one reads with amazement the statements of strayed theologians and semiphysicians, that functional nervous diseases are increasing rapidly at the present time. They cite in substantiation of such alleged increase the fact that psychasthenia was not to be found in any standard dictionary until 1901, and that neurasthenia came into being only a generation ago. If their opinion and judgment concerning existing conditions are no more reliable than those of the past, they need not be taken very seriously.

37 West Fifty-fourth Street.

RECURRENT AND ABDUCTOR PARALYSIS OF THE LARYNX.

INTRODUCTORY REMARKS ON ANATOMY AND PHYSIOLOGY; ETIOLOGY OF PARALYSES OF CENTRAL ORIGIN.*

By J. W. GLEITSMANN, M.D.,

NEW YORK.

The subject, selected by your Council for general discussion, is in my opinion the most interesting and at the same time the most difficult one in the whole domain of laryngology. It is interesting, because it leads the laryngologist at once beyond the sphere of his specialty, and it is difficult, as it deals with the most intricate questions of neurology, about which in many instances the investigators entertain conflicting opinions.

For a full understanding of the part assigned to me—the central causes of recurrent and abductor paralyses—a clear conception of the motor centers in the cortex and bulbus, of their predominant functions, their connecting strata is absolutely necessary. With the approval of your presiding officer I shall briefly analyze the anatomical features and add such physiological and pathological data, which have a direct bearing on our subject.

Anatomy.—The larynx has to perform two functions, diametrically opposite to each other, viz., phonation and respiration. The chief center for

*Read before the American Laryngological Association at the thirtieth annual Congress, Montreal, May, 1908.

phonation, adduction of the cords and a voluntary act is in the cortex: for respiration, abduction of the cords, and a vital process, in the bulbus. In addition there are subordinate centers in reverse order and of lesser dignity for phonation in the bulbus, for respiration in the cortex. The connecting

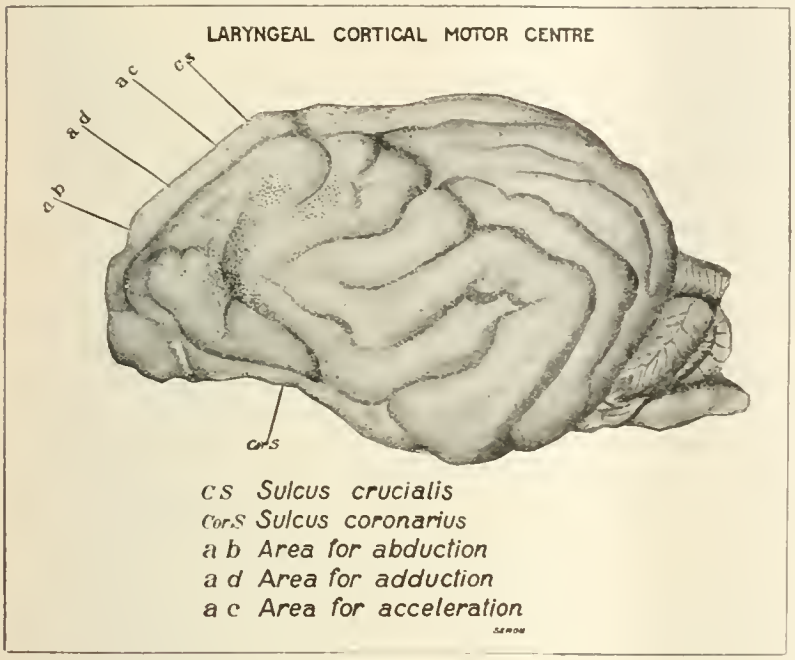

Fig. 1.

nerve fibers run from the cortical to the bulbar center and vice versa through the internal capsule.

The cortical motor center for phonation was discovered by H. Krause[1] to be located at the descending surface of the prefrontal convolution. The result of his investigations was confirmed by Semon[2] and Horsley,[3] who by extending their researches found additional motor areas in the cortex for acceleration and for deepening of the respiration. By ingenious experiments Risien Russel[4] succeeded in finding below the phonatory center a locality from which abduction of the cords can be elicited. The illustration of the different cortical motor centers is from Semon's treatise in Heymann's Handbook of Laryngology and needs no further comment.

The bulbar representation of the larynx is in the fourth ventricle, and we find in the alea cinerea two localities, irritation of which produces typical abduction of the cords, the respiratory act, further smaller areas for bilateral adduction, one for unilateral adduction, and one for the cadaveric position of the cords, all of which are graphically shown in the illustration, which is also taken from the same treatise by Semon.

The existence of the subordinate centers, mentioned above, has been proven by repeated experiments on animals, of which one only will be cited. Acephalic monsters, animals whose brain has been extirpated, are able to utter a cry, due to the subordinate phonatory center in the bulbus, but their respiratory movements are not materially influenced, confirming the bulbus to be the main center for respiration.

These elementary anatomical data, condensed within the narrowest possible compass, have almost universally been accepted; the first real discrepancy of opinions we meet is about the question of the root of the motor nerve of the larynx, which is not definitely decided at the present day.

After the careful experiments of Schech[5] the laryngeal motor nerve was for many years considered to have its source from the inner branch of the accessory willisii, till Onodi[6] and Grabower[7] [8] brought forth forcible arguments in favor of the pneumogastric, exceptions to which were taken by some authors. But a recognized authority, H. Oppenheim, says (1905) in his book[9]: there is at present no certainty in regard to the participation of the accessory nerve in the innervation of muscles supplied by the pneumogastric.

Another much debated issue relates to the nature of the recurrent nerve. While many investigators strongly believe it to be exclusively a motor nerve, others offer good reasons, based on animal experiments, to consider it a mixed nerve, carrying also centripetal fibers. But if the latter view should prove to be correct, we cannot yet draw any definite conclusions from it in regard to the human system, as even in animals a differentiation exists in the response in different species.

The last and a most important anatomical fact is the discovery by Risien Russel[10] of the existence of special nerve fibers for adduction and abduction, which run in separate bundles throughout the whole

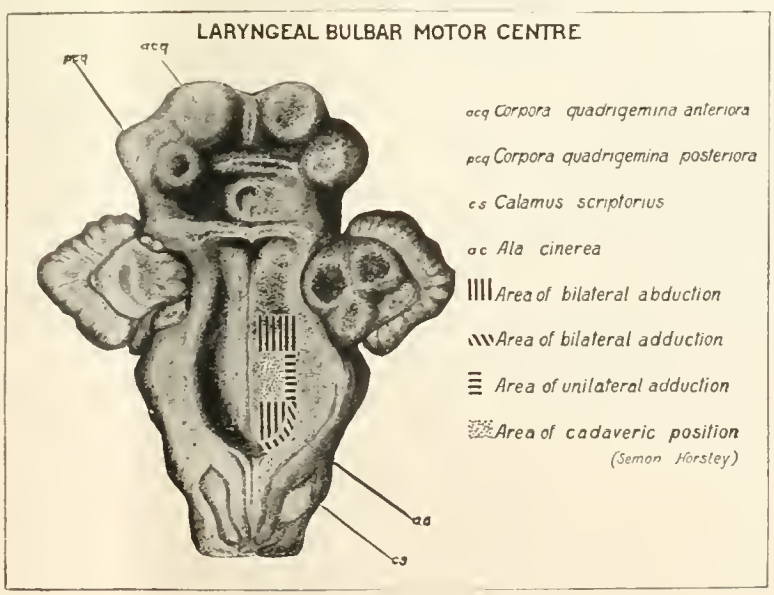

Fig. 2.

course of the recurrent, those for the abductors on the inner, those for the adductors on the outer side of the nerve trunk. They can be dissected to such an extent that one set of fibers responds to electrical irritation exclusively by adduction, the other

exclusively by abduction of the vocal cords. By his work the formerly vexed question was solved, how a supposedly homogeneous nerve could effect such directly antagonistic movements.

Physiology and Pathology.—The cortical motor centers of the larynx differ from other cortical motor centers in the essential point that irritation of either one is always followed by symmetrical bilateral adduction of the cords, phonetic movements, which also take place, when one cortical center has been destroyed by disease or experimentally removed. This physiological observation had enjoyed universal acceptance, till Masini[11] maintained to have found a locality in the cortex, from which movements of the opposite side of the larynx could be produced. Subsequent experiments by others did not verify his statements, but recently Katzenbach[12] obtained by an improved method similar movements of the corresponding as well as opposite side.

The influence of the bulbar center on respiration and on the position of the glottis has been carefully studied by Semon[13] in his endeavor to ascertain if the vocal cords play an active part during quiet respiration, and to determine the cause of the difference between the width of the glottis during life and its cadaveric position after death or after severance of the pneumogastric or recurrent. He found by numerous and carefully made measurements with graduated mirrors, that in over 80 per cent. of adults the glottis remains stationary during quiet respiration and is considerably wider than in the cadaveric position. Its average width in men during life is 13.5 mm.; after death 5 mm.; in women 11.5 and 4 mm. respectively. Without entering into a detailed statement of his experiments and arguments, he is led to the conclusion that the greater width of the glottis during life is the result of a permanent activity of the abductor muscles, due to tonic, rhythmic impulses, received by their ganglia centers in the medulla from the neighboring respiratory center through centripetal fibers of the pneumogastric. He calls this physiological action of the abductor muscles the abductor tonus.

I cannot conclude my introductory remarks without calling your attention, and emphasizing the far-reaching importance of the proclivity of the abductor muscles to paralysis in progressive organic lesions.

While Rosenbach[14] on the strength of a case of cancer of the esophagus, accompanied in the beginning by paralysis of both abductors, later of both recurrent nerves, was the first to proclaim that the abductors are the first to suffer from compression of the recurrent, the credit belongs to Semon, to have proven that this important pathological condition is seen not only in local lesions, affecting the nerve along its course, but also in central, cerebral as well as spinal diseases of an organic character.

His first publication[15] appeared (1881) in an American journal of high standard, devoted to our specialty, but meeting with a premature death on account of the indifference of the laryngologists at that time, viz., the *Archives of Laryngology*. His statements met with a host of opposition and elicited controversies, sometimes of an acrimonious character and not always of the highest scientific standard. By his incessant labors, extending from 1881 to 1897, and by publications too numerous to quote, he had finally the satisfaction to have the so-called Semon Law universally acknowledged. It is beyond the scope of these remarks to enumerate the arguments he put forth to support his assertion, the truth of which all of us had undoubtedly frequent occasion to confirm.

The ultimate true cause of the proclivity of the abductors to paralysis has not been definitely determined yet. Grabower[16] sought not long ago to solve the problem by anatomical, instead of experimental researches, previously employed. He examined the innervation of the laryngeal muscles in regard to the configuration of their last nerve terminals, and counted the number of nerve fibers in each muscle. He found that the branch for the abductor does not divide into smaller ones, radiating in different directions, as in the adductors, and that the number of nerve fibers is less in the former than in the latter. The posticus f.i. has in the average 281 terminal fibers, the external and internal thyroarytenoid 485, the transversus 279, and the sum of all the adductor fibers is 680.

I have so far not been able to find reports confirming Grabower's investigation, but without feeling competent to pass on its merits, I am free to say that I would consider it a most acceptable solution of the question at issue. It would explain also in a natural way by an anatomical anomaly the first and only exception to Semon's statement during the long period of twenty-five years, observed by Saundby[17] in a case of esophageal cancer, the analysis of which I have to leave to the gentleman treating of peripheral causes.

Semon[18] admits frankly the facts in Saundby's case, but is not able to offer an explanation. On the occasion of his visit to the United States in 1904 I called his attention to Grabower's publication, but the same seemed not to appeal to him. He adheres to his belief in the biological differences in the structure of the laryngeal muscles and nerves, which is evident from experimentation in young and in old animals as well as in different species, and still more from the differential influence of superficial and deep narcosis on the recurrent, which our late member, Hooper,[19] was the first to investigate.

Etiology.—Recurrent and abductor paralyses of central origin are caused by organic affections, while cortical paralysis of a functional character occurs in hysteria, psychical emotions, shock, etc., with concomitant paralysis of the adductors, but not of the recurrent proper.

According to the location and the nature of the diseases we can distinguish paralyses due (1) to cortical lesions, (2) to disturbances of the nerve tract in the internal capsule between cortex and bulbus, (3) to bulbar processes, (4) to syphilis, (5) to tumors, exostoses at the cranial base, pressing upon the pneumogastric, (6) to spinal diseases, (7) final paralyses of the Avellis and Hughling Jackson type.

Beginning with paralyses due to cortical lesions, we enter at once a much contested field.

A number of cases have been published, in which their authors claim that an unilateral cortical affection had caused an unilateral organic paralysis. Whilst in many instances the history, the laryngeal examination, the post-mortem reports, are incomplete or missing, and therefore the proof of the contention made is lacking, there are cases in which the symptoms in the living corresponded with the lesion found after death. Garel,[20] for instance, saw a woman, seventy-three years of age, with hemiplegia of the right side and complete paralysis of the left vocal cord. The autopsy showed softening of the left hemisphere and two similar foci in the right one at the base of the third frontal convolution, to the latter of which Garel attributed the laryngeal paralysis. A microscopical examination of the bul-

bus had not been made, and consequently its integrity cannot be vouchsafed.

On the other hand, cases which appeared during life to belong to this class show bulbar disease after death. Our member, Delavan, is quoted amongst the above authors, when relating the history of his patient seen during life,[21] but in his comment on the result of autopsy he says[22] that his case was a direct proof that paralysis of the larynx of central origin is generally due to bulbar lesion and not to disease of the cortex.

In my opinion there are at the present time extremely few believers in an unilateral laryngeal paralysis brought about by unilateral cerebral disease; otherwise the number of cases would certainly be much larger than we find in the literature, as unilateral cortical lesions, for instance hemorrhage, softening, etc., are not infrequent. Semon in his article in Heymann's Handbook, 1898, could collect only twenty-five cases, in which such a coincidence was claimed by the authors. The strongest argument against the occurrence of these paralyses is the anatomical fact that laryngeal movements can be excited by each of the two cortical centers, independent of the loss or destruction of one of them, further that the experimental extirpation of the cerebral hemispheres, down to the fourth ventricle, does not interfere with the respiratory movements of the cords, the integral function of the abductor.

Affections involving both cortical centers, for instance hemorrhages, are as a rule not confined to this area alone, and are of such a serious character that the laryngeal condition is overshadowed by the grave general symptoms. But cases are reported in which the connection between the cortical and bulbar center through the internal capsule became obliterated by the morbid process with resulting aphasia.

Eisenlohr's[23] patient had general motor disturbances, was absolutely speechless, and the post mortem showed destruction of the posterior third of both thalami optici, partial degeneration of the posterior part of the internal capsule, and of the pyramidal tract of the medulla and spinal cord. Pathological changes of a similar nature were found after death and reported by Pitt.[24 25] in a case of chronic nephritis with two apoplectic attacks in quick succession, the second one being followed by loss of voice. In both cases bulbar and cortical lesions were absent, and the patients experienced no respiratory difficulties during life.

Similar laryngeal symptoms, associated with lingual and labial pareses are observed in pseudobulbar paralysis, due to disseminated cerebral lesions, in which disease of the medulla and respiratory troubles are absent, and the laryngeal muscles undergo no fatty degeneration.

The subsequent chapters can be considered more briefly, as they deal mostly with well-known data, and offer no field for widely dissenting views. Under bulbar paralyses I have included all cerebral diseases, irrespective of the primary seat being in the bulbus or in the hemisphere. Further the etiological features of recurrent and abductor paralysis will not be treated of separately, as both are liable to be caused by the same affection, and as the latter is in many instances only a precursor of the former. Prevalence of one or the other type in special diseases will be mentioned in its proper place.

Progressive bulbar paralysis, being due to a degeneration of the motor nuclei in the medulla, represents a genuine type of the bulbar origin of laryngeal paralysis. As a rule paralysis of other organs, tongue, lips, precedes the laryngeal symptoms, which appear sooner or later, dependent on how early the laryngeal nuclei are attacked. The laryngoscopic picture varies in different patients, according to the focus and the intensity of the process. Complete recurrent and unilateral as well as bilateral abductor paralysis has been observed, whilst some authors claim to have seen also adductor paralysis.

Another bulbar affection occupying the same or also adjacent areas is the apoplectic form of bulbar paralysis, caused by disease of the blood-vessels of this region, producing hemorrhages, thrombosis with subsequent softening, also embolism of the vertebral or basilar arteries. Many reported cases of cerebral hemorrhages and encephalomalacia with concomitant laryngeal disturbances are undoubtedly due to such lesions, which have been described already as early as 1879 by Eisenlohr.[26 27] If the patient survives the attack and its sequelæ, we can expect to find a recurrent paralysis, if all the motor fibers are destroyed, otherwise an abductor paralysis.

In the different forms of meningitis we observe anomalies of sensation, but seldom paralysis of the larynx. Our late member, Major,[28] saw a patient with bilateral abductor paralysis after cerebrospinal meningitis; tracheotomy was performed and the patient's condition remained stationary for seven years, when he died by an accident.

Cases of paralysis from multiple cerebrospinal sclerosis are rare, and the laryngeal symptoms depend on the extent of the disease. Loeri[29] reported several cases, one of which had recurrent paralysis, J. Solis-Cohen[30] (1886) a case of unilateral, later bilateral, abductor paralysis, shown to this Association seven years before. From the carefully made autopsy he concludes that the paralysis has been caused by an ascending sclerosis. Rethi[31] collected in a recent publication 42 cases of sclerosis from the literature and gave a full description of the subject in all its bearings.

Although infectious and toxic paralyses do not belong to the part assigned to me, I cannot refrain from mentioning syphilis of the brain as a cause of recurrent or abductor paralysis. M. Mackenzie[32] published already, 1873, one case, and Lefferts,[33] 1878, two cases of bilateral abductor paralysis due to syphilis, all three cured by specific treatment.

Tumors at the base of the brain are liable to produce paralysis by pressure on the pneumogastric. The symptoms are generally not confined to the larynx alone, as the extension of the growth is apt to implicate other nerve roots also. Nothnagel[34] communicated an exceedingly interesting case of an extended unilateral paralysis, involving the recurrent of the same side, which was due to pressure from a large abscess at the cranial base, found at the autopsy. Similar symptoms we must be prepared to meet in affections of the cranial bones, exostoses, fractures of the base of the skull, etc.

The importance and the deleterious influence of locomotor ataxia on the larynx is too well known to all of us, to need but brief remarks. General medicine is indebted to laryngology because in more than one instance the laryngologist detected abductor paralysis in an otherwise healthy person with a perfectly clear voice, and suspicion being aroused, the examination of the patient revealed locomotor ataxia. By far the most prevalent type is abductor paralysis, of which again the bilateral form is more frequent than in any other disease. Burger[35] collected in his excellent monograph 71 cases of paralysis in tabetics, covering the period from 1866 to 1891, 43 of which had abductor paralysis. Still more striking is Sendziak's[36] supplementary table of

53 cases of paralysis published between 1892 and 1898. Of these six only had recurrent; of the balance 22 unilateral and 25 bilateral abductor paralysis.

In the remaining spinal diseases we find only isolated cases of laryngeal paralysis, a few of which may be mentioned. Löri[37] observed a case of bilateral recurrent paralysis in amyotrophic lateral sclerosis, and one in acute spinal leptomeningitis, Schroetter[38] and Gavello[39] each a case of unilateral recurrent paralysis in syringomyelia, and Koschlakoff[40] a bilateral abductor paralysis in progressive muscular atrophy.

Although finding scant consideration in the textbooks, a series of unilateral laryngeal paralyses, associated with paralysis of other organs is of sufficient interest to be mentioned.

Avellis[41] was the first to draw attention to the occurrence of simultaneous unilateral paralysis of the larynx and soft palate—the genuine Avellis-syndrome. In another form the muscles of the neck are also paralyzed. If hemiplegia of the larynx, pharynx, and tongue exists, we have the Hughling-Jackson type. A typical case of the latter with abductor paralysis was demonstrated in the London laryngological society by Semon,[42] who in consideration of the general symptoms, believed it to be of central origin, due to a meningeal thickening at the base of the brain. Tapia,[43] who observed unilateral paralysis of the larynx and tongue, called it the fourth type, and finally Pohli[44] gave a complete description of the subject in the Italian Archives, 1906.

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A SUGGESTION AS TO THE DIETETIC TREATMENT IN DILATATION OF THE ESOPHAGUS.

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A FEW years ago I tried to improve the condition of a patient (W. B.), suffering from esophageal dilatation, where, as is well known, everything remains at first in the dilated esophagus and does not reach the stomach, by means of the introduction of a tube from the esophagus into the stomach. This

FIG. 1.—X-ray photograph of the thorax of Mrs. Sara K. after the ingestion of a glassful of milk with one ounce of subnitrate of bismuth. The dilated esophagus is distinctly visible as a dark shadow.

tube had several openings both in the esophageal and in the gastric end, to facilitate the passing of liquids from the esophagus into the stomach. Patient B. utilized this contrivance a few times, but later discarded it because he was able to press most of his food through into the stomach by means of thoracic compression.

A short time ago I had a patient with esophageal dilatation, where the usual mode of treatment (fluid and semi-fluid diet and compression of the thorax after deep inspiration) failed completely. Here the tube was used to great advantage. I will first describe the case and then sketch the method of treatment by means of the esophageal drainage tube.

March 21, 1908, Mrs. Sara K., about 40 years old, has been suffering with stomach trouble for the last six years. Her ailment started suddenly with fever, pain in bones and joints and muscles, and vomiting. This attack lasted two or three days, and has left her with chronic "stomach trouble."

Present condition. She cannot eat solid food without vomiting. She usually retains food one or two hours, and then vomits what she has eaten. It is undigested and often decomposed. She has a sour, foul taste in her mouth. Patient has never vomited any blood. She often vomits in the morning food she has taken the night previous. At night her food often comes up during sleep. Meat causes her to vomit.

She has made a practice of performing lavage before eating. At times she has slight pains over the stomach, at times cramps. Appetite is good, bowels are fairly regular. She coughs at night. Heavy foods (meats, etc.) are immediately rejected. She feels a fullness behind the sternum after taking liquid food. This feeling always disappears after vomiting. She always vomits from one to thirty minutes after taking semi-solid food and within two hours after liquid food.

The chest organs appear to be normal. The stomach is somewhat prolapsed; its greater curvature extends to three fingers' breadth below the navel. The right kidney is movable in the fourth degree. The urine contains no sugar and no albumin. Swallowing sound is absent. Examination with bougies showed that there is no resistance to be encountered through the esophagus and cardia. Bougie No. 53 passes easily into the stomach.

March 22.—A soft rubber tube is introduced into the esophagus to about fifteen inches from the teeth, and the expression method is applied, when 200 c.c. of food contents appear: reaction acid, no free HCl, and no ferments. The tube is then pushed further down to twenty-three inches from the teeth, and the expression method is again applied: 100 c.c. of chyme is obtained: free HCl is present in small quantity; rennet is present.

March 23.—Patient drinks 300 c.c. of black coffee and compresses her thorax repeatedly after deep inspiration. One hour later the esophagus is emptied (showing still 150 c.c. of coffee) and then washed out. Patient drinks a glassful of water. On percussion an area of dullness is found to the right of the upper part of the sternum. Five minutes later the tube is introduced into the esophagus (15 inches) and expression applied. There appear 200 c.c. of clear water mixed with some mucus. The dull area to the right of the sternum has disappeared. The tube is then pushed into the stomach (22 inches) and expression practised: 60 c.c. of a dark brown fluid are obtained smelling strongly of coffee and showing a positive reaction of free HCl.

March 23.—Patient drinks a glassful of milk to which 30 grams of subnitrate of bismuth have been added. Shortly thereafter an *x*-ray picture of the esophagus is taken (Fig. 1). The diagnosis of idiopathic dilatation of the esophagus without cardiac stenosis was made.

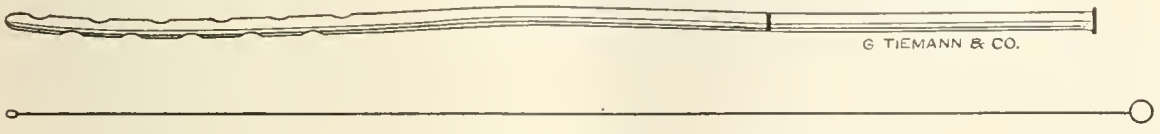

Fig. 2.—The esophageal drainage tube with stilette

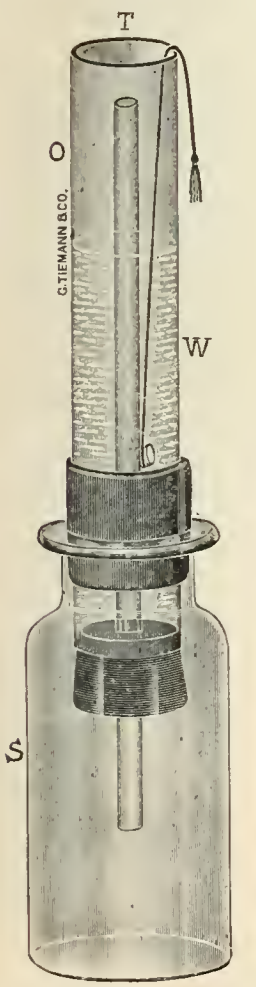

Fig. 3.—O, esophagus-cylinder; S stomach, lower bottle; T, tube inserted in the cylinder; W water.

The usual method of nourishing this patient having completely failed, an attempt was made to empty the esophagus into the stomach by means of the drainage tube, which proved very successful.

I will now describe the drainage tube as well as the principle on which it works.

If from the dilated esophagus fluids do not get into the stomach, the failure may be caused by one of two things: (1) lack of peristalsis of the esophageal muscles; (2) hermetic closure at the upper or lower part of the esophagus. The closure need not be—and usually is not—of an organic nature, and bougies or sounds do not find any difficulty in passing the entire canal. The walls of the esophagus may, however, lie in such lose apposition or may be folded in such a manner either at the beginning or at the cardiac end, that is absolutely air tight. This prevents fluid from escaping from the esophagus, just as from a pipette nothing can drop if we close the upper end with the thumb. To facilitate the drainage of the esophagus into the stomach, all hermetic closure of the esophagus must be overcome and a continuous canal between the two organs must be established.

The drainage tube is constructed in the following manner: a soft rubber tube 30 mm. in diameter and 21 inches in length is provided with a large number of apertures from the lowest part to seven inches above it. There are two marks at 17 and 21 inches from the end, and the entire tube is provided with a mandrin (Fig. 2).

The drainage tube with mandrin is introduced by patient himself immediately after taking fluid or semi-fluid food. The mandrin is then removed and the tube is moved up and down for about half to

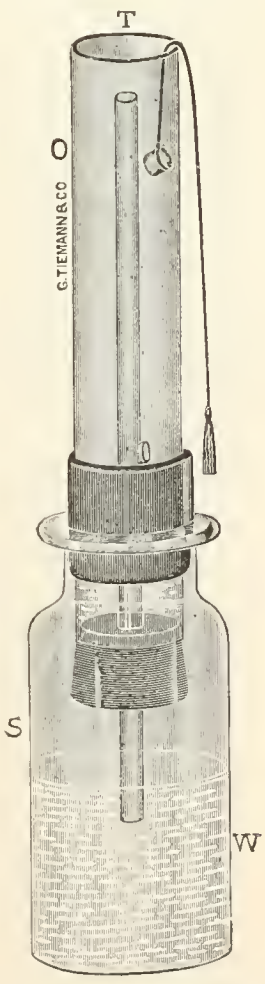

Fig. 4.—O, esophagus cylinder; S, stomach, lower bottle; T, glass tube inserted in the cylinder; W, water.

one minute between the marks at 17 and 21 inches, and is then withdrawn. Moving the tube to and fro hastens this process as it tends to eliminate the closure at the cardia.

The following apparatus represents the conditions of the dilated esophagus, stomach, and drainage tube, and illustrates the mode of its working. The lower bottle *S* represents the stomach, the upper receptacle *O* the enlarged esophagus, the stopper the closure at the cardiac end (the stopper fits air tight into the upper cylinder but not into the bottle *S*); the glass tube *T* represents the drainage tube. The glass tube has an opening and a cork (Fig. 3). If the opening is closed, the water which is poured into the upper cylinder remains there without getting into the lower vessel, just as liquids will remain in the esophagus without getting into the stomach. If the cork is removed from the glass tube, the fluid immediately flows into the lower bottle (Fig. 4). The drainage tube corresponds to the opened glass tube, and after its introduction into the stomach all fluids from the esophagus must enter the stomach.

That the drainage tube, which, by the way, resembles the Schmidt-Rimpler tube, really works as described, is proved by the following:

1. After drinking a glass of water or milk patient feels a pressure in the thorax; if the drainage tube is introduced and left for about half a minute, the feeling immediately disappears.

2. After taking about 250 c.c. of fluid, the entire amount may usually be recovered after introducing the usual stomach tube (to about fifteen inches from the teeth). If, however, after drinking the water, the drainage tube is introduced and left in the stomach for about one-half a minute, we can no longer obtain any fluid in the usual manner.

3. The patient drinks a glass of milk in which one ounce of subnitrate of bismuth has been suspended and is exposed to the *x*-ray; fluoroscope shows a shadow along the sternum (as in the photograph). Now the drainage tube is introduced and the fluoroscope shows that the shadow has disappeared.

All this seems to show that the drainage tube transmits esophageal contents promptly into the stomach. The drainage tube has been of practical benefit in the nutrition of this patient and may therefore be recommended for the treatment of similar cases.

INFLAMMATION OF THE CIRCUMFLEX NERVE.*

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Pathologically neuritis occurs as perineuritis, interstitial, or parenchymatous neuritis, according as the nerve-sheath or the connective tissue between the nerve-fibers or the axis-cylinder itself is attacked. Etiologically neuritis may be spontaneous or idiopathic; it may be toxic, as from arsenic; infectious, as in connection with tuberculosis; diathetic, as occurring in rheumatic or gouty constitutions, or it may be cachectic or traumatic. The cases of inflammation of the circumflex nerve that have occurred in my practice have been caused by prolonged exposure to draughts striking the shoulder or by blows hitting across the deltoid muscle, or by overwork of such kind as sawing wood or using the sledge-hammer; also by fracture of the surgical neck of the humerus and by dislocation of the shoulder-joint. Judging from my own experience neuritis frequently follows the latter accident, and as I have seen it occur with different methods of reduction I cannot hold any particular method responsible for such a complication.

In case of dislocation or fracture the symptoms of an eventual neuritis would obviously be overshadowed by those of the injury until about three and six weeks, respectively, later, when we may find deltoid paralysis present—which, in a fracture case might be taken for functional weakness from immobilization. In other cases the patient becomes annoyed with a rather continuous gnawing pain in the shoulder region. Perverted sensations, as feelings of tingling, or burning, and numbness, may be experienced. Tenderness is felt over the deltoid and teres-minor muscles; exquisitely, if pressure be applied over the nerve lines. Slight fever may be present or not. Neither active nor passive motion of the shoulder-joint is sufficiently painful to make the patient shun work. If the character of the trouble is recognized at this early period and the arm is put at rest, rapid restitution may come. On the other hand, if the patient undertakes such work as would engage the arm in strong backward movements, the inflamed nerve is very liable to undergo degeneration resulting in deltoid paralysis. Anatomical arrangement may be responsible for the vulnerability of the circumflex nerve; at least it has something to do with the readiness with which the inflamed nerve undergoes degeneration. Recalling the anatomy of the nerve, let us consider that, as it is about to enter the "quadrilateral space," it curves directly backwards across the axillary border of the scapula, but little of the subscapularis intervening. Next it has the humerus externally, the hard triceps tendon internally, while below it is crossed by the sharp margin of the latissimus dorsi tendon (works on Anatomy say teres-major). Lastly the nerve hugs around the humerus before it terminates in the anteromedial part of the deltoid muscle. Consequently, whenever the arm is strongly carried backward, the nerve is drawn through a narrow and rigidly bounded space at the same time that a leverage is brought to bear on it across the scantily padded margin of the scapula.

Although, as we know, this arrangement and mechanism do not prove precarious under ordinary circumstances, we may reasonably infer that, with overexertion, especially in a rheumatically disposed subject after exposure, or with the presence of exudation near the shoulder-joint, the nerve may easily be subjected to a harmful strain or pressure. Now, suppose that the nerve already is inflamed from any cause whatever, and the case is only one of perineuritis, which of itself would not cause paralysis, but the patient continues the use of the arm. We should then expect inordinate swelling of the nerve and a consequent disproportion to arise between its circumference and the rigid passage-way. The resulting pressure will cause the inflammation to spread to the axis-cylinders, and we shall have degeneration and paralysis as a result. The patient now begins to have difficulty in carrying his hand up to the neck, and gradually the paralysis increases till the arm cannot be lifted from the side. The degeneration may migrate to other nerves, notably the posterior thoracic, musculocutaneous, and muscularspiral, entailing paralysis of the muscles respectively supplied. The paralyzed muscles sometimes undergo rapid atrophy.

*Read before the Norwegian Medical Club, April 14, 1908.

After about five weeks the nerves, under favorable circumstances, become regenerated, motion returns, and the wasted muscles regain their former dimensions.

Considering diagnosis it might be stated that in neuralgia the pains are characterized more by exacerbations and that in rheumatism joint-motion is more distinctly painful, while other joints also are apt to be implicated. It is expedient, however, to consider and treat as neuritis any case of suddenly appearing and then persisting pain in the shoulder region, especially when preceded by exposure or overwork of a predisposing nature. Also it is well for a patient with shoulder-dislocation that we anticipate the frequent sequel of neuritis to such an accident. When paralysis has ensued, cerebral paralysis may be excluded by examining for the reaction of degeneration, which is present in neuritis but absent in the former.

The prognosis is favorable when judicious treatment is applied. On the other hand many of us have encountered odd cases of impaired shoulder motion that are attributed to rheumatism or some injury, when probably unrecognized neuritis has been a factor.

As for treatment the first in importance is to place the arm at rest in any comfortable position that does not allow an extensive backward motion. Soothing applications, such as oily solutions of menthol and salicylate of methyl, may relieve the pain. Massage in the form of effleurage should be administered daily with long even strokes along the arm as well as over the whole shoulder-region and serratus magnus muscle. Kneading, beating, and strong currents of electricity are distinctly harmful. So are strong counterirritants and blisters during the first three weeks. If paralysis supervenes—which almost surely happens if the patient has continued to work or has received vigorous massage—we should tell him that no treatment will cure him before a month has elapsed. Yet, in order to limit the neuritis and ensure a perfect future restoration of function, we should continue with immobilization and effleurage, adding in the third week very mild descending galvanic currents. When voluntary motion begins to reappear we should administer passive movements in addition to mild galvanism and allow such gentle active movements as can be done without any special effort; also the immobilization may be discontinued, as the patient now probably is in the fourth week and regeneration is taking place. In performing passive movements it is important, especially in cases complicating dislocation or fracture, that the scapula be firmly fixed while the arm is being elevated. In many cases, whenever the arm is lifted, a powerful spasm of the abductors is reflexly induced by an irritable condition of the articular filaments of the circumflex nerve, and the scapula moves along with the humerus. If this tendency is not repeatedly opposed permanent contraction of the adductors and impaired motion may be the result. As soon as the patient can lift the arm in vertical position light dumbbell exercises may be practised until he has regained his former strength.

Dangerous Lozenges.—Chlorate of potassium lozenges are very combustible, and patients should be warned not to carry them loose in the pockets lest accidents occur. Two cases have been reported recently of men who have been seriously burnt through the ignition of chlorate of potassium lozenges whilst being carried loose in their pockets. The explosions appear to have been quite spontaneous, and not to have been caused by the proximity of wax matches, which greatly increase the danger of combustion.—*Medical Times.*

AN UNUSUAL CASE OF CEREBROSPINAL MENINGITIS TREATED WITH ANTI-MENINGITIS SERUM.

By H. N. MOELLER, M.D.,

NEW YORK.

HOUSE PHYSICIAN ST. VINCENT'S HOSPITAL.

This case is of interest chiefly in being one of unusual symptoms and course, and in showing immediate benefit obtained from antimeningitis serum at a late stage of the disease.

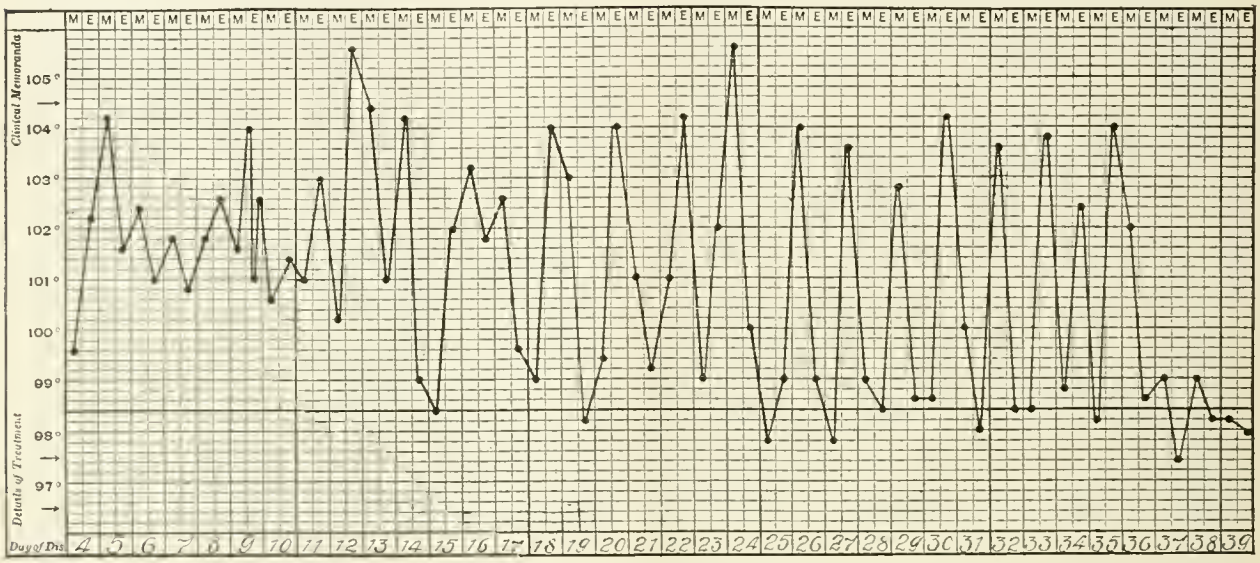
The patient was a boy of eleven years, Italian, who had been in good health up to four days before admission to St. Vincent's Hospital, in the service of Dr. Charles H. Lewis, at whose suggestion the case is reported. His past history is negative. Four days before admission, in December, 1907, he was taken suddenly with chills, loss of appetite, and vomiting, with pains in the back, arms, and legs. His symptoms increased in severity, and at the time of admission he was apparently in great distress, moaning, and complaining of great pain when any part of his body was moved, especially his neck and right arm. Both hands, wrists, and elbows were swollen, but not red; his tongue was coated, his lips were parched, and his pupils were equal and moderately dilated. There was no nystagmus or strabismus. His heart and lungs were normal and the abdomen was slightly retracted. There was no tache nor were there any petechiæ. Kernig's sign, owing to the great pain in his joints in general, was simulated but was not truly present.

On the following day his condition was changed. His neck was less stiff and painful. There remained, however, the pain in the elbows, wrists, and knees which had become more swollen and tender, there being a distinct effusion in the right wrist and knee. His urine was negative except for a trace of albumin, and the white blood count was 18,000 per c.m. Salicylates, gr. v. and sodium bicarbonate, gr. x, were given every four hours, and the joints were dressed with a 10 per cent. solution of guaiacol in glycerin.

During the first eleven days in the hospital the temperature varied from 101° to 104°. The joint symptoms improved rapidly, having about disappeared by the third or fourth day, and when the temperature reached normal on the twelfth day, no trace of effusion or pain was manifest and a diagnosis of rheumatism seemed warranted. The salicylates and external applications were stopped. On the next, the thirteenth day, the temperature rose again and here follows a period of twenty days with an intermittent temperature suggesting malaria or streptococcus infection. While distinctly intermittent it was not absolutely periodic, but simulated pretty closely an anticipating tertian form as the accompanying chart well shows. Moreover, the characteristic paroxysms of malaria were lacking, and examination of the blood showed no plasmodia. The white count at this time was 12,000. The patient was comfortable when the temperature was down, but complained chiefly of headache when it was up. Quinine, gr. iii, was given three times a day; it was increased to gr. v after four days and Fowler's solution, ♏ v, was added, but these apparently had not the slightest effect, and were stopped on the twentieth day of the disease.

The patient at this time was put upon a tonic and allowed to eat anything he chose, and sit up for two hours each day. No additional specific symptoms appeared, but it was evident that he was grad-

ually but progressively failing. At this late stage it was ascertained through the interpretations of an intelligent friend that a brother of the patient had died of some acute disease about a week prior to the admission of the patient, and on communicating with the physician in attendance it was learned that the probable cause of death was cerebrospinal meningitis. This fact led to a lumbar puncture. Slightly turpid fluid, 7 to 8 c.c. in amount, was drawn off, examined by the hospital pathologist, Dr. Mandel, and found to contain meningococci. Antimeningitis serum was supplied through the courtesy of Drs. Flexner and Jobeling of the Rockefeller Institute. Another puncture was made, and 7 to 8 c.c. of the fluid withdrawn and replaced by an equal amount of the antimeningitis serum. There was no perceptible change in the course of the temperature nor in the symptoms of the patient. The following day another puncture was made, again about 8 c.c. being withdrawn and this time replaced by 22 c.c. of the serum. The temperature which was then 104° fell to normal within twenty-four hours and remained there; the symptoms disappeared and the patient entered upon a rapid convalescence.



Temperature chart in the case of Cerebrospinal Meningitis treated with Antiserum

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COLLAPSE AFTER INJECTION OF DIPHTHERIA ANTITOXIN.

By FIELDING LEWIS TAYLOR, M.A., M.D.,

NEW YORK.

On June 21, 1905, about 6 P. M., I saw Mr. J. G. C., aged thirty, publisher, who had been suffering since the previous evening from sore throat and chilly sensations. The right tonsil was somewhat swollen and there were scattered white patches on both tonsils which suggested follicular tonsillitis. There was some swelling of the lymph nodes on the right side. The temperature was 104° F., the pulse 90 to the minute. The patient gave a history of "heart-disease" in early childhood but nothing further was elicited. The heart was normal in size and there was a soft systolic murmur at the apex which was heard somewhat more feebly at the base also and not transmitted.

A culture was taken and three doses of phenacetin, gr. ijss, and salol, gr. x, at intervals of four hours were ordered, also a gargle of Dobell's solution and water. The following morning I received a report that the culture showed the presence of the Klebs-Loeffler bacillus, and about eleven o'clock called to inject antitoxin. The patient's temperature was then 101.5° F. and pulse 80. I administered 6,000 units of antitoxin, grade 6a, made by the Department of Health of this city. About ten minutes later the patient complained of tingling and numbness in the extremities which soon spread to the whole surface of the body. He began to cough and remarked that this was the first time that he had noticed any cough. He soon grew ghastly pale and then cyanotic and coughed up frothy fluid. His pulse was now very rapid and feeble. Suddenly he stopped breathing absolutely, became profoundly unconscious, stiffened out with a rattle in his throat, was covered with clammy sweat, and appeared to be dying. I at once did artificial respiration, when, after a few minutes, he took a long breath and began to breathe feebly, but remained comatose for half an hour. At the time of his collapse he had an involuntary discharge of feces. He was fully stimulated with hypodermic injections of strychnine and atropine. He remained rather cyanotic for an hour and a half while his finger tips and lips were very blue indeed.

At 3 P. M. his pulse was 130 and he complained of intense itching. At 6 P. M. his pulse was 90, temperature 99.6° F., and he was covered with diffuse erythema and giant urticaria. During his collapse many moist râles could be heard over his chest, which were later replaced by sibilant ones. At no time was he absolutely pulseless at the wrist.

The report of an examination of a specimen of urine obtained during the afternoon was as follows: Slightly cloudy, sp. gr. 1020, acid, distinct trace of albumin, no sugar, a few hyaline and epithelial casts, some renal epithelia, some whetstone crystals.

In the afternoons of the following three days he had some dyspnea with hoarseness and slight cyanosis, together with sibilant râles over the lungs and giant urticaria on the surface of the body. His urine became normal very soon, and he made an uneventful but rather slow convalescence.

The numbers of the phials containing the antitoxin were handed to the proper officers of the Department of Health, who reported that no trouble whatsoever had been encountered with other specimens from the same source. It is unnecessary to say that the antitoxin in use at present is more concentrated than that used three years ago. I report this case on account of the interest which is now being taken in this subject.

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THE FOURTH OF JULY.

THIS is the day we celebrate—the birthday of our country, the anniversary of a declaration of soul-inspiring principles by the patriot forefathers—a glorious day, the memory of which shall never fade. It is proper that such a day should be celebrated with joyousness and enthusiasm, and it should be especially celebrated by the young that its observance may inspire them to love of their country and reverence for the principles of liberty. But is it necessary in such a celebration to trample on the rights of others, to maim and slay peaceful citizens and innocent children, to kill sleep, and to make of the waking hours a purgatory of ear-splitting explosions? Is it necessary to burn up in one day as much money as was needed to carry on our war of independence for an entire year? Is it necessary to wound and kill in one day as many as were wounded and killed in six months during the war of the Revolution? Is that war to go on forever, and must we pay for our celebration each year by as many casualties as would be the result of a small battle?

In the June *Century*, Mrs. Isaac L. Rice contributes an article in protest against our barbarous manner of celebrating the Fourth, and contrasts it with the quiet and orderly observance of national holidays in the countries of Europe. She speaks of the fearful casualty list and the money waste of the celebration, but the point to which she draws especial attention is the intolerable noise and the evil effect of it upon the sick. She makes an earnest plea for a more rational observance of the day by the display of the flag, by the playing and singing of national music in the parks and other public places, by street parades with floats depicting important events in our national history, by outings in the country and the parks for the children, and in the evening by fireworks conducted by experienced men in open places.

In the *Housekeeper* for July, W. A. Frisbie relates the history of a "sane" celebration of the Fourth which did honor to Minneapolis where it was conceived and carried out. The day began with a flag-raising in the Parade, a new fifty-six acre park tract in the heart of the city, and this was followed by a general program of jollification. There were exhibitions of trained dogs, acrobats, jugglers, and the like, given continuously in different parts of the park so that all might have an opportunity to see; bombs were sent up which exploded in the air with little noise setting free numbers of grotesque figures which floated away in the wind, to the intense enjoyment of the youngsters. The inner boy also was not neglected—popcorn, peanuts, lemonade, all were free as air and much more filling. And with all there was not a firecracker, nor a toy-pistol, nor a giant torpedo. In a crowd estimated to number nearly 50,000 young and old, there was not a single casualty to mar a sane and safe celebration of Independence Day.

This was a good beginning along the lines suggested by Mrs. Rice, and we have sufficient faith in the good sense of our people, in the long run, to hope that as this manner of celebration becomes known it will be adopted generally. It is possible even that those among us who are on the sunny side of life may live long enough to wonder how it ever could have been that the people of this country used to celebrate the anniversary of an event of such importance to the welfare of the whole human family by maiming and killing each other and themselves.

HEREDITY AND THE EDUCATED CRIMINAL.

Two recent examples of men in public trust who have gone wrong, occurring at the extreme East and West of our country, call to mind the ultimate influence of heredity and early environment as a cause for what may be spoken of as a reversion to ancestral crime. In so far as one can secure the facts, both of these individuals rose from office boy and newsboy, respectively, to distinguished places in politics and the law. Each is said to have had a bad ancestral inheritance from criminal relatives, immediate or remote.

It is noticeable, and even remarkable, that such persons can overcome the very great obstacles to success found in bad early training, and can rise by sheer effort of the will to high spheres of usefulness. This fact indicates a great degree of histrionic ability on the one hand, and on the other a sort of pseudo-virtue, which is a counterfeit so neat and accurate as to defy detection for years, even to intimate acquaintances. Such men bear a most excellent reputation, and their true character may never be known in many instances, because they are fortunate enough to die before being compelled to show their real natures through an unavoidable chain of circumstances. Mr. Cleveland's reflection that many a self-made man is not worth the making is more true than pleasant. It is also true that many a self-made man was morally unfit before the real making began, and for an explanation of this type we are obliged to fall back upon antecedent history and such light as recent advances in psychology are able to provide for us.

One may say in truth that the correction of a tendency to faulty conduct never exists spontaneously in the criminally inclined, while in the morally balanced there is likely to be a retention of the deeper feelings for reverence and self-control which will delay utter and ultimate degradation. Lack of self-control must not be corrected merely; it must be over-corrected if moral deformity is to be prevented or cured; but seldom it is that congenital or acquired strength is sufficient to overcome a tendency to give way in those little things which are the start-

ing point of many a criminal career. The moral strength of the Puritans, however, lay just here. They allowed themselves absolutely no license, or what we are in these days pleased to speak of as "liberal-mindedness" and "breadth of view." For them all law was a definite, hard-and-fast, irrefragable element. There could be no slightest compromise even with the appearances of evil.

It is just possible that the responsibilities of great place are always too heavy for weak heredity. Temptations are too great and too constant. In the myopic eye all pleasures belong to the present, the future is too far off, too uncertain to enter a protest against wrongdoing. There is always a chance of escape, and no weakling will ever deny himself that one fond chance. Education in such case works a disadvantage. The educated unfortunate sins and hopes to be dealt with leniently on account of his superior intellect, or, barring that, trusts to his wits as a safeguard in furnishing a cloak for wrongdoing. Bad heredity weakens the entire physical and moral fabric. Acquired virtue, when put to the test, is only too apt to fail if there be no moral stamina derived through a line of strong-minded ancestors and added to by independent and conscious individual effort.

CHRONIC DIPHTHERIA.

Chronic bacilli carriers have received a great deal of attention lately in connection with the spread of typhoid fever. In the case of these bacilli the persons harboring them for a long time are usually quite free from symptoms of the infection, being naturally immune to the organism in question or having acquired such immunity by an attack of the disease. A somewhat different state of affairs exists in the case of chronic carriers of diphtheria bacilli. These individuals usually suffer from recurrent attacks of the disease and a good instance of such a condition is reported by Gabriel in the *Berliner klinische Wochenschrift* for June 8, 1908. The patient, a young woman, went through a severe attack of diphtheria, which was followed by a number of recurrences of throat symptoms, general malaise, and fever. Almost two years after the primary infection she was admitted to the hospital, and was kept in the general ward, although bacilli were isolated from the throat. An exacerbation occurred, and at the same time her neighbor in the ward and the attending nurse developed diphtheria; only then the patient was isolated. During a stay of seven months various therapeutic measures were tried, but proved useless, and the patient was discharged, still harboring the bacilli in the throat, only to return in a few days with a fresh attack of the disease. This stay ended as before with amelioration of symptoms and the discharge of the patient, though the seat of the disease was affected as little as in the previous stay. An examination of the blood by the Ehrlich Institute of Frankfort disclosed the interesting fact that the patient's serum possessed a high degree of immunity to the bacilli of diphtheria, over ten thousand immunity units being found. This explained the failure to obtain a positive blood culture, though the attempt to find the bacilli in the blood was repeatedly made. Passive immunization was not attempted in the face of the above finding.

This report is of interest from more than one point of view. First of all, of course, it discloses one more condition where even such an advanced therapeutic measure as specific immunization is of no avail; on the other hand, it once more brings to the foreground the question of dealing with such patients as are the source of great danger to the community through no fault of theirs. It has been proposed to compel chronic carriers of typhoid bacilli to undergo an operation for the removal of the gall-bladder, but in a case of chronic diphtheria like the above no similar treatment can be suggested. The hope lies in further study of the subject of immunity which may yet disclose an effective way to protect the community without unnecessary interference with the personal liberty of the unfortunate bacilli carrier.

A DEFENSE AND AN ESTIMATE OF VACCINE-THERAPY.

To anyone who has followed the voluminous literature of this subject it is plain that while the general principle of vaccine-therapy has proved quite useful, especially in chronic infections with the staphylococcus, the value of the various technical procedures originated by Wright in the application of the principle has been seriously questioned. It has been suggested that clinical symptoms are safe guides in the application of vaccine-therapy and in judging of the results obtained; that the opsonic index often fails to give uniform results at different times or in the hands of different observers; that, finally, opsonins are but one species of the protective substances in the blood and no such dependence is to be placed upon them alone as is done by Wright and his followers.

In a recent number of *The Practitioner* the originator of the method and those associated with him attempt to answer the above objections. In the introductory article Sir A. E. Wright states that a definite initial dose cannot be set as a standard for many reasons. The potency of the vaccine used can be only approximately standardized; the response to the dose is not uniform in the healthy and still less so in the infected subjects; the repetition of the immunizing doses may still further change the phenomena of response in each individual. On the other hand, clinical symptoms may be fallaciously interpreted, may not be complete enough to serve as a guiding principle, and may be so slow in changing in the case of chronic infections that untold harm may be done before the evidence of it appears to the observer. Fleming's article in the same issue is an answer to the criticism of the technique employed. He shows by many statistical tables that in the hands of Wright and his pupils the results of estimating the opsonic index, both in the healthy and in the sick, have been uniform enough to be safely depended upon in the application of the vaccine-therapy. Several other contributors testify in their articles to the partial success at least which was the reward of the careful application of Wright's principles of treatment.

The general reader, who is not himself applying

or testing the new treatment is at a loss to decide between the opposing camps of investigators. The editorial comment in the same number of *The Practitioner* is, perhaps, the best statement of the attitude to be adopted by him. "The method is a new and complex one, and, until its use has been more thoroughly explored, it should be carried out only under the guidance of an expert. . . . Whether an opsonic control of the injections will always be necessary still remains to be shown, but for a long time yet the exhibition of the vaccines should be preceded by a most careful bacteriological examination, and, if possible, the particular vaccine should be prepared for each individual patient. If these precautions are taken, there is little doubt that the opsonic method has a brilliant future before it; at present, however, it is certainly in the experimental stage, and should be so regarded."

The Effect of Tuberculin Upon Healthy Persons.

It is generally assumed that tuberculin acts as a poison to the healthy human organism as well as to one infected with tuberculosis, though the latter reacts to its influence much more readily and by greater intensity of symptoms. The exact relation of the healthy organism to the action of tuberculin has not, however, received much attention in the past, and a study of this subject made by Hamburger and reported by him in the *Münchener medizinische Wochenschrift* for June 9, 1908, is therefore of interest. This author says that the absence of any symptoms on injection of tuberculin is rare, not because the substance is toxic to the healthy as much as to the tuberculous, but because perfectly healthy individuals, quite free from foci of active or latent tuberculous infection, are but rarely met with. The well-known resistance of nursing infants to this toxin is explained by the absence of such foci in the great majority of such infants. Hamburger has observed several cases of adults who reacted as little as infants to such large amounts of tuberculin as 10 mg. for a dose repeated several times. He further injected from 10 to 100 mg. of tuberculin to each one of forty-three children, none of whom showed any constitutional reaction or rise of temperature after the injection. Of course, these doses of the toxin were used only after smaller doses had produced no reaction and the site of the puncture remained free from inflammatory phenomena. The explanation of this apparent lack of toxicity in a substance, usually assumed to be extremely toxic, is not very easy to find; Hamburger, however, used only the old tuberculin in his experiments, and thinks that the long steaming over a water bath to which this preparation is exposed may destroy the thermolabile toxins of the original product of bacterial metabolism. That the author was very sure of the lack of toxicity in the preparation used by him after the above facts were elicited is shown by his statement that one little girl of six years of age received an injection of 500 mg. of old tuberculin. His conclusions, however, proved to be correct; the child manifested no general phenomena of a reaction whatever.

Placental Transmission of Paratyphoid Infection.

The older pathologists thought that the infectious diseases were quite regularly transmitted from the mother to the child by the placental circulation. We know now that such transmission is a rare occurrence; not the disease is transmitted, but a predisposition to such a disease, as in the case of tuberculosis, or the child simply suffers from general malnutrition and maldevelopment because of the poverty of the mother's blood or the existence in it of the toxic products of disease. Isolated cases of placental transmission of disease, however, are frequently reported, and an article by Nauwerck and Flinzer in the *Münchener medizinische Wochenschrift* for June 9, 1908, adds paratyphoid fever to the list of infections that may thus pass from the mother to the unborn child. The infant in question died thirty-six hours after birth with symptoms of general melena, and the autopsy fully answered the clinical picture, blood having been found in the cerebral membranes, in the retina, in the internal organs, and especially in the stomach. A bacillus recovered from the blood was carefully tested bacteriologically and showed in its morphology, in the cultural reactions, and in virulence toward animals all the characteristics of the paratyphoid group. The mother gave a history of an acute disease a few weeks before labor occurred; her blood agglutinated the bacillus recovered from the child, as well as another laboratory strain of the paratyphoid organism. The probability of extrauterine infection was excluded by the advanced lesions found, though the infant lived only a day and a half, and the authors conclude, therefore, that theirs is the first reported case of a paratyphoid infection transmitted by the placental circulation.

Outbreak of Rabies.—The State Agricultural Commissioner of New York states that officials of his department have never known of such a serious outbreak of rabies as exists at present. Thirty towns in the State are under quarantine for the disease. In New York City the Health Commissioner has issued an order declaring that the running at large of dogs constitutes a public nuisance and menace to health, and calling on all owners to muzzle their dogs. Any dogs not muzzled or held in leash are to be destroyed by the inspectors or agents of the department. It is hoped that this muzzling order, which is to remain in effect until the end of October, will prove efficacious in stamping out the disease. In England, owing to the enforcement of such an order, the number of cases of this disease fell from 672 cases in 1895 to none in 1900.

Health Conditions in New York.—The lowest weekly death average in the city was recorded by the Board of Health for the week ending June 20, the rate being 13.45 per 1,000 as against 17.36 for the same week in 1907. The absolute decrease in the number of deaths was 332. The Borough of Manhattan showed the lowest rate, 12.99. The deaths in tenement houses numbered 255 as compared with 375 for last year. The Health Commissioner attributes this decrease to the better quality of food supplied in the tenement house district at present, yet the reports of the various relief societies indicate very clearly that there is great want and privation among this class because of the general hard times since last October. In a recent report of an investigation from a trustworthy source these conditions are said to be so bad as not to permit of exaggeration, and it is stated that both adults and children are undernourished as the result of very insufficient quantities and very in-

ferior qualities of food supplies. This condition has existed for some time, and yet the death rate for the first three weeks of June has been lower than ever before, and each week has had a lower rate than the preceding. A study of all the conditions in relation to fresh air, improved dwellings, diminished protein intake, etc., might, and might not give additional support to Chittenden's dietetic theories.

Plague in Trinidad.—Since the middle of June six new cases of plague have been reported, and active steps are being taken by the authorities in cleaning up the city and in destroying the rats. In Jamaica, also, the extermination of rats has been begun as a precautionary measure. The steamship *Caracas*, arriving in New York from Trinidad on June 21 was detained in quarantine because of the death of a fireman during the voyage, the cause of death not having been determined.

Medical Inspection of Chicago Schools.—The medical inspectors of schools of Chicago recently examined 4,783 pupils and excluded 241 because of contagious diseases. The chief causes of exclusion were as follows: measles, 20; tonsillitis, 42; chickenpox, 19; whooping cough, 15; diphtheria, 9, and mumps, 6. A total of 212 vaccinations were performed on school children, and 25 cultures were made for bacterial examination. Physical examinations made by the school medical inspectors in the schools during the week ended June 20 numbered 1,843. Of these 1,041 were of pupils who needed medical or surgical treatment. The parents were notified of the conditions found and were advised to consult the family physician.

Doctors Receive Degrees.—Colonel William C. Gorgas, the recently elected president of the American Medical Association, and chief sanitary officer of the Isthmian Canal Zone, received the degree of Master of Science from Harvard University, and Dr. Graham Lusk, Professor of Physiology in the New York University and Bellevue Medical College, the degree of Doctor of Science from Yale, at the commencement exercises of these universities held on June 24. Dr. Charles E. Nammack of New York received the degree of Doctor of Laws at the annual commencement of Fordham University on June 17.

Street Car Accidents.—With the bringing into service of the open cars on the street railway lines in New York, the number of accidents has very greatly increased. The report of the Public Service Commission states that during the month of May there were 5,152 accidents, against 4,707 in April. A considerable part of this increase is attributed to mishaps in alighting from and boarding the cars. In May 627 persons were injured as they got on the cars, in April only 562; and in May 772 persons were hurt in getting off cars, in April only 544.

Memorial to Dr. Reed.—In a recent issue of *Janus*, an historical medical journal published in Holland, Dr. John C. Hemmeter of Baltimore urges that the names of Dr. Lazear and Dr. Carroll, who were also members of the Yellow Fever Commission, be included in the memorial monument to be erected to Dr. Walter Reed in Washington.

Surgery in Partial Vacuum.—Dr. Sauerbruch of the University of Marburg recently demonstrated, before the staff of the Rockefeller Institute, his method of performing chest operations in a glass operating cage in which the normal atmospheric pressure had been reduced, so as to prevent collapse of the lungs.

Hospital Struck by Lightning.—The Newark Tuberculosis Hospital on the top of Mt. Caldwell, at Verona, N. J., was struck by lightning on June 24, causing a small panic among the inmates. As the building is fireproof no serious harm resulted.

Raise Entrance Requirements.—Jefferson Medical College, the Medico-Chirurgical College, Hahnemann Medical College, the Woman's Medical College of Pennsylvania, and Temple University, have notified the Pennsylvania State Medical Council that hereafter only such students as have pursued at least a full four years academic or high school course shall be eligible for the medical course. It is stated also that the Western University of Pennsylvania at Pittsburg will shortly or in the next year adopt a similar minimum entrance requirement. The University of Pennsylvania has already made announcement that it will receive in its medical department only students who have passed at least one year of the college course.

Larger Bellevue Opposed.—A report just made by the State Charities Aid Association, concerning the hospital needs of New York City now and up to 1920, urges the establishment of emergency relief stations at convenient distances from existing hospitals. Five such stations are now needed and by 1920 this number will be increased to fourteen. Such stations are to have eight beds each. The report states that 540 additional beds are needed in the city hospitals at this time, and that by 1920 there will be a demand for 2,772. These emergency stations, it is suggested, can be eventually replaced by small hospitals. The committee believes that it would be advisable to change the plans for the new Bellevue Hospital so as to reduce the number of beds from 2,000 to 1,600, with a view to expending the money thus saved on the erection of other hospitals elsewhere. It is recommended that steps be taken immediately to procure hospital sites in outlying districts while land can be obtained at comparatively reasonable rates. The committee urges also the establishment of two general hospitals on Blackwell's Island, one at each end, each to have not more than 1,500 beds.

The Gibbs Prize.—The New York Academy of Medicine announces that essays in competition for the Edward N. Gibbs Memorial Prize will be received up to October 1, 1909. The subject is to be "The Etiology, Pathology, and Treatment of the Diseases of the Kidney," the three parts not necessarily to be treated with equal detail. In order to obtain the prize an essay must show originality, and new discovery or fruitful research will be considered the standard of merit. Manuscripts must be in English, typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device, which shall contain the name of the author. The amount of the prize is $1,000; but the Academy reserves the right not to award the prize if no essay shall be found worthy. Essays are to be sent to the Committee of the New York Academy of Medicine on the Edward N. Gibbs Memorial Prize. The successful essay becomes the property of the Academy.

The Right to Resign from a Medical Society.—Dr. Charles J. Mooney, who claimed that he had been unjustly treated by the officers of the Medical Society of the County of New York, some time ago tendered his resignation as a member of that organization. In his letter to the secretary he gave as the reason for his resignation that he could not "conscientiously remain in an organization whose unfair methods were demonstrated in

the proceedings of last year." The comitia minora replied through the secretary that it "declined to receive a document couched in language offensive to the society." Dr. Mooney then applied to the court and Justice Blanchard has now decided that he was within his rights in using the language he did, and that the society must accept his resignation.

Dr. Francis Carter Wood, Professor of Clinical Pathology in the College of Physicians and Surgeons of New York, and president of the Alumni Association of the Ohio State University, delivered an address on the relation of the State university to medical education at a meeting of the alumni of that University on June 23.

Dr. William Osler, regius professor of medicine at Oxford University, has consented to contest for the lord rectorship of the university of Edinburgh in November as a nonparty candidate. He is the first physician ever nominated for the office.

Dr. Carl Beck of New York has received the decoration of the Order of the North Star from the King of Sweden.

Changes in Faculty of the Northwestern University.—Dr. Frederick Menge has been appointed professor of Rhinology and Laryngology and made head of that department in place of Dr. Wm. E. Casselberry, who has resigned that position and has been made professor emeritus of Rhinology. Dr. J. M. Neff has been made Associate Professor of Surgery, and Dr. Frederic A. Besley, Dr. H. M. Richter, and Allen B. Kanavel, Assistant Professors of Surgery. Drs. W. R. Cubbins and Frank E. Pierce have been appointed assistants in surgery, and Drs. Charles Matter, John C. Hollister, F. G. Dyas, and Wm. C. Danforth, instructors in surgery. Drs. George B. Dyche, Paul Chester, Charles A. Elliott, and A. Davis have been promoted to the positions of Assistant Professors in Medicine. Dr. W. H. Buhlig has been appointed Assistant Professor of Clinical Pathology; Dr. Joseph Brenneman as Assistant Clinical Professor of Pediatrics; Dr. Robert T. Gilmore, Assistant Professor of Gynecology; Dr. Prentiss of Harvard University, Assistant Professor of Anatomy, and Dr. S. Walter Ransom, Associate in Anatomy.

Courses in Pediatrics and Infant Feeding.—Prof. Schlossmann has arranged for a number of post-graduate courses in the Nourishment and Diseases of Infants at the Infants' Hospital at Düsseldorf, Germany. The courses will last for two weeks each.

Medical Club of Philadelphia.—Dr. William C. Gorgas, President-elect of the American Medical Association, Dr. William L. Estes, President of the Medical Society of the State of Pennsylvania, Dr. Albert M. Eaton, President of the Philadelphia County Medical Society, Dr. W. A. Evans, Health Commissioner of Chicago, and Dr. Walter Wyman, Surgeon-General of the United States Public Health and Marine-Hospital Service, were the guests of honor at a reception given by the Medical Club of Philadelphia on June 12.

Lake Keuka Medical and Surgical Association.—The ninth annual meeting of this society will be held at Grove Springs, Lake Keuka, N. Y., on July 9 and 10, 1908, under the presidency of Dr. Lewis Wheeler Rose of Rochester. The society includes in its membership physicians from Allegany, Schuyler, Chemung, Livingston, Tioga, Monroe, Wayne, Ontario, Wyoming, Steuben, and Yates counties. An attractive program of twenty titles is offered. The secretary is Dr. H. B. Nichols of Pulteney. Grove Springs is reached by steamer from Hammondsport via the Erie and Lackawanna, and from Penn Yan via the N. Y. C. and N. C. railroads. It is also accessible by auto from these points.

XIV International Congress in Hygiene and Demography.—The Secretary General reports that with the issuing of the four volumes covering its proceedings the work of the Congress for 1907 is completed. The last two volumes will be forwarded to members of the Congress, and the entire set will be published by Hirschwald of Berlin and may be obtained through booksellers for fifty marks for the set, or by single volumes.

The Fifth Pan-American Medical Congress will be held in Guatemala City, August 5 to 10, 1908. From New York, Guatemala may be conveniently reached by train to New Orleans, thence by boat to Puerto Barrios on the Gulf, and again by train to Guatemala City. The trip takes seven days, and the cost, exclusive of sleeper and meals, is $56. The capital of Guatemala is situated on a plateau, one mile above sea level. During August there is usually no rain, and the heat is said to be less than in our Southern States. Information may be obtained from the secretary, Dr. Ramon Guiteras, 75 West Fifty-fifth street, New York.

Association des Médecins de Langue Française de l'Amérique du Nord.—The IV Congress of the Association will be held in Quebec, on July 20 to 22, 1908. The four sections of medicine, surgery, hygiene, and dental surgery will be covered, and particular stress will be laid upon instruction in hygiene, infection of the bile ducts, and renal tuberculosis. Ample provision is being made by the committees for those who wish to attend, and reduced railroad fares are offered.

The VIII International Congress of Hydrology, Climatology, Geology, and Therapy by Physical Agents will be held at Algiers, April 4 to 10, 1909.

Chicago Medical Society.—After a closely contested election, balloting resulted in the election of the following officers for the ensuing year: *President,* Dr. Alfred C. Cotton; *Secretary,* Dr. Merlin Z. Albro; *Councilors at Large,* Drs. Elmer E. Henderson, Henry B. Favill, J. Chase Stubbs, C. Hubart Lovewell, and Geo. H. Weaver; and *Alternate Councilors at Large,* Drs. William M. Harsha, Clark A. Buswell, Albert E. Mowry, Henry W. Cheney, and Paul F. Morf.

Chicago Surgical Society.—At the annual meeting of this Society, recently held, the following officers were elected for the ensuing year: *President,* Dr. A. E. Halstead; *Vice-President,* Dr. Arthur Dean Bevan; *Secretary,* Dr. Frederick A. Besley; *Treasurer,* Dr. John C. Hollister.

The Des Moines Valley (Iowa) Medical Association, at its thirty-seventh annual convention at Ottumwa, Ia., on June 18, elected the following officers: *President,* L. A. Rogers of Oskaloosa; *First Vice-President,* F. T. Stevens of Mount Pleasant; *Second Vice-President,* C. B. Powell of Albia; *Secretary-Treasurer,* Fred Bowles of Ottumwa.

The Aroostook (Me.) Medical Association held its annual meeting on June 16, at which the following officers were elected: Harry L. Putnam, Houlton, *President;* S. W. Boone, Presque Isle, *Vice-President;* F. H. Jackson, Houlton, *Secretary;* W. E. Sincock, Caribou, *Treasurer;* Harry L. Putnam

and S. W. Boone, *Delegates* to Maine Medical Association.

The Woonsocket District (R. I.) Medical Association.—At the annual meeting of this Society held on June 18, the following officers were elected: *President,* Dr. Elisha D. Clarke; *Vice-President,* Dr. John J. Baxter; *Treasurer,* Dr. George R. Smith; *Secretary,* Dr. William F. Barry; *Counsellor,* Dr. William C. Monroe; *Delegate to State Medical Society,* Dr. George R. Smith; *Censors,* Drs. John T. Roswell, Robert G. Reed, J. Edgar Tanguay.

Association of Medical Officers of the Army and Navy of the Confederacy.—At the annual meeting of this society, held in Birmingham, Alabama, on June 9 and 10, the following officers were elected: *President,* Dr. J. C. Abernathy, Birmingham; *Vice-Presidents,* Dr. William F. Beard, Shelbyville, Ky., Dr. E. N. D. Newton, Athens, Ga., and Dr. George M. Burgett, Lebron City, Tenn.; *Secretary,* Dr. A. A. Lyon, Nashville, Tenn.

The National Association for the Study and Prevention of Tuberculosis held its annual meeting in Chicago on June 5 and 6, and elected the following officers for the ensuing year: *President,* Dr. Vincent Y. Bowditch, Boston; *Honorary Vice-Presidents,* the President of the United States, Hon. Grover Cleveland, and Dr. William Osler, Oxford, England; *Vice-Presidents,* Homer Folks, New York City, and Dr. Charles L. Minor, Asheville, N. C.; *Treasurer,* Brig.-Gen. George M. Sternberg, Medical Corps, U. S. Army, retired, Washington, D. C.; *Secretary,* Dr. Henry Jacobs, Baltimore; *Executive Secretary,* Livingston Farrand, New York City; and *Directors,* Drs. John N. Hurty, Indianapolis; S. Adolphus Knopf, New York City; Victor C. Vaughan, Ann Arbor, Mich.; Edward R. Baldwin, Saranac Lake, N. Y.; Rudolph Matas, New Orleans, and Messrs. James J. Hill, St. Paul.; Frederick Redfield Proctor, Proctor, Vt.; J. B. Bixby, St. Louis; C. B. Boothe, Los Angeles, and A. B. Cummins, Governor of Iowa.

Essex South District Medical Society (Mass.).—The annual meeting was held on May 19. Dr. William G. Mumford delivered an address on the "Principles of Cerebral Decompression." The following officers were elected: *President,* Dr. S. P. E. Cooke, Gloucester; *Vice-President,* Dr. F. W. Baldwin, Danvers; *Secretary,* Dr. G. K. Blair, Salem; *Treasurer,* Dr. G. Z. Goodell, Salem; *Librarian,* Dr. C. M. Cobb, Lynn.

The Hampshire District Medical Society held its annual meeting at Springfield, Mass., on May 14, and elected the following officers: *President,* W. W. Miner of Ware; *Vice-President,* F. H. Smith of Hadley; *Secretary,* A. G. Minshall of Northampton; *Treasurer,* A. H. Hoadley of Northampton; *Librarian,* E. W. Brown of Northampton; *Chairman of the Board of Censors,* A. M. Belden of Northampton.

The South Bristol (Mass.) Medical Society at its annual meeting, held on May 14, elected the following officers: *President,* Dr. William T. Learned; *Vice-President,* Dr. A. A. Mandell of New Bedford; *Secretary and Treasurer,* Dr. A. J. Abbe; *Councillors,* Drs. C. A. Bonney, New Bedford, A. W. Buck, W. A. Dolan, J. H. Gifford, and C. D. Hough and C. A. Pratt of New Bedford; *Censors,* Drs. A. I. Connell, W. A. Dolan, H. G. Wilbur, and J. C. Pothier and A. P. Webb of New Bedford; *Commissioner on Trials,* Dr G. L. Richards.

The New Hampshire Medical Society held its one hundred and seventeenth annual meeting in Concord on May 15, and elected the following officers: *President,* Dr. John M. Gile, Hanover; *Vice-President,* Dr. Frank Blaisdell, Goffstown; *Councillors,* Belknap county, Dr. A. H. Harriman, Laconia; Grafton county, Dr. M. S. Woodman, West Lebanon; *Trustee for three years,* Dr. W. T. Smith, Hanover; *Member Board of Medical Examiners,* Dr. J. F. Robinson, Manchester; *Alternate,* Dr. G. C. Wilkins, Manchester; *Delegate to Dartmouth Medical College for two years,* Dr. A. C. Heffener, Portsmouth; *Anniversary Chairman,* Dr. H. N. Kingsford, Hanover.

The Norwich (Conn.) Medical Association at its annual meeting, on May 4, elected the following officers: *President,* Dr. W. Tyler Browne; *Vice-President,* Dr. N. P. Smith; *Secretary,* Dr. L. F. LaPierre.

The West Tennessee Medical Association on May 22 closed its annual meeting at Jackson, Tenn., with a symposium on tuberculosis. The following officers were elected by the society for the coming year: *President,* F. A. Smythe, Memphis; *Vice-President,* J. R. Nelson, Eurekaton; *Secretary,* A. A. McSwain, Paris.

Obituary Notes.—Dr. Joseph M. Finnell of St. Paul, Minn., died on June 13, of apoplexy, at the age of 48 years. He was graduated from the medical department of New York University in 1887, and had served as secretary of the Coroner's department of St. Paul for a number of years.

Dr. Frederick Lacy Wheeler of Minneapolis, Minn., died on June 14, at his home. He was a graduate of the medical department of the University of Minnesota in the class of 1904.

Dr. Daniel E. Millerick of Stoneham, Mass., died on June 18, at the age of 52 years. Dr. Millerick was graduated from the Harvard Medical School in 1881.

Dr. John Gilman McAllister of Lawrence, Mass., died on June 20, after a long illness, at the age of 67 years. He was graduated from the College of Physicians and Surgeons of New York in 1863, and served in the army as assistant surgeon until the close of the war.

Dr. Michael J. Neville of Brooklyn, N. Y., died on June 22, at the age of 37 years. Dr. Neville was a graduate of Queen's College, Canada, in the class of 1893, and was consulting surgeon of St. Catherine's Hospital, Brooklyn.

Brig.-Gen. Albert Hartsuff, a retired army surgeon, died on June 22 in Detroit, Mich., at the age of 70 years. Graduated from the Castleton Medical College, Vermont, he entered the service on the outbreak of the Civil War as an assistant surgeon, and was rapidly promoted, distinguishing himself during a yellow fever epidemic in New Orleans in 1866. In 1904 he was advanced to the rank of brigadier-general retired.

Dr. George F. Heath of Monroe, Mich., a graduate of the Medical Department of the University of Michigan, died on June 16, at the age of fifty years.

Child Suicide in Germany.—It is estimated that the number of cases of suicide among German school children between the years 1880 and 1903 exceeded 1,000. There were more cases of suicide among boys, in the proportion of four boys to one girl, under 15 years old, and forty-eight to one above this age. The causes are attributed in 336 cases to fear of punishment, in 70 to mental disorders, and in 68 to intemperance. Other causes were disappointments in love, despair induced by the premature reading of Nietzsche and Schopenhauer, and religious doubts.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEDICINE AND SCIENCE AT THE FRANCO-BRITISH EXHIBITION—INGLEBY LECTURES ON MYOMA OF THE UTERUS—OLIVER-SHARPEY LECTURES ON OUR KNOWLEDGE OF THE ADRENALS—OBITUARY.

LONDON, June 12, 1908.

You have no doubt heard a great deal about the Franco-British Exhibition, which, although it is not yet finished, is attracting immense numbers of visitors. It is on a scale exceeding that of any previous international exhibition. Among its numerous attractions there is the Hall of Science, a building containing floor space of about 14,000 square feet and on which I hear the committee has expended £7,000. It is not in a prominent position and may easily be missed, but will afford much pleasure to any one who visits it. Electricity, magnetism, chemistry, astronomy, meteorology, have their separate divisions and the exhibits have been arranged by masters in the several sciences. Space forbids me to enter on a description of these marvels, but I must give you a few notes respecting the medical department. The Liverpool School of Tropical Medicine, always to the fore, has an excellent exhibit illustrating the work it has been doing. The tsetse fly, the enlarged glands of sleeping sickness, photographs of suffering natives, etc., are shown. So is a portrait of Major Ronald Ross and his original manuscript proving the transmission of malaria by mosquitos. Here, too, are a number of specimens connected with elephantiasis and representatives of the species of rats which carry plague. The London Tropical School has also an exhibit showing the progress of discovery in this department. The Royal Microscopical Society shows microscopes arranged in chronological order to illustrate the successive improvements in this means of investigating, beginning with a copy of Leeuwenhoek's (1675) and Masschenbroek's (1702). In the anthropological section are numerous measuring and weighing instruments.

In another part of the grounds there is an exhibit of a medical kind. This is in the Irish Village, which is attracting great attention. In the Village Hall there is a reproduction on a small scale of the Tuberculosis Exhibition which has been touring in Ireland in order to bring home to the people the ravages of this disease, and the way in which they may restrain it. There is a pathological division with specimens of human lungs in various stages of phthisis; and a veterinary division with specimens from animals. A section is devoted to appliances—sputum flasks, spittoons, milk sterilizers, etc. Then there are maps, diagrams, and literature devoted to the statistics of tuberculosis, and "contrast bedrooms," illustrating the conditions which encourage and discourage the development of phthisis. The pamphlets distributed include lectures by leading authorities and ample instruction on ventilation, milk supply, cleanliness, and so forth. Short expositions are also delivered throughout the day on all points connected with the cause and prevention of the disease—a valuable object lesson being thus enforced.

The Ingleby lectures at the University of Birmingham were delivered last month by Dr. Christopher Martin. He is surgeon to the Birmingham and Midland Hospital for Women, and took for his subject Myoma of the Uterus, on which his experience enables him to teach with considerable authority. The two lectures of the series were devoted respectively to the dangers and treatment of the disease. He said that the more he saw of it and the more he followed up his cases, the more he was impressed with its risks and grave complications. The commonest of these is hemorrhage, and though it is rare for a patient to bleed to death, chronic anemia and extreme weakness result and are responsible for brown atrophy and fatty degeneration of the heart in many neglected cases. It is also the main factor in thrombosis and phlebitis. Pain is uncertain—mostly discomfort is complained of—but when the ovaries and tubes are inflamed and adherent the pain is severe. Pressure symptoms are numerous and vary with the organ pressed upon. They frequently call for surgical treatment. Lesions of the appendages are found in about a third of all cases of myoma submitted to operations. In many cases probably the myoma is responsible for these lesions, and in most cases endometritis to some extent is present. The hemorrhages and anemia affect the heart, and Dr. Martin quoted the Ingleby lecturer of last year (Dr. Thomas Wilson) as having carefully studied the relation of myoma to cardiac disease with a result that over 40 per cent. of patients with severe myoma have some form of cardiac insufficiency. Ergot would in them be contraindicated as increasing peripheral resistance by contracting the arterioles. Rest would be needed prior to operation, after which improvement in the heart symptoms usually occurs. The lecturer next considered the degenerative changes to which myomata are so peculiarly liable. He divided them into three groups: (1) Nonmalignant degeneration *without necrosis*, occurring in about 14 per cent. of the cases; (2) nonmalignant, *with necrosis*, occurring in about 4 per cent., and (3) malignant degenerations and complications, also in about 4 per cent. Each of these groups was analyzed and its significance pointed out, and then the relation of myoma to pregnancy was considered. It was seen that sterility appeared nearly four times as often in myomatous patients as in those not afflicted with myoma. This, Dr. Martin, considers fortunate, as the occurrence of pregnancy adds greatly to the dangers of myoma. Some have supposed that the sterile state in some mysterious way may give rise to myoma, but the lecturer held that such theorists "put the cart before the horse." Some patients with moderately large fibroids pass through pregnancy and labor safely. But if the tumor be submucous or interstitial, abortion generally occurs by the fourth month—the best thing for the patient. Sometimes abortion has to be induced. However it occurs, retention of placental tissue and alarming hemorrhage is apt to follow, and in a submucous case there is the danger that the tumor may necrose and be a source of sepsis. A large fibroid may mechanically interfere with the development of the pregnancy and even necessitate surgical interference. It may also be impacted so as to obstruct or even prevent delivery, or interfere with the after contraction, and so cause retention of placenta, or itself be so bruised and injured as to lead to its necrosis and fatal sepsis. The danger to the patient is great in these cases, and the mortality high, for surgery is often postponed until too late. The lecturer summarized the risks which a woman with a fibroid runs as follows: (1) More than half these patients suffer from severe hemorrhage and chronic anemia; (2) many develop cardiac disease, phlebitis, thrombosis, and embolism; (3) others have retention, cystitis, pyelitis, hydronephrosis; (4) in about a third of the cases the ovaries and tubes become diseased; (5) in about a fifth, degeneration occurs, ending in nearly 5 per cent. in necrosis of the growth, and in 4 per cent. sarcoma, and a further 4 per cent. cancer; (6) half the patients are sterile, but should pregnancy occur the dangers increase as gestation progresses.

The question of a natural cure was then considered, and it was admitted that such an event may take place in three ways: (1) A submucous fibroid may necrose and slough away or be extruded through the cervix as a polyp and drop off. The risks of such a case were pronounced greater than those of the most formidable modern operation. (2) The myoma may participate in the involution of the puerperium and disappear. This is not to be reckoned on, for in many cases the opposite occurs—instead of shrinking the tumor is more likely to take on more active growth; (3) it may atrophy at the menopause. This was once thought to be the usual result, and a woman was told that her trouble would cease at that time. But sad experience shows that these hopes are illusory. At this period the dangers increase, as degenerations are more apt to supervene. Noble, in an analysis of 4,880 cases, declared he was not acquainted with a single case of such disappearance at or after the menopause. Dr. Martin's conclusion from these circumstances is that, realizing the manifold danger of myomata—the pressure, cardiac and renal complications, risks of degenerations, necrosis and malignant disease—and, on the other hand, the safety and the certainty of cure by surgery—it is not justifiable to advise a patient with a troublesome fibroid to wait for the menopause.

The present condition of our knowledge regarding the functions of the suprarenal capsules was chosen as the subject of the Oliver-Sharpey lectures at the Royal College of Physicians. Professor Schäfer was the lecturer, and he remarked that the congeniality of the position was enhanced to him by the fact that Sharpey was his honored master, and Oliver, who founded the lectureship, was his colleague in the research on the capsules, which led him to select the subject of his lectures. In his first lecture he traced the history of our knowledge, such as we have, of the functions of these bodies, down to the autumn of 1893, when Dr. Oliver called upon him to discuss certain results which he had obtained from extracts of animal tissues given by the mouth. At this visit these two pupils of Sharpey agreed to devote the winter to a thorough investigation of the physiological effects of such extracts.

They soon found that some of these extracts were inert, but that the suprarenal capsules and, to a less extent, the pituitary body, yield to glycerin and to water and to saline

solutions, principles having an extraordinary effect upon the tone of the heart and arteries—transcending the effect of any known drug. In March, 1904, they reported their results to the Physiological Society and thus opened a new chapter in this interesting history, for others set to work to isolate the active principle of the extract and determine its relationship. Success was so far obtained as to show that this principle is of relatively simple constitution, insoluble in alcohol, dialyzable, and not destroyed by acids or the gastric juice. Abel of the Johns Hopkins University was one of those who continued the investigation and crystallized compounds from the extract. Thus practitioners became possessed of a powerful drug—epinephrin or adrenalin or perinephrin. Other names have been proposed, but the one most in use is adrenalin, but this seems to have been registered by a commercial firm, and Professor Schäfer would therefore prefer to call it adrenin. How it is formed in the body remains to be discovered.

With regard to its effects, the first point established was the remarkable rise in blood pressure produced by a mere trace if injected, due to two causes: (1) contraction of the arterioles; (2) increased force and rate of the heart's beat. Sometimes, instead of augmentation, it produced inhibition. Then, it was held, two antagonistic influences were at work, constriction of arterioles, tending to raise the blood pressure, and cardiac inhibition, tending to lower it. The former was always the stronger, and if both vagi were cut, or a dose of atropine given, inhibition was prevented.

With regard to the clinical uses of adrenin, the lecturer mentioned Miller's account in the *Journal of the American Medical Association* for May, 1907. As not much has been added during the year that has elapsed since the article, I think I may as well pass over the subject, especially as the MEDICAL RECORD will furnish its readers with notices of all that is important. It is, therefore, only necessary to add that those desirous of studying the *modus operandi* will find much to think over in Professor Schäfer's statement of the physiological facts that have been established by himself, Oliver and others.

Inspector-General Andrew Maclean died on Monday at the ripe old age of 96. He graduated at Edinburgh, M.D., 1833, having taken the license of the Edinburgh College of Surgeons in 1831. He was formerly in the army medical service and retired as Department Inspector after serving as surgeon to the Garrison Hospital at Chatham and to the Royal Military College, Sandhurst. One of his sons is Kaid Sir Harry Maclean, of whose career in Morocco you must have heard, and of whom his father was very proud. Another son is following his father in the medical corps, and a third was until recently British Consul at Casabianca.

Another aged practitioner, Dr. Prior Purvis, died on the 29th of May, in his 96th year. He qualified in 1834, L.S.A., and next year took M.R.C.S. The establishment of the London University opened the way for degrees, and he was among the first candidates, taking the M.B. at the first examination (1839) and followed on to M.D. (1842). He was for many years surgeon to the Royal Kent Dispensary, treasurer of the West Kent Medico-Clinical Society, and closely connected with many other institutions. The annual "Purvis Oration" was established in his honor and has been delivered by some of the foremost of our medical leaders.

Dr. John Gill died on the 5th inst. in his 86th year. He qualified in 1875 and was for some time physician to to Margaret Infirmary for Consumption, and to the Royal Asylum of St. Anne's Society. He then became physician to the London Medical Mission. Besides a few contributions to the journals, he translated "Olshausen's Commentary" from the German and Bovet's "Life of Zinzendorf" from the French.

OUR PARIS LETTER.

(From Our Special Correspondent.)

DEATH OF CHARLES CHAMBERLAND—DEATH OF PROFESSOR RICHE—THIRTY-FOUR GAUZE SPONGES IN THE ABDOMEN—LENGTH OF STAY IN BED AFTER ABDOMINAL OPERATIONS.

PARIS, May 30, 1908.

CHARLES CHAMBERLAND, Assistant Director of the Pasteur Institute, died a short time ago at the age of fifty-seven. In his person we have lost one of the best of the fellow-workers of Pasteur, who helped that master to establish a new and rigorous technique, and then accomplish the great series of achievements that have made the name of Pasteur famous. The great discoveries in which Chamberland had share are as follows: The etiology and the prophylaxis of anthrax, vaccination against swine erysipelas, and the preventive treatment of rabies. He demonstrated that in the technique of practical surgery the bacteria of the air may be safely neglected, and that the careful sterilization of the hands, the instruments, and the dressings is sufficient to protect the patient against infection. He showed that the temperature of 100° C. is not sufficient to kill certain spores, that remain inactive so long as the medium is acid, but begin to multiply as soon as the reaction is changed to alkaline. To kill such spores the temperature must be raised to 115° C. and kept at that point for twenty minutes, and to accomplish this Chamberland devised an autoclave which is now universally used for the sterilization of various utensils, and has thus become indispensable in bacteriological laboratories, in the operating rooms, and in central disinfecting stations. He, too, has given us the indispensable filter provided with the porcelain candle: he spent much time in studying how the porous substances retain various particles from liquids suspending them, and has thus reached the conclusion that porcelain is best fitted for this purpose. With this new and perfect filter he was enabled to continue further researches in the field of bacterial excitants of disease; the filter at the same time proved useful in the purification of various beverages. In general, his work as a hygienist was very important, and in recognition of it he was elected member of the Academy of Medicine. With his death French science has lost a talented worker, practical and scientific in his accomplishments: his name will ever be remembered in connection with the great epoch he represented.

The Academy of Medicine has just lost one of its oldest ex-presidents, in the person of Professor Riche. For the last twenty-five years he has filled the position of Professor of Mineral Chemistry in the Paris School of Pharmacy. He was an extremely able teacher, and a facile and elegant lecturer, who could make the most difficult experiments and demonstrations comprehensible to the students. In addition to his work at the School of Pharmacy he was also the Director of Assay at the Mint. Professor Riche was especially interested in the study of metallic alloys and succeeded in discovering a combination of copper and of tin which proved to be a malleable alloy easily hammered into sheets. From his pen are two works on chemistry which give a *resumé* of the subject as taught by him at the School of Pharmacy. He was President of the Academy of Medicine in 1902, and in that year, in the presence of the President of the Republic, he opened for scientific sessions the new hall of the academy.

Dr. Richelot, speaking for Dr. Henry Loze of Berck, reported to the Surgical Society a curious case of a foreign body in the abdomen. A surgeon, after an operation for appendicitis, was compelled to leave his patient in the care of an assistant. He instructed the latter to introduce a bit of gauze drainage similar to the piece of gauze used at the operation, at each subsequent dressing. This order was dutifully obeyed by the assistant, who introduced a new piece of gauze at each dressing without ever removing the pieces previously introduced. In this way in about a month he had succeeded in putting some thirty-odd pieces of gauze into the abdomen of the woman patient. The strangest thing in the case is that the skin closed over the wound and the contained dressings never gave any trouble for the three years following the operation. Then, all of a sudden, there appeared intense pain all over the abdomen, accompanied by vomiting, nausea, meteorism, and the facies of acute peritonitis. At first an intestinal obstruction was diagnosed, but the patient was in such a feeble condition that it was decided to defer an operation. The general condition of the patient improved in the following days, and at the same time a point of fluctuation appeared at the site of the old cicatrix. An incision was made over this point, and by means of a sound a bit of gauze dressing was removed, which still retained the shape of the intestinal coils. After this the patient continued to expel pieces of gauze dressings by the wound, thus bringing to light thirty-four old dressings. As a consequence of the long illness and the constant employment of morphine made necessary by the pain, the patient became very cachectic and weak, and was now in a precarious condition, suffering from a fecal fistula at the site of the wound made for the removal of the gauze. Of course, the point of interest in this case is the large number of the dressings which the patient carried in her abdomen without symptoms for such a long period of time.

An interesting discussion took place after the report of this case as to the duration of the stay in bed advisable after abdominal operations. M. Jean-Louis Faure thought that, as rapid healing of the abdominal incisions is now the rule, there is no reason why patients should be kept in bed after a modern operation as long as in the past. In his opinion, the general health of the patient was very

favorably influenced by as short a stay in bed as was possible. In fact, for a person feeling well the stay in bed is a most unpleasant and uncomfortable restraint. His appetite becomes impaired, his bowels become sluggish, and when he is allowed to leave his bed he finds himself unable to keep on his feet, many days passing before he regains his former strength. The speaker said that for the last ten years he had allowed his patients, both in hospital and private practice, to leave the bed twelve days after a laparotomy, and, indeed, in cases of an operation for an appendicitis, in the afebrile period of the disease, the stay in bed was shortened to eight or ten days. He could bear witness to the fact that post-operative complications were very much rarer with this change in the management of the patient, pulmonary complications being especially less frequent and less severe than formerly. He has found that the cicatrices were just as firm, and cases of phlebitis and embolism were no more frequent than formerly.

Professor Segond on the contrary saw great danger in the practice recommended by M. J. L. Faure, while M. Moty supported the opinion of the latter. M. Moty was able to quote his own experience; having been operated upon for appendicitis at the age of fifty-six years, he left the bed on the seventh day after the operation. He thought that as far as older patients are concerned, it is a great advantage to have them leave the bed early so as to make them more able to cope with any possible pulmonary congestion.

M. Pierre Delbet thought that the practice of allowing the patients to sit up on the third or fourth day after a median laparotomy was altogether irrational, because in the sitting position not only the abdominal pressure is increased, but that in addition the abdominal walls are wrinkled in such a manner as to interfere with the favorable evolution of the cicatrix.

M. Le Dentu said that after a successful laparotomy he allowed his patients to leave the bed about the fifteenth day after the operation. After any graver operations they were compelled to keep to their beds for at least twenty days. In his opinion, a sufficiently long period of rest in bed saves the patient from unnecessary fatigue and results in an uncomplicated and rapid convalescence.

M. Mauclaire thought that post-operative embolism is of much more frequent occurrence in persons who were allowed to leave their bed early after an operation.

M. Hartmann makes his patients leave the bed on the fifteenth day. He thinks that this best protects them against the complications which are predisposed by the dorsal decubitus of the patient, especially those involving the pulmonary system.

SURGICAL KNOTS.

To the Editor of the Medical Record:

Sir:—In the article on the above topic in this journal, June 6, Dr. Chas. H. Duncan gives a very good series of drawings showing how a knot may be tied quickly by manipulations carried on largely with one hand. The procedure there described has been known here for several years. I have seen it demonstrated also by Dr. E. C. Henry of Omaha.

There are several inherent faults in this method. In pointing them out I will not occupy space by reproducing drawings of the different steps, but will refer by number to the figures in Duncan's article. No one except a novice ties a knot such as the "granny knot" (Fig. 2). That will be left out of the discussion.

In surgical knots the chief point is security. While tying the second half of any knot whatsoever, the operator should keep his eyes fixed on the already partly tied knot until the second half of the knot is completed. If this is done while the manipulations are all carried on with one hand, the other being held steady, as represented in diagrams 4 to 12, the knot will be seen to slacken. Try it and see. Both ends of the ligature should be relaxed during the tying of the second part of the knot in order to avoid this slackening. This means, therefore, that no one-handed manipulation should be used during the tying of the second half of any knot. Given the first half of the knot tightened securely, further manipulations being now carried out with both hands while the ends are slack, the two ends should be grasped in the hands, with the thumbs close to the knot, and the final tension should be put on both at the same time, the eyes still being fixed on the knot.

By referring to Fig. 8 and Fig. 12 it will be seen that if tension is put equally on both ends of the ligature one end remains straight and the other end passes around it in the form of a loop, or, as one observer says, "the knot is all on one string." After placing the hands in the position there shown the reader will find that by crossing the hands the error seen in these figures can be corrected, but to cross one's hands is an awkward procedure. It will be found further that, given the knot half completed by manipulations of the left hand (Figs. 4 to 8), if the second part of the knot is completed by similar manipulations carried out by the right hand, the knot will eventually appear properly tied, as shown in Fig. 1; but a careful observer will notice that the transformation in the appearance of the first half of the knot (Fig. 8) to that of the first half of Fig. 1 is accompanied by an inevitable loosening of this part of the knot, just at the moment that final tension tightens the second half. This is a fatal error in the method. However, as far as the first half of this knot is concerned, by referring to Fig. 4 it will be seen that, by grasping the right-hand end of the ligature with the left hand, while the left-hand end is held with the right hand, the ends crossed with the right-hand end between the operator and the other end of the ligature, if the manipulations are carried out exactly as described by Duncan, the first half of the knot will be properly tied. This accomplished, both ends should be relaxed and the second half of the knot tied as I have described above.

As for the knot called "surgeon's knot" (Fig. 3) and the manipulations (Figs. 13 to 15), few surgeons would leave the knot tied thus except in using silkworm gut in the skin. For all other skin sutures, and all buried sutures and ligatures, a second half knot should be added while both ends are slackened, as referred to above.

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THE ETIOLOGY OF CANCER.

To the Editor of the Medical Record:

Sir:—As far back as the early nineties I discovered that among my patients whom I was treating for cancer there were some who exhibited a symptom which I had demonstrated to be a clinical sign of syphilis, namely, the egg-skin eschar in the mouth and upon other mucous surfaces. At a later date I was able in some cases to find an additional evidence of syphilitic infection, which was the presence in the blood of the crypta syphilitica. I also observed that all cases of cancer in which one or both of these clinical signs of syphilis existed bore antisyphilitic treatment well, and that the cancerous symptoms improved by its use. Several patients while under this treatment became well and remained so.

Since that time it has been my rule in practice to use the mixed treatment in all cases of this class, and I feel confident that it is to this fact that my gratifying percentage of success is due. Because I continued to find clinical evidences of syphilis in the majority of my cancer cases, of whatever form or location, and in all cases of epithelioma, and because antisyphilitic treatment improved all cases and even cured some in the early stages, I feel warranted in the conclusion that the real, underlying cause of cancer is syphilis.

As a matter of record and to establish the priority of my discovery in case some other physician should make it independently, and claim it as his own before I could sufficiently verify it and place it before the profession in a proper manner, I imparted my discovery personally to Drs. J. N. Farrar, Robert L. Watkins, John B. Rich, G. H. Patchen, Frank L. Tucker, and others. As it is very likely that I shall not be able to complete my studies and investigations regarding the etiology and elimination of cancer for some years to come, I have decided to give to the profession this brief outline of my theory, for what it may be worth.

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Births and Deaths in England and Wales.—The report of the Registrar-General for 1905, recently issued, shows that the estimated population of England and Wales in 1905 was 34,152,977. From 1901 to 1905 the number of births exceeded the number of deaths by 1,730,576. The births registered in 1905 numbered 929,298, and were in the proportion of 27.2 per 1,000 of the total population of both sexes and all ages; this is the lowest rate recorded since civil registration was established. The deaths registered in England and Wales during the year 1905 numbered 520,031, and were in the proportion of 15.2 per 1,000 persons living. The rate was the lowest rate recorded since civil registration was established.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 18, 1908.

Carcinoma of the Bladder Treated with Trypsin.—R. H. Gilpatrick reports two cases. Patients were women, aged, respectively, 44 and 78 years. In the younger woman an abscess was opened in the left groin, while a carcinomatous growth of utterly inoperable proportions involved the bladder and anterior vaginal wall. Treatment with trypsin injections was begun three days after operation. At first 10 minims were injected into the body of the tumor on alternate days. The dose was rapidly increased to 25 minims, a little cocaine being added to the injection to control pain. The patient grew rapidly worse and was finally sent home to die. The trypsin was apparently without any effect whatever. In the older woman the same general plan was followed and she seemed to improve for awhile, but later she failed and finally died from metastasis at the pylorus.

Modern Medicine and Surgery in the Orient.—J. Ewing Mears, in an interesting account of his travels during the past eighteen months in the Far East, says that in the beginning the art of surgery was advanced to quite a high degree in some parts of the Orient. From this beginning in the East medicine came into the West through the school of Alexandria and the teachings of Galen, of Celsus, and of Paulus of Ægina. To comprehend the position of modern scientific medicine in the Orient we must have a knowledge of the institutions engaged in teaching. In Japan education in medicine is a part of the general system, which is as complete in its development as may be found in any country of the world. The educational center is Tokyo, where one of the greatest universities of Japan is located, the other being in Kyoto. Of the 131 professors in the University of Tokyo, the College of Medicine has 24, with four or five hundred students. There are two hospitals connected with the college, having a total capacity of 571 beds. In addition to the College of Medicine of the university there are eight other medical colleges. Foreign physicians, who are graduates of medical colleges having a reputable standing, will on application be granted a license to practise. There are a number of hospitals outside of those connected with the medical colleges. There is a training school for nurses connected with the Red Cross Hospital. They receive a very practical instruction by lectures and demonstrations, and are made nurses and not half doctors. In no other part of the world is the Red Cross Society so perfectly organized or so efficiently equipped. The society owns two hospital ships. It is the largest in membership, as well as the richest Red Cross organization in the world. Japan also has a well-equipped school for the instruction of its medical military officers. In China, outside of the few hospitals and fewer medical colleges connected with them under British or American control, modern medical science does not have a very firm foothold. The Canton Hospital, which was opened in 1835 by Dr. Kerr, a missionary, has had a place in the records of surgery for many years by reason of the large number of cases of vesical calculi operated on by Dr. Kerr. In Canton sanitary regulations are not enforced, but, in marked contrast to this, one sees much in Shanghai which gives evidence of the influence of Western civilization, especially outside of the Chinese part of the city. There are four hospitals. Bombay is the seat of the Grant Memorial College, the largest of the four medical colleges of India. Connected with the colleges are hospitals used in conducting clinical and laboratory instruction. The teachers in the colleges and the staffs of the hospitals are taken from the medical officers in the Indian Military Medical Service. The medical colleges are in affiliation with the universities, which constitute the head of the educational system carried on by the British government. Very few Mohammedans enter the medical profession. The government refrains, except in extreme conditions, from the enactment and the execution of various desirable laws and sanitary regulations calculated to disturb the uneasy sensibilities of the natives.

New York Medical Journal, June 20, 1908.

Cholera Infantum.—L. K. Hirschberg refers to this malady as an avoidable plague, which each year kills 50,000 babies in this country alone. Nothing particularly new or novel is brought out in the paper. He recognizes the Flexner-Harris organism as responsible for the most virulent and dangerous form of cholera infantum. He considers this organism as practically identical with the Shiga bacillus. The author has nothing new in the line of treatment to present, but believes that before long a protective vaccine will be perfected.

Treatment of Infantile Paralysis.—C. R. Keppler enumerates as the principles of treatment: (1) active treatment by the pendulum machine, massage and electricity, and hydrotherapy; (2) brace treatment, and (3) operative treatment. The pendulum machine is described in full, and the paper is an elaboration along the lines indicated above. Under the head of operative treatment, he enumerates tenotomy, tendon transplantation, nerve transplantation, and arthrodesis. He believes that with sufficient care and the rational use of the treatments herein tabulated—but especially the active pendulum machine and massage treatment, combined with the application of a correct brace—we can in most cases of infantile paralysis be quite optimistic in regard to the recovery of usefulness of and restitution of muscular power in the affected limbs. Certainly it seems plausible that we can hope to attain much better functional results if we actively teach the child to help itself, instead of leaving it in ignorance of its capabilities, without even considering the remarkable local regeneration and immediate gain in general health and strength, which the author has so frequently noted, following the systematic use of the pendulum machine and massage treatment.

The Duodenal Bucket and Direct Examination of the Pancreatic Secretion.—The idea presented itself to M. Einhorn of having beads of different sizes attached to silk threads and having them swallowed in order to see whether they would pass the pylorus. In normal conditions they do so pass, but in stenosis they remain in the stomach. As the length of the thread was not a sufficient guide, he loaded the beads with methyl blue and coated them with tallow. As the fat is mainly dissolved in the duodenum, a green or blue urine would show that the bead had reached the duodenum, that is, had passed the pylorus. In this way, using different substances in the beads and variously coating them, and by using a control bead with a thread of such length that it cannot go beyond the stomach, it can be determined whether or not the pylorus is patent. The pancreatic function is tested in the following manner: The duodenal bucket, tied to a string marked at 75 centimeters, is placed in a gelatin capsule and given about one hour after a small meal. It is left in the digestive tract for three hours without taking any more food. The thread is fastened so that it cannot go beyond the 75 centimeter mark. After three hours the thread is slowly drawn up. In many cases a slight resistance can be felt when the bucket passes the pylorus, the cardiac end usually offering no resistance.

Journal of the American Medical Association, June 20, 1908.

The Eye and Autointoxication.—G. E. de Schweinitz and C. A. Fife publish six fully reported cases of keratitis, chorioiditis, and uveitis, with detailed laboratory examinations of urine, feces, and gastric contents, in which the clinical history and results of treatment seemed to indicate an autointoxication as an etiological factor. Admitting that there is no one disease of the eye that can be considered characteristic of intestinal intoxication, and that laboratory examinations have not isolated any definite toxin to which any of the eye disorders considered can be attributed, the authors believe there is still a fruitful field of study in this direction. We can learn whether or not there are evidences of intestinal putrefaction and can become acquainted with the patient's nitrogen metabolism. If it is found abnormal it can be restored to the normal by a dietetic regimen which could not have been worked out without such study, and we may obtain brilliant therapeutic results in the treatment of the ocular disorder, as is strikingly demonstrated in the majority of the cases reported. They emphasize, however, the need of thorough investigation, and of avoidance of loose interpretation of the facts and routine treatment. Each case must be thoroughly studied by itself and the patient treated accordingly. They also call attention to the relationship which exists between the outbreaks of uveal tract disease, notably chorioiditis and lesions of the skin, which was notably illustrated in one of the cases reported. When the skin affection was evident, the eyes were better, and *vice versâ*. They refer to other instances and remark that this association of eczema, herpes zoster, acne, and chorioidal disease seems to be more than a coincidence. If it be true that an intestinal intoxication may sometimes be interpreted in an effort of elimination by a skin disease, such as those mentioned, is it not probable, they ask, that it may have a similar interpretation by the development of a chorioiditis or a uveitis, and that sometimes the toxin is responsible for the skin lesion, and again, on another occasion, for the ocular disorder?

Marriage of Consumptives.—I. A. McSwain thinks that the factor of heredity is the chief one to be con-

sidered in the strife against the propagation of tuberculosis. It outranks all others, in spite of all that has been lately said to the contrary. Admitting this, it would seem rational that our first efforts ought to be to put a stop to the propagation of those thus predisposed. A tuberculous man or woman ought not to marry on account of the risk of infection to his or her married partner, and this ought of itself to be a sufficient reason against such alliances. But beyond this we have the danger to the offspring, which, serious enough when one parent is a victim of the disease, is increased fourfold when both are tuberculous. There are still other good reasons why consumptives should not marry, for example, the dangers of child bearing and the detrimental effects of sexual intercourse. While something can be accomplished by education, restrictive laws against the marriage of the tuberculous will be needed to reach those who will not voluntarily deny themselves for the public good and the welfare of posterity. McSwain believes a national law would be required to be effective, but we should do what we can in the way of educating the public as to its necessity.

Thymic Asthma.—J. Schwinn reports a case of thymic asthma successfully relieved by operation. Though we know little in regard to the function of the gland, the fact that it is practically always present in normal infants, while Bourneville found it absent in twenty-five out of twenty-eight mentally deficient ones, gives us reasons for treating this gland with the same respect on the operating table as we do the thyroid, and it is wise to leave a portion of the gland behind in thymectomy. The literature of thymic asthma has become quite voluminous; it is doubtless due in most cases to pressure of the enlarged gland on the trachea, though the pressure on other structures, the large veins, the pneumogastrics, etc., is also a probable factor. The symptoms are those of an obstruction in the air tract between the larynx and the tracheal bifurcation. They may become dangerous at any time and, in Schwinn's opinion, may be a more frequent cause of sudden death than is generally supposed. The radiogram is the most trusty of diagnostic aids, and prompt operative interference the best treatment. He briefly summarizes six cases of operation for this condition collected from the literature and reports his own case, in which, besides the thymus, a small portion of which was left for physiological reasons, a part of the hypertrophied left lobe of the thyroid was also removed. The results in all cases were good.

The Lancet, June 13, 1908.

Note on a Case in Which the Widal Reaction Persisted Seven Years After an Attack of Typhoid Fever; Associated with Suppurative Cholangitis, Typhoid Bacilli Being Found in the Bile Passages.—The title of D. E. Core's paper gives the full sequence of events. His patient was a woman of flabby build, whose sickness begun with biliary colic. She was admitted to the hospital with a diagnosis of typhoid fever. Death ensued on the fourteenth day after admission. Pus taken on autopsy from the intrahepatic bile passages showed the *Bacillus typhosus*. The two points of interest are the long persistence of the Widal reaction and the danger of such a patient to the community. She had had typhoid fever seven years before.

The Treatment of Gangrene in Strangulated Hernia at St. Thomas's Hospital, 1901-1905.—Statistics are given by E. M. Corner of 216 cases of strangulated inguinal hernia during the period named. Gangrene was recognized in 8, with a mortality of 3.6 per cent.; of 133 cases of strangulated femoral hernia in 12, with a mortality of 9 per cent., and in 46 cases of strangulated umbilical and ventral hernia, in 10 with a mortality of 21.7 per cent. The treatment of choice has been that of resection and immediate anastomosis. Of such cases 18 have been operated on, with 8 recoveries. During the period there were 10 cases of resection and enterostomy, with only 1 recovery. The author believes that in this general class of cases there are variations of degree in the septicity of the bowel and its contents in cases of intestinal obstruction which have been acute from the beginning, as in the strangulation of a hernia and when the acute obstruction has merely been imposed on a chronic, as in bowel carcinoma. In the former case the septicity is localized in the vicinity of the obstruction, so that if the resection is done freely more or less healthy tissue will be sutured and success will be attained. In the latter case the septicity extends further and all plastic operations like anastomoses are done in a septic area and end in failure.

The Treatment of Intractable Hay Fever and Paroxysmal Coryza by Resection of the Nasal Nerve.—E. S. Yonge describes the anatomical distribution of the nasal nerve in great detail. He says that the relief often afforded in this class of patients by cauterization of the nasal mucosa in the region supplied by the nasal nerve corroborates the suggestion that the terminal filaments of this nerve represent the starting point of reflex disturbances. By bilateral resection of this nerve the author has been able, completely and lastingly, to abolish the symptoms complained of. He thus describes the operation: Chloroform anesthesia; the nerve is reached by an incision at the inner angle of the orbit, commencing just above the inner canthus and extending upwards and slightly outwards for about two-thirds of an inch. By means of a blunt dissector the cellular tissue is cleared from the inner upper wall of the orbit and the nerve located at the anterior orbital foramen is separated from the anterior ethmoidal artery and divided close to the foramen, about a quarter of an inch of the nerve being resected. Horsehair sutures are introduced (removed on the fourth day) and the wound sealed with collodion over gauze. Both sides may be operated on at the same time.

British Medical Journal, June 15, 1908.

Rigor Mortis in the Stillborn.—A. Tarleton was called to a patient in labor at full term. She had been having inefficient pains for three days. The os was fairly well dilated and the cervix was quite soft. The membranes were ruptured by the accoucheur, and in one hour after his arrival a well-developed girl was born. As it did not cry or make any movement, he introduced his finger into its mouth, and was at once struck by the difficulty of doing so, the muscles of the jaw being firmly contracted. After repeated slappings there was no response, and on further examination the child was found to be quite dead. The arms and legs were flexed, and resisted the attempt to straighten them; the muscles of the back, neck, and abdomen were flaccid, and the eyes were quite dull.

Perforated Gastric Ulcer; Operation; Recovery.—R. M. White's patient was a woman of 40 years. The notable features of the case are thus summarized: (1) The mobile dullness on percussion noted at one time in the left iliac fossa, and at another time in the right iliac fossa, making the diagnosis difficult, but Sargeant has called attention to this point in cases of perforation of the stomach. (2) The size and situation of the ulcer: According to Osler the largest ulcer recorded is that reported by Peabody, which measured 19 by 10 cm. In White's case here reported the ulcer was located on the anterior surface of the lesser curvature at the cardiac end of the stomach. It extended up to the commencement of the gullet and was about two and a half inches in diameter, the perforation being the size of a pea. (3) Closure of the perforation: The imitation of nature in closing the perforation by means of an omental graft has been previously recorded, and in cases similar to the above seems to be the most rational method. (4) After-treatment: During the first week, when no food was given by the mouth, the patient exhibited the greatest endurance, and at the end of that time she stated that if food was injurious to her she could manage quite well without it for a few days.

Berliner klinische Wochenschrift, June 8, 1908.

Intestinal Dyspepsia.—Einhorn understands under this term a disturbance of the functions of the intestine, and separates the manifestations of this condition into two groups: the first one shows disturbed function in relation to all three of the elements of foodstuffs, proteid, fat, and carbohydrate; the second group includes conditions in which one or more of the elements are badly taken care of by the bowel. The symptoms may be accompanied by anatomical lesions of the gastrointestinal tract or may be perfectly functional in nature. The best procedure for diagnosing such conditions is the bead test devised by the author. He reports seven cases, two of which show that a complete intestinal dyspepsia may exist for a long time without endangering the life of the patient. Disturbance of the starch digestion seems to be the most frequent trouble in the second group of cases. The therapy of total dyspepsia should consist in a fluid or a semi-fluid diet, and the administration of ferments to make up partially at least for the lack of them in the natural intestinal secretions of the patients.

Intramuscular Myeloma in Myelogenous Leukemia.—Frugoni describes a very rare lesion occurring in myelogenous leukemia. During the course of two cases observed by him a thick intramuscular hematoma appeared, ushered in by shooting pains in the extremity

and general aggravation of the primary disease. Surgical interference led only to the intensification of local and general symptoms. Death followed in both cases, and the histological examination revealed that the hematoma was due to the existence of an intramuscular myeloma, as a metastatic phenomenon of the original blood disease. The author thinks that this lesion is of the gravest prognostic value, and that the possibility of its appearance adds greatly to the support of Banti's theory of the leukemias, namely, that they are neoplastic diseases.

Münchener medizinische Wochenschrift, June 9, 1908.

Vaginal Cesarean Section.—Lunckenbein says that the application of "high forceps" is a dangerous and a difficult procedure when the physician has not received special training in such obstetrical operations. Perforation of the child's skull is not to be performed if any other method of delivery with the preservation of the child's life is possible. He recommends the following procedure instead of these two: The anterior wall of the uterus is split open without the separation of the vaginal vault and without interference with the bladder. Delivery with the forceps or extraction of the child by the foot then follows. Döderlein has used this modification of the operation of Dührssen three times and the author six times, twice in such circumstances that the more extensive dissection called for by the method of Dührssen could not be thought of. The technique consists simply in pulling down the cervix with a bullet forceps and the splitting of it in the middle line with the scissors; the wound edges are then grasped as high up as possible and the anterior uterine wall pulled down, the bladder separating spontaneously. The uterus is now split a little further until the forceps may be used without danger of extensive lateral tears. The wound is sutured after the delivery of the placenta, the bleeding usually not being very extensive. The operation is much simpler than the cesarean section of Dührssen and therefore ought to find a wider field of application. To distinguish it from the former procedure the author proposes for it the name "anterior hysterotomy."

Deutsche medizinische Wochenschrift, May 21 and June 4, 1908.

Indications for Abortion.—Friedmann says that at the present time only typical psychoses of pregnancy are considered as an indication for the induction of an abortion. He thinks, in agreement with Jolly and Pick, that a more important indication for this procedure is found in the "psychopathic reaction" observed in some individuals, which results in a very much exaggerated and morbid fear of childbirth. This reaction differs from the normal anxiety felt by many pregnant women by its intensity, by the tendency to suicidal acts displayed by the patients, and, finally, by the long duration of the depressive state, which may not change for the better in many months. It differs from the real psychoses by being due to the psychical effect alone and by being easily cured with the disappearance of the cause for the morbid and exaggerated anxiety. Induction of abortion resulted in prompt recovery in five of Friedmann's cases, though a relapse followed in one case. The dangers of this affection consist in the possibility of suicide and the great weakening of the patient because of the morbid mental state. As a stay in the insane asylum can meet only the first danger, the induction of abortion is justified in such cases, and, moreover, it fully meets the legal conditions limiting the recourse to this procedure.

Parabiosis and Pancreas Diabetes.—Forsbach says that after a total extirpation of the pancreas in dogs glycosuria sets in within twelve hours. He united two young dogs by their peritoneal cavities, using the method of Sauerbruch and Heyde, and removed the pancreas of one dog after the union was complete. In the next thirty-six hours the depancreatized animal excreted no sugar, while the other one excreted traces of sugar. The death of the depancreatized animal ended this experiment. He repeated the experiment with two other dogs. Neither animal excreted sugar for the next forty hours, after which a slight glycosuria appeared in both animals. After five days the animals had to be separated and the pancreatized one excreted more sugar in the twenty-four hours preceding his death than in all the five days before the separation. The author concludes that parabiosis with a healthy animal may prevent or diminish the appearance of glycosuria in a depancreatized dog.

Pneumatosis Cystoides Intestinorum.—Gröndahl says that certain chronic diseases, such as gastric or duodenal ulcer, chronic volvulus, etc., are sometimes accompanied by the appearance of a great many cysts containing gas, and most abundant in the sigmoid. This condition is probably due to an infection with a gas-forming bacillus, which, however, is not virulent, and has nothing in common with the bacillus of malignant edema. The formation of gas takes place in the lymph vessels and spaces, which are thus changed into cyst-like structures. The changes are very chronic, some cysts being absorbed, others organized. Very few symptoms accompany this curious infection. Gröndahl describes a case and gives several pictures of the lesions present.

Scopolamine-Morphine Anesthesia in Obstetrics.—Krönig says that anesthesia is indicated in the delivery of many women who are either very much weakened by a hard struggle for existence or belong to a type of the highly nervous, sensitive women who are unable to bear the pains of labor without being profoundly and dangerously affected by the suffering. In the Freiburg clinic over 1,500 women have been delivered with the use of scopolamine-morphine anesthesia. The solutions used are a 0.03 per cent. watery solution of scopolaminum hydrobromicum as a 1 per cent. solution of morphine. The first injection is made when the pains recur every four or five minutes, 1½ c.c. of the scopolamine solution and 1 c.c. of the morphine solution being used. One hour later scopolamine alone is injected in a somewhat smaller quantity. Half an hour later the woman is tested as far as her psychic reactions are concerned, various questions being addressed to her in reference to matters that happened just before labor, the number of injections she had received, etc. The injections are repeated if a subject is retained in the mind for over thirty minutes. No untoward action whatever has been observed in any of the 1,500 cases; the single death that has occurred was due to a delivery in the presence of a deformed pelvis, cesarean section being refused by the patient's husband. The loss of blood did not exceed the usual amount; the duration of labor was not affected; the mortality of the infants intrapartum has been diminished by the anesthesia. Krönig concludes that his method of administering scopolamine-morphine in cases of labor fully attains the aim of the procedure, a painless delivery without any harmful effect upon the mother or the child.

The Sphygmobolometer.—Schulthess describes a new instrument devised by Sahli for the examination of the heart. It can no more than any other instruments give the diagnosis of heart diseases, but furnishes the most reliable data as to the efficiency of the left ventricle of the heart, which data may be expressed in numerical values for comparative studies. The instrument allows the comparison of the heart's work in health and in disease, the effect of drugs upon the heart, and the changes in the work of the heart in different positions of the body.

Unilateral Hyperhidrosis.—Friedländer says that unilateral hyperhidrosis is due to a unilateral disturbance of the innervation of the sudorific glands. There are a central and a peripheral type of such disturbance. Both forms may occur in isolated cases in healthy individuals as well as in persons suffering from various diseases and are characterized by an extremely chronic course. The disease is essentially unimportant and harmless in character. The author reports six cases of the affection observed by him.

Atropine and the Slow Pulse.—H. Vaquez says that the careful study of arrhythmia enables us to detect in most cases a nervous origin for the trouble, in others a muscular origin. In case of nervous origin there is an entire pause in the beats, while in the muscular affections auscultation and the comparative study of the traces of the radial and jugular show a slowing of the beat which only affects the ventricle, the auricular contractions producing systoles like an echo of the ventricular contraction. In a healthy man atropine accelerates the beats of the heart. When the pulse is slowed by disease atropine will cause a paralysis of the terminal filaments of the pneumogastric in the cardiac muscle and the beat becomes quickened. In bradycardia caused by organic muscular lesion the effect of atropine is nil. The rhythm is not modified at all. The author presents a case in which atropine showed the purely nervous origin of the trouble, the slowing having shown itself in the course of an appendicitis.—*La Tribune Médicale.*

Book Reviews.

Hernia, its Etiology, Symptoms, and Treatment. By W. McAdam Eccles, M.S. (London), F.R.C.S. (England), Assistant Surgeon to, and Demonstrator of Operative Surgery at, St. Bartholomew's Hospital; Examiner in Surgery to the Society of Apothecaries; Examiner in Anatomy for the Fellowship of the Royal College of Surgeons of England; late Hunterian Professor of Surgery, Royal College of Surgeons of England; Lecturer on Anatomy, St. Bartholomew's Hospital; Senior Assistant Surgeon, West London Hospital, and City of London Truss Society, etc. Third Edition. New York: William Wood & Co., 1908.

The third edition of this work has just appeared, thereby evidencing a deserved popularity. No great alterations have been made, it being as before a short account of the origin, symptoms, and treatment of hernia, incorporating many practical suggestions. The author, however, devotes more attention to the nonoperative treatment of hernia than in the previous editions. He gives a detailed description of the truss treatment of all types of hernia, such as can be found in none of the textbooks on surgery and a subject very meagerly treated in the different systems of surgery of the present day. The illustrations serve to graphically supplement the text. Descriptions of operative technique can be found in all books on surgery; not so the indications for operative interference and postoperative treatment; the latter subjects, however, are well worthy of careful reading in this publication. The book cannot be too highly recommended to the surgeon as well as to the general practitioner.

Minor Maladies and Their Treatment. By Leonard Williams, M.D., M.R.C.P.; Physician to the French Hospital; Assistant Physician to the Metropolitan Hospital; late Assistant Physician to the German Hospital; and Hon. Medical Officer to the Sidmouth Cottage Hospital. Second edition, revised and enlarged. New York: William Wood & Company, 1908.

The average medical student graduates with fair knowledge of the symptomatology, the diagnosis, and the treatment of the more serious diseases, cases of which he has seen in the hospitals and dispensaries. On the other hand, he is usually quite at sea when confronted by the minor ailments of mankind; he either misinterprets their symptoms into those of serious disease or finds himself untrained in relieving the usual discomfort of the patient. Dr. Williams's little book, therefore, has its distinct field of usefulness in helping the young physician until riper experience enables him to decide upon his own plan of treatment of minor maladies. The first chapter of the work is devoted to "colds, coughs, and sore throats," specific therapeutic advice being given and complete prescriptions written out instead of the usual list of drugs "good" for the complaint. The next two chapters consider the commoner diseases of the gastrointestinal tract, indigestion, constipation, and diarrhea being given most attention. The many manifestations of "rheumatism and goutiness" are next considered together with neuralgia and headache; in the case of the latter the various etiological factors are fully entered into. Change of air, questions of general health and hygiene, the properties and uses of the more important drugs, and some phases of insanity are discussed at the end of the book. A very complete index makes the work handy for ready reference. The book ought to prove very useful to the student and the young practitioner.

Considérations Historiques sur la Blennorrhagie, par le Docteur Ernest Roucayrol, Médaille de Bronze de l'Assistance Publique, Membre de la Société Française d'Histoire de la Médecine. Paris: G. Steinheil, 1907.

While this book of 239 pages is interestingly written, it does not come up to the promise of its title. Indeed, if its ancient history, which but few would take time to verify, is as incomplete as the recital of modern work, the history of gonorrhea is not materially enriched by the author. In this connection it may be mentioned that Guyon's name does not appear in the book; Janet is recalled by the fact that a syringe devised by Bertrandi (A.D. 1786-1802) is thought by the author to resemble the one Janet presented to the profession some twelve or fifteen years ago. To the unimaginative reviewer the picture resembles the instrument used by veterinarians for horses, as much as it does Janet's syringe. If the term "European Chauvinism" is admissible, the author certainly has it, because the names of Noegerrath, Bumstead, Keyes, Taylor, Sturgis, Fuller, Lydston, and other American writers who have contributed important additions to the study of gonorrhea do not appear. It is to be hoped that the ancient history of this book is not as inexact as the more modern period which he recites, as shown by the illustration of a discarded form of the Valentine urethroscope that Dr. Roucayrol presents as devised by Luys (pp. 216, 217). The book, however, is not without value; it can serve as an aid to tracing the historical origin of thought on gonorrhea. The vast amount of research devoted by the author to European, and especially French, literature, will certainly help those interested, more particularly when the field examined by Roucayrol is not accessible to them.

Atlas der gynäkologischen Cystoskopie, von Dr. W. Stoeckel, Direktor der Universitäts-Frauenklinik in Marburg, a. L. Mit 14 lithographischen Tafeln. Berlin: August Hirschwald, 1908.

This book, essentially one of illustrations by Miss L. Krause (except one by B. Fritsch, Jr., and another by Kawasoye of Japan) is presented as a supplement to the author's work on "Cystoskopie der Gynäkologen." The 70 pictures of the normal and diseased bladder it contains are certainly made with great precision, although in some instances the colors employed are rather high. This excess of coloration, however, is materially modified towards the cystoscopic appearances, when examined by electric light. The essential inconveniences of this work can be remedied in future editions by reducing the types of the text, so that it will in each instance confront the illustration to which it refers. The descriptions are concise, in some places too terse for the beginner in cystoscopic diagnosis. It will prove a most valuable addition to the experienced cystoscopist's library.

A Text Book of Otology for Physicians and Students in 32 Lectures, by Fr. Bezold, M.D., Professor of Otology at the University of Munich, and Fr. Siebenmann, M.D., Professor of Otology at the University of Basle. Translated by J. Hollinger, M.D., of Chicago. Chicago: E. H. Colgrove & Co., 1908.

In this work the author demonstrates the typography of the middle ear principally by cuts of specimens from his work "Corrosion Anatomy of the Ear," but omits a description of the ossicles and their relations to each other and assumes that the reader has a knowledge of the labyrinth and its contents. In Lecture IV he gives rather a full description of the technique of examinations through the Eustachian tube and describes eight methods of passing the catheter. Lecture V discusses in an original way the shape, size, and curves of the external auditory canal, and includes careful observations of the normal reflexes of the membrana tympani. The statistics collected from school children and army men, relative to functional disturbances of hearing determined by means of tone tests, is full and very practical. The diseases of the external ear, the external meatus, and the tympanic membrane are treated in the lectures from X to XV. From Lecture XV to XXIV the middle ear and its diseases receive very careful consideration, but as the book is designed for the general practitioner the operations are not given in detail except Schwartze's for opening the antrum. The diseases of the inner ear were taken up by Prof. Siebenmann because of the illness of Prof. Bezold. The four lectures comprising his contribution form a valuable part of the course. Many books are published on otology of larger size and more generous padding, but few are more up to date and condensed. The translation is well done, but there are some typographical errors which will doubtless be corrected in the next edition.

Manuel Pratique et Simplifié d'Analyses des Urines, et Autres Secretions Organiques. Par Ernest Liotard, O.I., Docteur en Médecine à Nice. Third Edition. Paris: A. Maloine, 1908.

Liotard's manual of urine analysis, etc., is intended for students and general practitioners. It is very brief, and cannot be said to aim at completeness of treatment, but it contains the essentials of the subject. In some respects it is unlike the similar books published in English: Much space is devoted to the qualitative relations of the various urinary constituents, especially to the various "coefficients" of which the French are very fond. The chapters on the examination of cystic fluid, serous fluids, etc., are very brief.

Transactions of the Twenty-ninth Annual Meeting of the American Laryngological Association. Held at Washington, D. C., May 7, 8 and 9, 1907. New York: Published by the Association, 1907.

This volume contains the papers and theses presented to the Association and read at the twenty-ninth annual meeting. An interesting presidential address, by Dr. A. W. de Roaldes heads the volume.

Society Reports.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting Held at Richmond, Va., May 5 and 6, 1908.

(Special Report to the MEDICAL RECORD)

THE PRESIDENT, Dr. WILLIAM H. CARMALT OF PITTSBURG, IN THE CHAIR.

Address of the President.—Dr. CARMALT reviewed the advances in pathological anatomy during the past fifty years. He pointed out the advantages to the hospitals of having clinical teaching in the wards and emphasized the need of the establishment in hospitals of fully equipped pathological laboratories. Instances were cited of the transference of pathological conditions from internal medicine to surgery.

Reminiscences of the Early Days of the American Surgical Association.—Dr. J. EWING MEARS of Philadelphia, one of the survivors of the original Fellows of the Association, reviewed its reorganization and history. The suggestion of selecting Washington as a permanent meeting place of the Association was considered with the idea of erecting a suitable building for the purposes of the organization. Practical steps were taken toward the consummation of this idea.

Surgery of the Gasserian Ganglion.—Dr. STEPHEN H. WEEKS of Portland reported two cases of removal of the Gasserian ganglion for the relief of *tic douloureux*. He disapproved of the operation as a primary procedure for the condition, claiming that the extracranial operations upon the branches of the fifth cranial nerve should first be made. There was complete relief from pain in both cases. The escape of a small portion of the brain during one operation had apparently caused subsequent difficulty in the pronunciation of certain names.

Dr. VANDER VEER of Albany had done this operation a number of times with successful issue. Hemorrhage had always been a cause of anxiety to him.

Dr. S. J. MIXTER secured better results in doing the operation in two stages.

Perforative Peritonitis (General, Free, Suppurative).—Dr. JOHN B. MURPHY of Chicago gave particular emphasis to his reference to free, spreading, perforative peritonitis in the consideration of his subject. Only such cases were included in the paper as resulted from (*a*) direct communications of the alimentary canal into the free peritoneal cavity, and (*b*) perforations of the appendix with primary retention of the infective material in a circumscribed zone and subsequent rupture into the free peritoneal cavity with the presence of a communication from the intestine, through the appendix, and through the abscess in the free cavity. Forty-eight cases were operated upon, two gastric perforations, one duodenal, four typhoid, forty-one appendical. The sixteenth and forty-sixth cases ended fatally, the first from a double pneumonia on the sixth day after operation; the second from a mechanical ileus and strangulation of the intestines around the omentum. While Dr. Murphy stated his confidence in the uniformly good results of the future, this involved the assumption of early diagnoses, insistence upon early operation with the least possible trauma consistent with closure of the opening and the relief of pus tension, limitation of the anesthesia, shortening of the time of operation, insuring the continual absence of pus tension, elimination of sepsis already in the blood, restoration of blood pressure, and inhibition of septic absorption by position. The limitation of intestinal manipulation and exposure of the abdominal contents was considered the most important of the elements mentioned. The importance of the Fowler position both preoperative and postoperative the author said was not fully appreciated. He insisted that the patient should be placed in this position when diagnosis was made and so continued until convalescence was well advanced. Opium and coal tar anodynes were not given in the reported series either before or after operation.

Dr. JOHN B. DEAVER of Philadelphia laid particular emphasis upon early operation and a minimum of manipulation. He regarded short anesthesia as important. He used eserine reinforced with strychnine and had no hesitation in sitting patients up in bed. He had no hesitation in reopening the abdomen for obstruction. He was emphatic in his statement that he did not give morphine.

Dr. A. G. GERSTER of New York City had within the past two years followed Dr. Murphy's plan of treatment with markedly improved results. He thought Dr. Deaver's withholding of morphine an extreme position and unwarranted.

Dr. ARTHUR D. BEVAN of Chicago in some cases of fluid in the peritoneal cavity used a female glass catheter as a pipette for taking up the pus. He believed it good surgery to wash out the peritoneal cavity and claimed that it could be done without loss of time. As an anesthetic he favored nitrous oxide gas in preference to ether or chloroform.

Dr. DUDLEY P. ALLEN of Cleveland when draining, in order to have the advantage of gravity, placed the patient upon the side.

Dr. JOSEPH RANSOHOFF of Cincinnati feared that a statement of recovery in the proportion of 44 to 3 would cause the average general practitioner to delay in seeking surgical aid. He inquired in how many of the forty-seven cases operation was done after four or five days after onset of general peritonitis and in how many cases death appeared to be imminent.

Dr. GEORGE E. ARMSTRONG of Montreal regarded induced draining by rectal injection in the sitting position an important factor in treatment. In two cases of persistent vomiting with swelling in the epigastric region reversal of the position of the patients from the Fowler to the Trendelenburg position gave relief.

Dr. JOHN C. OLIVER of Cincinnati referred to the natural difference of opinion concerning the forms of peritonitis following appendicitis or perforated gastric or duodenal ulcer and to the consensus of opinion that peritonitis following gunshot wounds was apt to be general. He inquired whether Dr. Murphy's method had been applied in cases of peritonitis following gunshot wounds of the abdomen.

Dr. JAMES E. MOORE of Minneapolis did not agree with Dr. Deaver in believing that abdominal cases should be deprived of morphia.

Dr. MORRIS H. RICHARDSON of Boston said that in their hospital service they depended largely in the treatment of peritonitis upon rectal lavage. While not following exactly Dr. Murphy's method, they did not wash out the abdomen nor wipe extensively; also they did not make multiple incisions. They gave small doses of morphine.

Dr. JOHN B. ROBERTS of Philadelphia thought Dr. Murphy's paper showed the error in the belief heretofore held that patients should be maintained in the dorsal recumbent position and be deprived of water and pain-obtunding drugs. It also proved that cases of perforated appendicitis and similar lesions should not be treated by an insistent search for the offending organ.

Dr. RICHARD H. HARTE of Philadelphia in drainage preferred gauze to tubes. Even in the typhoid perforation cases in which the perforation occurred at the end of a very long illness he approved of having his patients in the sitting posture.

Dr. M. L. HARRIS of Chicago referred to cases of gunshot wound of the abdomen upon which he had operated. All had been drained and all recovered.

Mr. G. B. A. MOYNIHAN of Leeds, England, referred to their improved results in following Dr. Murphy's treatment. Differing from Dr. Deaver in the matter of mor-

phine a small hypodermic was given in every case before the patient left the operating table. The patient was allowed to take as much water as he wanted.

Dr. MURPHY in closing said positively that every case of general perforative peritonitis if managed correctly should recover. Replying to Dr. Ransohoff, all his cases were under forty hours and added that all should be under twenty-four hours, while under twelve would be even better.

Late Results (Two Years or More) After Operations for Benign Diseases of the Stomach and Duodenum.—Mr. B. G. A. MOYNIHAN of Leeds, England, reviewed the records of his operations in nonmalignant diseases of the stomach. They were 281 in number and a full classification was given with the results obtained. It was concluded from this review that the operative treatment of stomach disorders should be confined exclusively to those cases in which an organic lesion was present. In cases of acute perforating ulcer, the perforation should be closed or the ulcer excised. In his opinion the most satisfactory method of gastroenterostomy was the posterior no-loop operation, with the almost vertical application of the bowel to the stomach.

Study of Gastric and Duodenal Ulcers, with Especial Reference to Their Surgical Cure.—Dr. WILLIAM J. MAYO reported a series of cases in which the average duration of the symptoms was over twelve years and in which medical treatment had been ineffectual. A classification was given of all the cases of ulcer and kindred diseases of the stomach and duodenum operated on between 1893 and April, 1908. There had been 824 operations. With one exception, all of the cases of acute perforation treated by simple suture recovered. There was a mortality of less than one per cent. in more than 300 posterior no-loop gastrojejunostomies with the intestine sutured to the stomach in its normal position downward and to the left. Only three cases had required secondary operation. There had been traced 379 cases of ulcer of the stomach and duodenum operated upon previous to 1906, covering two to fifteen years since operation. In 318 actually demonstrated ulcers 80.7 per cent. were cured, 9 per cent. improved, and 4.2 per cent. unimproved. Six per cent. died from various causes in the year subsequent to operation. In only two was the cause connected with the stomach.

End Results Following Operation for Benign Diseases of the Stomach and Duodenum.—Dr. JOHN B. DEAVER of Philadelphia presented this paper in which the following conclusions were submitted: That the operation of choice should always be performed when feasible; when not feasible, the operation of necessity. All cases of stenosis of the pylorus, due to whatever cause, should be treated by operative interference and preferably by posterior gastrojejunostomy. All cases of ulcer of the stomach not responding promptly to medical treatment, and the cases showing the various sequelæ of the disease should be treated surgically. This was also true of cases of ulcer of the duodenum. In performing gastroenterostomy he preferred the posterior gastrojejunostomy, no-loop clamp route.

How Frequently Do Gastric Ulcers Become Carcinomata?—Dr. WILLIAM L. RODMAN believed that in fifty per cent. gastric carcinomata was the result of ulcer. He had had nine cases of cancer in which there was history of ulcer. The most important diagnostic sign was said to be rapid and regular diminution of hyperacidity. Little was to be ascertained from the gastric analysis as the chemical characteristics might be the same as in simple ulcer. He advocated exploratory operation in all gastric cases of doubtful nature irresponsive to medical treatment.

Gastric and Duodenal Ulcers Secondary to Wounds of the Urinary Bladder.—Dr. JOHN B. ROBERTS of Philadelphia referred to a case which he had previously reported of death from perforating gastric ulcer following suprapubic lithotomy and to a case in which the patient had died from massive hemorrhage due to ulcer of the duodenum following extraperitoneal rupture of the urinary bladder and other injuries. From literature and his own experience he had collected sixteen instances of gastrointestinal bleeding subsequent to operative or other lesions of the urinary organs. Dr. Roberts showed the possible connection between abdominal and pelvic operations and post-operative hematemesis and intestinal bleeding. The etiology of the gastrointestinal lesions considered was regarded as obscure, but probably connected with thrombosis and embolism due to septicemia or toxemia. Experimental and clinical evidence it was said gave credence to the theory that changes in the gastric and intestinal mucosa leading to fatal issue might be the result of several local influences or of widespread pathological alteration in the cells and fluids of the body.

Infantile Hypertrophic Stenosis of the Pylorus.—Dr. FRANK E. BUNTS of Cleveland reported the case of an infant four and a half weeks old in which an anterior gastroenterostomy was done for pyloric stenosis. Recovery ensued. In 114 cases collected by the author and Dr. Thompson there was a mortality of 55.5 per cent. The author advised early operative interference in congenital pyloric stenosis, believing that this gave good chance of recovery.

Dr. WILLY MEYER of New York in the secondary operation preferred gastroenterostomy plus enterostomy to the short loop.

Dr. JOHN H. GIBBON inquired concerning the frequency of peptic ulcer of the jejunum following gastroenterostomy. In a report of over a thousand cases it had not been observed.

Dr. GEORGE W. CRILE of Cleveland spoke of the value of direct transfusion of blood at the time of operation in an unsurgical case, which treatment had made surgical interference possible. In 66 cases the hemolytic test of cancer gave positive reaction in 80 per cent.

Dr. J. M. T. FINNEY of Baltimore regarded the personal equation a determining factor in a choice of operations. He had employed pyloroplasty for pyloric obstruction forty-eight times since 1903. Of these cases four had died, but autopsy showed the cause of death to be other than the operation. He agreed with Dr. Rodman that resection should be done in doubtful cases of ulcer. He believed that gastroenterostomy should be employed in inflammatory pyloric stenosis in preference to pyloroplasty.

Dr. JOHN C. MUNRO of Boston favored the Finney operation.

Dr. JOHN C. OLIVER of Cincinnati referred to four cases of congenital stenosis operated upon by gastroenterostomy. The symptoms in one case appeared two weeks after birth. A family history of stomach trouble for three generations was traceable.

Dr. FRANCIS J. SHEPHERD of Montreal reported a case in which he had done pyloroplasty upon a child three weeks old. The child at eighteen months was perfectly well.

Dr. LEONARD FREEMAN of Denver had used linen thread for the hemostatic suture in about fifty-five gastroenterostomies with satisfaction.

Dr. WILLY MEYER of New York warned against making the loop too long.

Dr. JOHN E. SUMMERS, Jr., of Omaha thought that postoperative gastric and intestinal hemorrhage was probably due to trauma.

Mr. G. B. A. MOYNIHAN said the ulcer should be excised when there was difficulty in distinguishing between ulcer and carcinoma. He employed the posterior no-loop method, making the anastomosis close to the beginning

of the jejunum. He regarded the important point the application of the jejunum to the stomach in a way that it lies easily.

Dr. W. J. Mayo in closing said that the medical man should be urged to turn over early to the surgeon cases of tumor, the character of which he was waiting to determine. He thought the papers showed that 80 per cent. of permanent recoveries could be secured in gastric ulcer with an improvement of somewhat less than 10 per cent.

Dr. William L. Rodman did not believe postoperative hematemesis to be due to trauma but thought the most rational explanation to be that suggested by Dr. Roberts, viz., sepsis.

Stone, Tuberculosis of the Kidney and Perinephritic Abscess.—Dr. George Tully Vaughn of Washington, D. C., enumerated the causes of stone and expressed the belief that stone in the kidney should be removed at once and that impacted stone in the ureter should be removed when it could not be passed. A calculous kidney he believed should not be removed so long as there was any chance of saving it. He advised nephrostomy and drainage in the presence of tuberculosis of both kidneys. If but one was affected, nephrectomy should be done.

Diagnosis and Treatment of Kidney Stone.—Dr. Arthur Dean Bevan of Chicago spoke of the value of the *x*-ray in diagnosis of kidney stone. With definite diagnosis there should be surgical removal except where the stones were small enough to be passed, in the presence of organic lesions, and in cases of extreme age. In fifty-two operations he had had but one death from nephrolithotomy and two from secondary nephrectomy.

Report of a Case of a Large Kidney Stone.—Dr. David Barrow of Lexington showed a kidney stone weighing one pound and two drachms, which had been proven to be phosphatic. Convalesence followed removal of the stone and the man regained perfect health.

Results of Operation on the Kidney for Calculus and Tuberculosis.—Dr. Andrew J. McCosh of New York had performed fifty-four nephrectomies, nineteen of which had been for tuberculosis. Five patients had made perfect recoveries. He had performed forty-eight operations for renal calculi. Septic kidneys or those in a condition of pyonephrosis were not considered. Fifteen nephrolithotomies had been performed by him, in twelve of which cases the patients regained perfect health. In extraction of the stone the route through the kidney is preferred to removal by an incision in its pelvis.

Dr. Leonard Freeman of Denver showed an *x*-ray picture exhibiting shadows resembling calculi in the ureter which he thought might be calcified lymphatic glands, or phleboliths. In operating for stone in the kidney his preference was for the incision through the parenchyma. Bleeding he had found could be easily controlled by the use of the gastroenterostomy forceps with the flexible blade covered with rubber.

Dr. George E. Brewer of New York City thought Dr. Bevan's paper of particular value since it emphasized the fact that there were no symptoms absolutely pathognomonic of stone in the kidney.

Dr. Nathan Jacobson of Syracuse spoke of the confirmatory value of the *x*-ray in diagnosis of renal stone. He reported a case in which in a perineal section there was discovered a complete incrustation of the bladder wall. Autopsy showed both kidneys to be filled with stones.

Dr. C. B. G. deNancrède of Ann Arbor cited a case in which diagnosis by the *x*-ray had proved to be wrong. A case was reported of removal of a large uric acid stone from the bladder. In this case the *x*-ray had given no evidence of its presence.

Dr. Ellsworth Eliot, Jr., of New York City spoke of the probability of osseous development in the ligaments of the pelvis being mistaken for calculi.

Dr. Joseph Ransohoff said he employed the *x*-ray only as a confirmatory test of diagnosis based upon a clinical study. Persistent, continuous microscopic hematuria he regarded as absolutely characteristic of stone in the kidney. He referred to a case in which a ureteral stone was guttered, allowing the urine to pass without difficulty. No operation on the kidney was thought to be complete without the passage of the catheter or probe along the whole length of the ureter.

Dr. Maurice H. Richardson of Boston spoke of the difficulties in diagnosis in surgery which made the subject of greatest interest. Along this line and illustrative of some of the difficulties, he had known cases of stone in the kidney to be fatal twenty-two years subsequent to removal of calculi from the bladder with no pain during the interval. In other cases there had been continuance of pain after removal of stone from the kidney.

Dr. Willy Meyer advocated the use of the *x*-ray in diagnosis of stone after laboratory methods had been thoroughly employed.

Dr. George W. Crile of Cleveland spoke of the value of the direct transfusion of blood following hemorrhage.

Dr. J. M. T. Finney referring to the importance of diagnosis quoted a former Fellow of the Association in saying that "Nine men out of ten know what to do, but the tenth man knows what not to do."

Dr. M. L. Harris of Chicago referred to three cases of bilateral tuberculosis of the kidneys in which he had operated with success.

Dr. Francis J. Shepherd spoke of the difficulty in the control of hemorrhage and of a case in which because of this removal of the kidney was necessary.

Dr. John C. Oliver of Cincinnati showed an oxalic acid stone of large size which until seeing the one exhibited by Dr. Barrow he had believed the largest on record.

Dr. Lewis L. McArthur of Chicago quoted Dr. Senn at the time the *x*-ray was first exhibited in Chicago as saying: "I see the advent of this wonder with chagrin and anxiety, lest the student, finding a short route to diagnosis, will rely entirely upon this means and forget, or neglect, the means which already are at hand." Showing the possibility of mistaken diagnosis by the *x*-ray he cited a case in which operation revealed twenty stones in one kidney, although the *x*-ray examination had shown no shadow.

The Diagnosis and Prognosis of Tuberculosis and Septic Conditions of the Kidneys.—Dr. G. E. Armstrong spoke of the surgical interest of unilateral and primary renal tuberculosis and gave figures showing the improved results in the treatment of the condition.

Acute Unilateral Hematogenous Infections of the Kidney.—Dr. George Emerson Brewer of New York City referred to the probability of this condition being overlooked. In nine cases admitted to the Roosevelt Hospital in only one had the correct diagnosis been made before entrance. Cases were cited which had been subjected to unnecessary operation because of the almost typical symptoms of appendicitis or cholecystitis. The condition was divided into three groups of cases and the characteristics of the cases belonging to the individual groups described with treatment indicated. A marked unilateral costovertebral tenderness was stated to be the one pathognomonic sign observed in all the types.

Dr. Emmet Rixford of San Francisco cited a case in which at autopsy there were shown to be four ureters in three of which were stones. The case had been operated for stone in the bladder. Another case in which a diagnosis had been made of subacute peritonitis operation showed a small kidney in the neighborhood of the vermiform appendix. Tuberculin was suggested as offering possibilities of cure in tuberculous kidneys.

Dr. A. G. Gerster of New York City cited two cases of removal of the kidney after the simple exploratory in-

cision in the pelvis because of uncontrollable hemorrhage. In opening the pelvis through the kidney he had abandoned the use of the knife and opened by means of the curved director with tearing and stretching.

Dr. Frederick Kammerer of New York City referred to three cases of unilateral infection of the kidneys. In the first case recovery followed the removal of one kidney. The second case showed but two infarcts in one kidney while the other was normal. The incised kidney was tamponed and replaced. The patient did well but afterward developed temperature, when extirpation of the kidney was done. In the third case because of perinephritic abscess removal of the kidney was finally necessary. The later condition of the case proved the claim made by Dr. Brewer that the infection could be unilateral.

Dr. John H. Gibbon of Philadelphia referred to the diagnostic value of *x*-ray plates and of the presence of microscopic blood in ureteral calculi. He warned against the danger of the use of metal ureteral bougies. Reference was made to a method he had employed of a combined extra- and intraperitoneal operation.

Dr. Charles L. Gibson of New York City referred to a case in which half of the kidney at each pole was removed in a condition similar to that described by Dr. Brewer. Perfect recovery ensued.

Dr. George Woolsey of New York City did not consider a negative plate an absolute sign of absence of ureteral stone. In two cases operated upon he had found the lesion spoken of by Dr. Brewer and had performed nephrectomy with cure. He spoke of the value of Dr. Brewer's presentation of a new field of pathology and treatment in kidney lesions.

Dr. Bevan in closing said that the diagnostic symptoms were in point of importance as follows: The gross clinical picture, including history; careful ordinary examination of the urine, chemical and microscopical; *x*-ray examination. He believed the *x*-ray could be relied upon in nine-tenths of cases in the diagnosis of kidney stone.

Dr. M. L. Harris of Chicago referring to the use of the segregator said that if urine dropped from the two sides synchronously, whether or not the amount was the same, there was evidently an improper adjustment of the instrument or the presence of an anomaly.

Report of a Case of Stone in the Bladder, Associated with Intermittent Pneumaturia for Three Years, and the Subsequent Formation of Fecal Fistula.—Dr. A. T. Bristow of Brooklyn reported that over two hundred cases of pneumaturia were cited in literature. He reported a case under his observation in which there had been several attacks since 1907. Fecal fistula was present and, except for occasional attacks, the patient was perfectly well, and would not submit to operation.

Dr. Frederick Kammerer reported a case of pelvic abscess which, following an operation and the removal of the appendix, recovered.

Dr. Arthur D. Bevan of Chicago reported a case of an abnormally enlarged kidney shown by the *x*-ray in which operation showed the kidney and calices distended with gas. In another case in which he had removed the kidney within the capsule a stone was found which had penetrated the duodenum. Autopsy showed a perfectly clean peritoneal cavity with an opening into the duodenum which had been produced by the inflammation about the stone.

Dr. George E. Brewer of New York thought some of these cases might be those of diverticulitis.

Dr. Emmet Rixford of San Francisco cited a case of pelvic inflammation, in which following the administration of castor oil peritonitis developed resulting in death. Autopsy showed a diverticulum.

Dr. George Woolsey of New York City reported an operation for stricture of the urethra. The conditions of the case suggested acute diverticulitis following the incision.

Primary Carcinoma of the Female Urethra.—Dr. Lewis S. McMurty of Louisville reviewed the literature on the subject and reported two cases of his own in both of which the disease had originated in the urethra. In both cases there was complete excision of the urethra down to the sphincter muscle of the bladder. There was recurrence in one case but not in the other. Because of the resemblance of the initial lesion to urethral caruncle, early diagnosis was considered difficult. Also the difficulty was pointed out of the differential diagnosis from syphilitic lesions in the same location. He urged habitual examination of all cases presenting painful micturition, early diagnosis of malignant types of disease, with complete excision in the early stage of invasion when permanent cure was possible.

A Case of Melanotic Sarcoma of the Common Bile Duct, and of the Ampulla of Vater.—Dr. Francis J. Shepherd of Montreal reported a case in which there was observed a rounded, painless swelling in the region of the gall-bladder. At operation no obstruction of the bile duct was observed nor were there gallstones nor appearance of malignancy present. Death followed some weeks subsequent to operation. Autopsy showed a fungoid mass completely occluding the common duct and a part of Vater's diverticulum. There was no melanotic growth discoverable elsewhere, nor were there pigmented moles on the body. The suggestion was made of pigment cells having become dislodged from a normal situation and arrested in the bile duct.

Rhinoplasty for Sunken Nose.—Dr. John F. Binnie of Kansas City described an operation he had done for this condition in which he had divided subcutaneously the soft parts and inserted them into the edge of the pyriform opening and pulled the mobilized nose into position. The soft parts of the mobilized nose were then subcutaneously tunneled and strips of cartilage drawn through the tunnels and made to act as trusses supporting the nose.

Dr. John Roberts spoke of a case under his care in which he had taken two large tongue-shaped flaps from the rather fat cheeks of the patient in a somewhat similar operation.

Dr. Leonard Freeman of Denver referred to the type of saddle nose in which the skin is loose and which could be satisfactorily treated by the use of paraffin. Metal plates were employed to better advantage in the type of the condition in which there was cicatrical tissue and tendency to contraction.

Dr. Emmet Rixford of San Francisco had used tissue of the rib in his operations for sunken nose.

Psychical End Results in Major Surgical Operations.—Dr. James G. Mumford of Boston referred to psychic impressions in regard to surgical therapeutics. From a study of 500 eight-year-old records at the Massachusetts General Hospital it was concluded that surgeons should exercise for a longer period than was customary some supervision of their patients following operation. It had been proven by the work of the Emanuel Church movement in Boston that many cases thus watched over could be brought more quickly to perfect recovery.

Further Evidence in Support of the Theory that Hodgkin's Disease Is a Type of Sarcoma.—Dr. William B. Coley of New York City in a study of more than eighty cases of primary sarcoma in the lymphatic glands, concluded that the small group of tumors designated as Hodgkin's disease, or pseudoleukemia, had certain definite clinical and histological characteristics sufficient to differentiate them from other tumors of the lymphatic glands. He believed that because Hodgkin's disease and leukemia had certain features pointing to an infectious origin this should not exclude them from being classed

as malignant tumors. He believed rather that this was evidence of the infectious origin of sarcoma. He believed the best chance of successful treatment lay in a wider application of the *x*-rays and the mixed toxins of erysipelas and *Bacillus prodigiosus*.

The Use of Sterile Oil to Prevent Intraperitoneal Adhesions; a Clinical and Experimental Study.—Dr. John Barst Blake of Boston from his experimental work in this field concluded that there was no danger in the use of absolutely sterile oil in moderate quantities in the peritoneal cavity; that it might remain in the peritoneal cavity for from five to fifteen days, and that adhesions were probably prevented by its presence.

Surgical Aspects of Graves' Disease with Reference to the Psychic Factor.—Dr. George Crile of Cleveland believed that relief or cure would follow the excision of a correct amount of the thyroid gland in Graves' disease. He believed the operative risk, which he claimed was hyperthyroidism, to be the serious barrier to surgical treatment. To insure success the operation should be performed without the knowledge of the patient. Dr. Crile recounted the plan followed in which this idea had been carried out. Thirteen cases had been operated upon by the new method with satisfactory result.

Primary Carcinoma of the Appendix.—Dr. Richard H. Harte of Philadelphia thought there were no signs pointing to this condition other than the classical signs of appendicitis, and believed that a diagnosis of cancer of the appendix prior to an operation was impossible. It would seem to the author that all cases of cancer of the appendix were engrafted upon a chronically inflamed appendix. Primary carcinoma was said to be present in from one-third of one per cent. to one per cent. of all cases of operation for chronic appendicitis. The disease was believed to be slightly more frequent in women than in men. It was urged that all appendices showing evidence of any irritation should be removed since primary carcinoma of the appendix had its origin in an inflammatory process.

Edema of the Large Intestine, with Localized Necrosis of Its Wall, Following Splenectomy in Banti's Disease.—Dr. John E. Summers of Omaha reported a case in which he did a splenectomy. Later there developed symptoms of acute perforative appendicitis for which the abdomen was opened. Recovery finally took place. From the conditions of the case it was concluded that the postoperative thrombosis of the splenic vein which was observed could be considered only as due to the traumatism of splenectomy. No case of edema with gangrene of the large intestine following splenectomy had been noted by the author in literature nor did he recall any cases of gangrene of the large intestine the result of thrombosis of the superior mesenteric artery or vein.

Carcinoma of the Appendix, with Metastases to the Ileocolic Glands.—Dr. Robert G. LeConte of Philadelphia said that when carcinoma was confined to the appendix the removal of the appendix resulted in cure. He reported a case in which the disease had extended to the cecum with metastases to the ileocolic glands. Upon removal of the appendix it was found to be invaginated into the head of the cecum. The entire appendix was found to be the seat of carcinoma and the tumor growth had extended into the cecum. Subsequently the cecum with a portion of the ileum was resected with the entire group of ileocolic glands. Apparently perfect recovery followed.

Experiments in Flushing the Intestinal Canal with Salt Solution Through Enterotomy Openings.—Dr. George H. Monks of Boston reported the results of his studies on animals and human cadavers for the removal of intestinal contents by flushing the canal of the intestine through multiple enterotomy openings. He believed that in cases in which the life of a patient was in jeopardy, because of acute intestinal poisoning, and in which less radical means had been effective, a part of the intestinal contents might with advantage be removed by this method. One case was referred to in which this method had been successfully carried out.

Congenital Idiopathic Dilatation of the Colon (Hirschsprung's Disease.—Dr. J. M. T. Finney of Baltimore reported a case in which he had operated for this condition. While some ten theories of etiology had been advanced no one theory would explain every case. The diagnosis, differential diagnosis, the different aids to diagnosis, symptomatology, prognosis, and treatment were fully dealt with. One method of treatment was suggested by the author as probably applicable to a larger proportion of cases than any other hitherto suggested. The author had followed this in his own case. It consisted of a preliminary enterostomy followed some months later by a colocolostomy with finally the complete excision of the affected portion. The artificial anus should be left open until after the success of the preceding steps had been assured. It should then be closed under cocaine.

Dr. Leonard Freeman of Denver reported a case of a pronounced type of Hirschsprung's disease in which the patient had not had a movement of the bowels for three months. In the operation the large intestine was plicated and replicated and replicated again. Anastomosis or resection of the bowel was impossible. The patient subsequently did well. While this operation was not considered an appropriate one for the ordinary case it was approved of in the case reported.

Pelvic Abscess, with Special Reference to Rectal Drainage.—Dr. Archibald MacLaren of St. Paul advised vaginal section in the vast majority of cases of intraperitoneal collections of pus in women. Tubercular inflammations, whether from cellular tissue, appendages, uterus, or appendix formed the exception to this rule. In the pelvic abscesses observed in men, it was said that the fear of increasing the infection or of further contaminating the abscess cavity had hitherto prevented the man having the same chance as the woman. Fecal fistula was thought to be more likely to follow in cases in which the abscess opened itself because of its opening at the top. When opened by the surgeon drainage was perfect and fistula not probable. Dr. MacLaren had made it a rule always to give a woman the benefit of vaginal section and a man the advantage of placing a tube in the rectum. This plan of procedure had often been followed with surprisingly good results.

Officers.—The following officers for the ensuing year were elected:—*President*, Dr. C. B. G. De Nancrède, Ann Arbor; *Vice-Presidents*, Drs. A. G. Gerster, New York City, and Leonard Freeman, Denver; *Secretary*, Dr. Robert G. LeConte, Philadelphia; *Treasurer*, Dr. Charles A. Powers, Denver; *Recorder*, Dr. Richard H. Harte, Philadelphia. The next meeting of the Association will be held in Philadelphia.

Appendix Separate from the Colon.—J. T. Williams reports the case of a man of thirty years, admitted to the hospital after he had recovered from a third attack of appendicitis, which was of a very severe and dangerous nature. On opening the abdomen the appendix was easily found somewhat to the outer side and towards the back of the cecum, lying embedded in the mesoappendix, but quite reversed; that is to say, the tip was near the end of that viscus, the proximal end some 2¼ inches up by the side of the gut. On opening the appendix, the lumen at either end was completely occluded, the middle portion being occupied with a small mass of hardened fecal matter, which was quite inodorous. This condition must be comparatively rare. Williams further states that he has seen recorded in one of the medical encyclopedias the case of a man who spat up his appendix.—*British Medical Journal.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Idaho.

April 7 and 8, 1908.

ANATOMY.

1. Into how many classes are the bones of the skeleton divided? Name the irregular bones.
2. Describe the internal saphenous vein from origin to termination.
3. Give name, origin, function, distribution and branches of the tenth cranial nerve.
4. Name the organs contained in the middle mediastinum.
5. Name the muscles that act during quiet inspiration.

HISTOLOGY.

1. Mention some special property possessed by each of the following chemical reagents rendering them individually useful in the examination of animal tissues: Acetic acid, potassium acetate, potassium hydrate, hydrochloric acid, osmic acid.
2. Describe fully the microscopical examination of fresh blood, and name some foreign elements that may be observed by this means.
3. Briefly describe the development of the human embryo from the segmentation of the vitellus to the third month of gestation.
4. What are ferments, toxins opsonins, aggressins? Define immunity, natural and acquired.
5. Give the histology of the mammary gland.

PHYSIOLOGY.

1-2. Name the digestive juices, the ferments contained in them, their action on food materials. Use the following table:

Digestive juices.	Ferments contained in them.	Action on food materials.

3. (*a*) Describe a normal heart. (*b*) What causes heart sounds?
4. (*a*) What is blood pressure? (*b*) Tabulate the physiological causes of alteration in blood pressure.

May be raised by——	May be lowered by ——

5. What changes occur in the blood in its passage through (*a*) the liver, (*b*) the spleen?
6. Describe the physiology of excretion of urine.
7. What effects are produced in the system by the removal of the thyroid gland?
8. (*a*) Describe deglutition. (*b*) What muscles are brought into action in swallowing?
9. (*a*) What is the function of the third cranial nerve? (*b*) What effect would the division of this nerve produce?
10. Describe the (*a*) splenic circulation, (*b*) portal circulation.

MATERIA MEDICA AND THERAPEUTICS.

1. What is the highest authority on materia medica in the United States? On what does its authority rest? How many official preparations are considered?
2. Mention five changes made in the eighth revision of the U. S. P.
3. Mention the drug you consider the best: General anesthetic, analgesic, mydriatic, expectorant, sternutatory, antisialic, refrigerant, carminative, anthelmintic, sudorific.
4. Mention relative dosage by mouth, rectum, and hypodermic administration.
5. Give the therapeutics of normal saline solution.
6. What is Basham's mixture? Dover's powder? Fowler's solution? Golden Seal? Peruvian bark? Salammoniac? Tartar emetic? Spirit of Mindererus? Paregoric? Sugar of lead?
7. What is sparteine? anilin? atrophine? bromine? caffeine, codeine, brucine, phenol, scopolamine? eserine?
8. Mention antidotes to opium, strychnine, aconite, silver nitrate, belladonna, carbolic acid, corrosive sublimate, iodine, phosphorus, chloroform.
9. Give preparation, dosage, physiological action, and therapeutics of colchicum.
10. Give preparation, dosage, physiological action, and therapeutics of nux vomica.

CHEMISTRY AND TOXICOLOGY.

1. What chemical elements are found in the human body?
2. What is a chemical compound? A chemical mixture? Give examples of each.
3. Hydrogen, oxygen, and nitrogen, describe each. Name some important compounds of each. How do they exist in nature?
4. Name and describe the three strong mineral acids. State how formed. Give properties and uses of each.
5. What are ptomains? toxins? proteins? nucleins?
6. Describe the symptoms of digitalis poisoning; give treatment.
7. State the differential diagnosis between poisoning by arsenic and mercury.
8. In a case of suspected homicidal poisoning what part of the cadaver should be preserved? How?
9. State the common courses of poisoning by lead. How treated?
10. Name five corrosive poisons; give treatment for each.

HYGIENE.

1. Describe sanitary measures for a dairy in an Idaho town.
2. What hygienic treatment for tuberculosis would you advise in Idaho?
3. Mention the dangers of the domestic use of "ditch water" in an irrigated country; dangers of the open well. How can a farmer secure the most wholesome water supply?
4. Mention five food poisons.
5. Give a list of five infective insects.
6. What are the three principal factors in hygienic living?
7. What climate is most favorable to a patient with tuberculosis? rheumatism? Bright's disease, chronic rhinitis and pharyngitis? chronic bronchitis? asthma? hay fever?
8-9-10. Describe the hygienic care of children under five years of age—food, clothing, bathing, play, and education.

DIAGNOSIS.

1. Give the differentiating points between smallpox and chickenpox.
2. Make a table differentiating chlorosis, progressive pernicious anemia, and leucocythemia.
3. With what may eczema be most frequently confounded? Give differential points.
4. Give the physical findings in the different stages of pneumonia.
5. Give the period of incubation of parotitis, pertussis, gonorrhea, syphilis, and measles.
6. More or less fever, dull pain in back, nausea and persistent vomiting at the beginning. Skin harsh and dry, pain from back to pudendum, urine scanty and high color, albuminous, high specific gravity with decrease of urea, contains epithelial casts and blood discs. What is the diagnosis?
7. Locate the valve areas of the heart.
8. What is Babinski's reflex? Describe Argyll-Robertson pupil. What are Koplik's spots? What is Kernig's sign?
9. Differentiate between appendicitis, gallstone colic, and renal colic.
10. Give five instances of referred pain, also locations and character of lesion producing each.

PATHOLOGY.

1. Locate the valves of the heart on the thoracic wall and describe the areas over which the murmurs may best be heard.
2. Define hernia; (*a*) direct; (*b*) indirect; (*c*) internal; (*d*) external; (*e*) what constitutes the lining of the hernial sac?
3. Give some causes of rupture or perforation of the esophagus.
4. What is the cause of prolapse of the rectum? At what age is it most frequent?
5. If called in a medico-legal case, where the complaint was vaccinated syphilis, how would you differentiate between the congenital and acquired lesions?
6. Give a descriptive definition of cretanism.
7. Diagnose a floating tumor in the abdomen by exclusion.
8. Define arteritis, arteriosclerosis, teratoma, opsonin, rhinoscleroma, morphology.
9. Give the pathological condition found in the different stages of croupous pneumonia.
10. Under what diseased condition would you find bacillus tuberculosis in the urine? How could you absolutely differentiate from the smegma bacillus?

THEORY AND PRACTICE.

1. Relapsing fever (febris recurrens). Define. Give the etiology and symptoms.
2. Variola. Define and give the etiology.

3. Diphtheria. Define and give the morbid anatomy.
4. Syphilis. Name the various ways of treating with hydrargyrum, and give the advantages and disadvantages of each.
5. Arthritis deformans. Give the etiology and treatment.
6. Diabetes insipidus. Give the etiology, symptoms, and treatment.
7. Intestinal obstruction. Name four causes.
8. Acute general peritonitis. Give the morbid anatomy.
9. Acute pleurisy. Give the physical signs and symptoms.
10. Aortic stenosis. Give the physical signs and differentiate from aortic regurgitation.

OBSTETRICS.

1. What treatment would you advise for a case of continued menstruation during pregnancy?
2. Name the source, character, relative quantity, and functions of the liquor amnii.
3. Describe the three stages of labor, and give the management of each stage.
4. (*a*) State the effects of anesthetics on the os uteri, abdominal muscles, perineum, and child. (*b*) Give the indications and contraindications for the employment of anesthetics during labor.
5. (*a*) Define caput succedaneum. (*b*) State how it is produced. (*c*) Where does the caput succedaneum appear in R. O. P.? in face presentations?
6. (*a*) What are the varieties of face presentation? (b) Give the diagnosis and treatment of each variety.
7. Give the varieties, causes, and treatment of hemorrhage in (*a*) the pregnant woman, (*b*) the parturient woman, (*c*) and the puerperal woman.
8. Describe your method for delivery of the aftercoming head in left-sacro-anterior position.
9. Give the etiology, symptoms, and treatment of phlegmasia alba dolens.
10. What are the symptoms and treatment of puerperal insanity?

GYNECOLOGY.

1. Menorrhagia and metrorrhagia. Define each. Give causes, both local and general, and symptoms.
2. Sterility. Name five causes.
3. Tuberculosis of the Fallopian tubes. Give pathological anatomy and diagnosis.
4. Vulvitis. Name three varieties and give the causes of two.
5. Hematoma of the vulva. Give causes and treatment.
6. Pudendal hernia. Describe fully. To what form of hernia does it correspond in the male?
7. Describe the anatomy of the uterus, ovaries, and tubes.
8. Uterine fibroids. Give pathology. Name three varieties and give treatment.
9. Acute oophoritis. Define. Give etiology, symptoms, and treatment.
10. Colpoperineorrhaphy (Hegar). What is the object of this operation? Describe the operation.

SURGERY.

1. Give in detail preparations for aseptic and antiseptic surgical operations. In all other questions omit the same in your answers.
2. Give minute directions for male catheterization, mentioning errors to be carefully avoided.
3. Give points of diagnosis, prognosis, and treatment of punctured wound of a joint, for instance, the knee joint.
4. Give treatment for acute osteomyelitis.
5. How would you treat fractured ribs?
6. Give differential diagnosis and treatment of dorsal dislocation of the thigh, and reason for each movement in reduction.
7. Describe in detail tracheotomy. Under what conditions would you employ it?
8. Give indications and counterindications for appendicectomy.
9. How detect a floating kidney? Describe required operation in detail.
10. Differentiate between benign and malignant tumors, and give general classification of each.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF IDAHO.

April 7 and 8, 1908.

ANATOMY.

1. The bones of the skeleton are divided into four classes:—Long, short, flat, and irregular bones. The irregular bones are:—The vertebræ, sacrum, coccyx, temporal, ethmoid, sphenoid, superior maxilla, inferior maxilla, malar, palate, inferior turbinate, and hyoid.
4. The middle mediastinum contains: The pericardium, heart, ascending aorta, lower part of superior vena cava, termination of vena azyos major, bifurcation of trachea, two bronchi, pulmonary artery, right and left pulmonary veins, phrenic nerves and their accompanying arteries, and some bronchial lymphatic glands.
5. The muscles that act during quiet inspiration, are: The Diaphragm, Scalenus anticus, Scalenus medius, Scalenus posticus, External intercostals, Internal intercostals, and Levatores costarum.

HISTOLOGY.

4. *Ferments* are microorganisms which by their presence and growth cause definite chemical changes in certain substances contained in the media in which they develop.

Toxins are poisonous substances produced by bacteria or other cells.

Opsonin is that quality of a serum which makes a microorganism more susceptible to phagocytosis.

Aggressins are chemical substances elaborated by pathogenic microorganisms, which substances are capable of acting upon the cells and fluids of the infected body and so overcome its resistance to infection.

Immunity is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

Natural Immunity is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired Immunity is this resistance acquired: (1) by a previous attack of the disease caused by the bacteria, or (2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are:—(1) a previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

PHYSIOLOGY.

1. 2.

Digestive juices.	Ferments contained in them.	Action on food materials.
Saliva.....	Ptyalin.	Changes starches into dextrin and sugar.
Gastric Juice...	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic Juice	Trypsin.	Changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.
Intestinal Juice.	Invertin.	Converts maltose into glucose.

3. (*b*) The causes producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

4. (*a*) Blood pressure is the pressure on the blood due to the ventricular systole, the elasticity of the walls of the arteries, and the resistance of the capillaries.

(*b*) Blood pressure:—

May be raised by—	May be lowered by—
1. By the heart beating more quickly.	1. By the heart beating more slowly.
2. By the heart beating more powerfully.	2. By the heart beating more feebly.
3. By contraction of the arterioles.	3. By dilatation of the arterioles.
	4. By deficient supply of blood to the left ventricle.

5. (*a*) In its passage through the liver, the blood loses plasma, fat, proteids, organic matter; it gains sugar, urea, and heat; and it becomes less coagulable.

(*b*) In its passage through the *Spleen*, some say that the blood loses corpuscles, and others say that it gains corpuscles.

7. Removal of the thyroid gland causes mental and bodily dullness and apathy, tremors, twitchings, overgrowth of the connective tissues, and development of fat; the hairs fall out, and the patient becomes unwieldy and clumsy in both body and mind. Complete removal causes death in most animals, and it is not considered justifiable in man.

8. (*b*) The muscles brought into action in swallowing, are: The hyoglossi, styloglossi, palatoglossi, palatopharyngei, azygos uvulæ, tensores palati, levatores palati, stylopharyngei, stylohyoids, geniohyoids, mylohyoids, thyrohyoids, digastrics, constrictors of the pharynx, and the muscles of the tongue.

9. (*a*) The third cranial nerve is the motor nerve to all the muscles of the orbit except the Superior oblique and the External rectus. Hence, it supplies the Rectus superior, Rectus inferior, Rectus internus, Inferior oblique, and Levator palpebræ superioris. It also (through the ciliary ganglion) supplies the sphincter muscle of the iris, and the ciliary muscle.

(*b*) Division of this nerve would produce: Ptosis of the upper lid, external strabismus, slight prominence of the eyeball, dilatation of the pupil, and loss of the power of accommodation.

MATERIA MEDICA AND THERAPEUTICS.

1. The highest authority on Materia Medica in the United States is the United States Pharmacopœia.

Its authority rests on the Medical Profession; it has not the force of law.

The number of official preparations considered in the United States Pharmacopœia, is 415.

2. Five changes made in the eighth revision of the U.S.P.: (1) Tincture of aconite was reduced in strength from 35 per cent. to 10 per cent. (2) Tincture of veratrum was reduced in strength from 40 per cent. to 10 per cent. (3) Catechu is replaced by Gambir. (4) The name Phenol is substituted for Carbolic Acid. (5) Sulphur ointment was reduced from 30 per cent. to 15 percent.

3. *General anesthetic*, Ether. *Analgesic*, Opium. *Mydriatic*, Homatropine. *Expectorant*, Ipecacuanha. *Sternutatory*, Tobacco. *Antisialic*, Atropine. *Refrigerant*, Cold water. *Carminative*, Cardamom. *Anthelmintic*, Santonin. *Sudorific*, Pilocarpus.

4. As a general rule, the relative dosage by mouth, rectum, and hypodermic administration would be 1:2:½.

6.

Basham's Mixture	Liquor Ferri et Ammonii Acetatis.
Dover's Powder	Pulvis Ipecacuanhæ et Opii.
Fowler's Solution	Liquor Potassii Arsenitis.
Golden Seal	Hydrastis.
Peruvian Bark	Cinchona.
Salammoniac	Ammonii Chloridum.
Tartar Emetic	Antimonii et Potassii Tartras.
Spirit of Mindererus	Liquor Ammonii Acetatis.
Paregoric	Tinctura Opii Camphorata.
Sugar of Lead	Plumbi Acetas.

7.

Sparteine	Alkaloid of Scoparius.
Anilin	Phenyl amine; a coal tar derivative.
Atropine	Alkaloid of Belladonna.
Bromine	An element; one of the Halogens.
Caffeine	Alkaloid of Caffea Arabica.
Codeine	Alkaloid of Opium.
Brucine	Alkaloid of Strychnos nux vomica.
Phenol	Phenyl hydroxide; formerly Carbolic Acid.
Scopolamine	Alkaloid of Scopola atropoides.
Eserine	Alkaloid of Physostigma.

8.

	ANTIDOTES.
Opium	Strychnine. Amyl nitrite.
Strychnine	Chloral or Chloroform.
Aconite	Digitalis, and Stimulants.
Silver Nitrate	Salt and water.
Belladonna	Stimulants. Pilocarpine.
Carbolic Acid	Magnesium Sulphate. Alcohol.
Corrosive Sublimate	White of egg followed by Emetic.
Iodine	Starch.
Phosphorus	Old French oil of Turpentine; Copper sulphate, potassium permanganate.
Chloroform	Artificial respiration. Amyl nitrite.

CHEMISTRY AND TOXICOLOGY.

1. The chemical elements found in the human body are: Hydrogen, oxygen, carbon, nitrogen, sulphur, phosphorus, chlorine, calcium, sodium, potassium, magnesium, lithium, iron, silicon, and fluorine.

2. *A chemical compound* is a substance made up of two or more elements, chemically united, in definite proportions. Examples: water, sulphuric acid, iodoform.

A mixture is the product obtained by uniting into a more or less homogeneous whole two or more substances, whether elements or compounds, in any proportion, and without any chemical union. Examples: air, sugar adulterated with sand, salt in water.

3. Hydrogen is a colorless, odorless, tasteless gas, the lightest known substance; it has a great affinity for oxygen; it supports neither combustion nor respiration; it is a necessary constituent of all acids; the gas will burn with a pale blue flame, giving little light, but an intense heat.

Some important compounds: Water, hydrogen dioxide, all acids.

Occurrence: free in volcanic gases, in fire damp, and the gases of the intestines; and in combination in water, in all acids and in many organic compounds.

Oxygen is a colorless, odorless, tasteless gas, heavier than air, slightly soluble in water, has an intense affinity for other elements, combining with almost all of them except fluorine. It is necessary to life, and is a supporter of combustion.

Some important compounds: Water, potassium permanganate, all oxides, and all oxyacids.

Occurrence: free in the air and in combination in water, rocks, minerals, etc. It is more abundant than any other element, forming about forty per cent. of the total weight of the earth.

Nitrogen is a colorless, odorless, tasteless gas, it neither burns nor supports combustion nor respiration, it has no tendency to unite with other elements.

Some important compounds: Ammonia, nitric acid, urea, nitrogen monoxide.

Occurrence: free in the air, in combination in nitrates, ammonia, and in many organic substances.

4. The three strong mineral acids: (1) *Hydrochloric acid.* It is *formed* by the action of sulphuric acid upon sodium chloride:

$$H_2SO_4+2NaCl=Na_2SO_4+2HCl$$

Properties. When pure this is a colorless gas with a sharp, penetrating, and irritating odor; it is very soluble in water; it does not support combustion nor does it burn in air; it is very corrosive. The ordinary hydrochloric acid is a solution of this gas in water, and is found in three varieties: the commercial, the pure, and the dilute acids.

Uses. For bleaching, disinfecting; and for manufacturing and chemical purposes.

(2) *Sulphuric acid.* It is *formed* by oxidizing sulphur dioxide in the presence of water:

$$2SO_2+2H_2O+O_2=2H_2SO_4$$

Properties. It is a colorless, thick, oily liquid, odorless, very corrosive; has a great tendency to unite with water; it chars organic matter.

Uses. For manufacturing and chemical purposes.

(3) *Nitric Acid.* It is *formed* by the action of sulphuric acid upon potassium nitrate:

$$H_2SO_4+KNO_3=KHSO_4+HNO_3$$

Properties. It is a colorless or faintly yellow liquid, has a sour taste, a suffocating odor, and is very corrosive. It is a strong oxidizing agent, and stains animal tissues yellow.

Uses. For chemical purposes, and as an oxidizing agent.

5. *Ptomaines* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction.

Toxins are the poisonous products of bacteria.

Proteins are substances of unknown constitution which are indispensable to all animal and vegetable life. They are composed of carbon, hydrogen, oxygen, and nitrogen; some also contain sulphur and phosphorus.

Nucleins are the residues of the nucleo-proteids after peptic digestion. They contain phosphorus.

6. *Symptoms of Poisoning by Digitalis:* "Nausea, and occasionally vomiting. Sometimes colic and diarrhea. After two or three hours, marked diminution in the frequency of the pulse, which may fall to 40 or even 25. Dyspnea, attended by a sense of oppression in the chest and coldness of the extremities. Headache, vertigo, and tendency to sleep. Usually attacks of syncope occur, provoked sometimes by the slightest movement of the patient. Death is generally by syncope, sometimes after several hours of coma succeeded by convulsions.

"*Treatment:* The patient must be kept strictly in the recumbent position. The stomach should be washed out with infusion of tea by the stomach tube. Stimulants should be given."—(Witthaus's *Essentials of Chemistry.*)

7.

Poisoning by Arsenic.	Poisoning by Mercury.
(1) The symptoms rarely begin within 20 minutes.	(1) The symptoms begin almost immediately.
(2) Pain is usually limited to the stomach and throat.	(2) Pain is also severe in the mouth.
(3) The taste is very faint, sweetish and metallic. Usually none.	(3) The taste is intensely metallic, and nauseous.
(4) The mouth and tongue are normal.	(4) The mouth and tongue are whitened.
(5) The urine contains arsenic.	(5) The urine contains mercury.

(Witthaus' *Essentials of Chemistry.*)

8. In case of suspected homicidal poisoning, the following parts of the cadaver should be preserved:—"The alimentary canal from the cardia to the middle of the rectum, *unopened*, and the contents enclosed by ligatures at the esophagus, duodenum, and lower end of gut; the liver, including the gall-bladder; one kidney; the spleen; a piece of muscular tissue from the leg; the brain, and any urine which may remain in the bladder.

"They are to be placed in *clean* and *new* glass jars, closed with glass or cork covers or stoppers. Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can only be had to the interior after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing-wax can get into the jars. Each portion should be placed in a jar by itself." (Witthaus' *Essentials of Chemistry.*)

9. The most *common sources of lead poisoning* are the following:

"The contamination of drinking water from lead pipes. Contamination of articles of food or drugs by contact with leaden vessels, or from being enclosed in tinfoil containing an excess of lead. Drinking beer, cider, etc., which has been drawn through leaden pipes or allowed to stand in pewter vessels. The ingestion or constant handling of lead or its compounds, as the acetate, nitrate, carbonate (white lead—painter's colic), Goulard's extract, etc. The use of hair dyes containing lead."

The *treatment* consists in removing the cause and administering the antidote, "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic, or by the use of the stomach tube." (Witthaus' *Essentials of Chemistry.*)

10. Five corrosive poisons, with treatment:

(1) Corrosive Sublimate: Give white of egg, in not too great a quantity, and follow it with an emetic.

(2) Carbolic Acid: Give white of egg, or sodium sulphate, and gently wash out the stomach.

(3) Sulphuric Acid: Give magnesia, suspended in water, or a strong solution of soap.

(4) Potassium hydroxide (Potash): Give vinegar.

(5) Oxalic Acid: Give slaked lime suspended in a small quantity of water, follow with an emetic.

In all cases of corrosive poisoning avoid the use of stomach pump or tube.

HYGIENE.

4. Five food poisons: (1) Sausage poisoning (Allantiasis, Botulism). (2) Meat poisoning. (3) Poisonous fish. (4) Poisonous shell fish. (5) Poisonous cheese (tryotoxicon), milk, etc.

5. Five infective insects: Tsetse fly, mosquitos, flies, ticks, fleas.

6. Three principal factors in hygienic living: Pure air, pure water, and sunlight.

7. The following notes on climate are from the *Reference Handbook of the Medical Sciences. Tuberculosis*: The essential climatic conditions are pure air free from dust, protection from high winds, moderate dryness and equability, and a dry soil. With it must be associated the most careful, continuous, medical supervision. Assuming that the patient is in the incipient, curable stage, and that there are no other contraindicating conditions, the favorable climates are: (*a*) High altitudes, like Colorado, New Mexico, the Alps; (*b*) low altitudes, like the Adirondacks, Asheville, the Southern Pine Belt, and Southern California; (*c*) coast climates, represented by the Riviera resorts; (*d*) island climates, like Madeira and the Canaries; (*e*) ocean voyages.

Rheumatism: Warmth, dryness, equability, and sunshine are essential factors in the climatic treatment of rheumatism; such conditions are found in Texas, Arizona, the Southern Pine Belt, some portions of southern California, the inland Florida resorts, the desert of Egypt, and Algeria. The hydrotherapeutic treatment of this disease as exhibited at such resorts as Richfield Springs, the Virginia Hot Springs, the Arkansas Hot Springs, Aix-les-Bains, and others, is most efficacious.

Bright's Disease: A warm, equable, windless climate, such as is found in many low inland or coast resorts, examples of which are Arizona, Madeira, the Southern Pine Belt, Florida, Southern California, etc. The West Indies are highly extolled by Burney Yeo.

Chronic Bronchitis: When expectoration is abundant, a dry, warm, inland climate like Thomasville, Augusta, Summerville, and Camden, S. C., southern California, in the winter; and the seaside or mountains in the summer. If the expectoration is scanty, a warm moist climate like Florida, Nassau, Algiers, Madeira, in winter; and Newport, the Jersey Coast, Nantucket, Cape Cod, etc., in the summer.

Asthma: The high-altitude resorts appear to give the best results, especially when the neurotic element seems to be the prominent factor in the case. If the bronchitis seems to be the most important element, either a sedative or a stimulant climate is to be selected according to the character of the bronchitis. Or if the exciting cause appears to be the most important, especial consideration must be given to that in the selection of a resort.

Hay Fever (*Nasal Asthma*): The Adirondacks, White, Catskill, and Alleghany Mountains, Mackinac Island, Georgian Bay, Cape Breton, the "North Woods," Beach Haven, Fire Island, and Halifax, Nova Scotia, are some of the many resorts which afford more or less immunity. An ocean voyage and traveling in Europe are also prophylactic.

DIAGNOSIS.

1. Differentiation between smallpox and chickenpox: (1) Very young children are attacked with varicella, whereas variola usually shows itself in adults. (2) Vaccinated children readily take varicella; not so variola, even in the modified form. (3) Children who have had varicella may contract variola, even soon afterwards; or the two diseases may coexist. (4) Varicella is noninoculable, whereas variola is notoriously so. (5) The eruption of varicella appears in twenty-four hours; that of variola not till the third day. (6) The febrile symptoms continue after the eruption appears in varicella; those of variola subside. (7) In varicella the spots come out in successive crops; this is never seen in variola. (8) The spots in varicella are unilocular, and collapse on being punctured; the spots in variola are multilocular, and do not collapse on being punctured. (9) In varicella the eruption is very irregular, and appears over the body generally; in variola it appears in groups of threes and fives, and is always seen on the limbs. (10) The papule in varicella is soft, and disappears on stretching the skin; in variola it is hard and shotty, and does not disappear on stretching the skin. (From J. W. Moore's work on *Variola and Varicella.*)

2. The following table is compiled from one in Butler's *Diagnostics of Internal Medicine*:

Chlorosis	Progressive Pernicious Anemia	Leucocythemia	
		Spleno-Myelogenous	Lymphatic
Red cells average 4,000,000; rarely under 2,000,000. Poikilocytosis. Many microcytes. Occasional normoblasts.	*Red cells* average 1,000,000. Microcytes, megalocytes. Normoblasts moderately numerous. Megaloblasts present, often exceed normoblasts.	*Red cells*, about 3,000,000; rarely under 2,000,000. Numerous normoblasts. Megaloblasts moderately numerous. Some gigantoblasts.	*Red cells* about 3,000,000 or somewhat less. Normoblasts and megaloblts comparatively rare
Hemoglobin always relatively low.	*Hemoglobin* often relatively high.	*Hemoglobin* normal or relatively decreased.	*Hemoglobin* diminished.
White cells normal or slightly increased.	*White cells* usually decreased.	*White cells* average 450,000. Maybe 1:10, 1:5 or 1:1 red.	*White cells* average 100,000 or less.
Lymphocytes increased.	*Lymphocytes* increased.	*Lymphocytes* 7.5%.	*Lymphocytes* 90%.
Polynuclears decreased.	*Polynuclears* decreased.	*Polynuclears* 49%.	*Polynuclears* 3%.
Eosinophiles normal.	*Eosinophiles* normal.	*Eosinophiles* 4.5%.	*Eosinophiles* 0.7%.
Myelocytes rare.	*Myelocytes* common; usually eosinophilic.	*Myelocytes* 35%	*Myelocytes* 0.3%.

6. Acute nephritis.

7. See below, Pathology, Question 1.

8. *Babinski's reflex*: When the sole of the foot is tickled, the toes extend instead of flex.

Argyll-Robertson pupil is the condition of the pupil in which it responds to accommodation, but not to light.

Koplik's spots: Small red spots with a bluish-white center, found on the inner surface of the cheeks in measles; it is evident before the eruption appears on the skin.

Kernig's sign: With the patient in the dorsal position, and the thigh flexed at right angles to the pelvis, there is inability to straighten the leg completely. The condition is found in meningitis.

10. *Five instances of referred pain*: (1) Pain on the inner surface of the knee in hip joint disease. (2) Pain in the mammary gland in uterine disease. (3) Pain over the region of the stomach in caries of the spine. (4) Pain in the penis or testicle in stone in the kidney. (5) Pain under the right scapula in hepatic disorders.

PATHOLOGY.

1. *Location of the valves of the heart on the thoracic wall*: "The *right auriculo-ventricular valves* are situated behind the sternum above the level of the fourth costal cartilage; the *left auriculo-ventricular valves* are opposite the third intercostal space, about one inch to the left of the sternum; the cusps of these valves extend as low as the fifth costal cartilage. The *pulmonary valves* lie immediately behind the junction of the third left costal cartilage with the sternum; the *aortic valves* are behind the upper border of the third intercostal space just at the left side of the sternum." (Holden.)

The *mitral* murmurs may be best heard at the apex of the heart, in the left fifth intercostal space, near the nipple. The *aortic murmurs* may be best heard in the second right intercostal space, near the sternum. The *pulmonary* murmurs may be best heard in the second left intercostal space, near the sternum. The *tricuspid* murmurs may be best heard on the left border of the sternum near the ensiform cartilage.

2. *Hernia* is the protrusion of a viscus from its normal situation through an opening in one or more of the layers forming the wall of the cavity within which it is contained.

(*a*) A *direct* (inguinal) hernia, is one passing directly through the external abdominal ring without having passed through the inguinal canal.

(*b*) An *indirect* (inguinal) hernia is one that passes through the inguinal canal before appearing at the external abdominal ring.

(*c*) An *internal* hernia is the protrusion of a viscus through an aperture in the interior of the body.

(*d*) An *external* hernia is one that protrudes through an opening in the wall of a cavity.

(*e*) The hernial sac is lined with peritoneum.

3. *Causes of rupture or perforation of the esophagus*: Excessive vomiting or retching, particularly after the ingestion of large quantities of food or drink; carcinoma; abscess; aneurysm; foreign bodies.

4. *Cause of prolapse of the rectum*: Relaxation of the tissues due to excessive straining, and debility. It is most frequent in childhood.

5. A hoarse cry, coryza, labial fissures, protruding forehead, "sniffles," and the "syphilitic facies" would all indicate the congenital rather than the acquired variety of syphilis.

6. "Cretinism is a condition characterized by an arrest of mental and physical growth, and associated with hypoplasia or absence of the thyroid. It usually arises in the early years of life, but is occasionally congenital. The cretin is stunted, the lips thick, the skin dry and rough, the abdomen large, and the genitals remain infantile, and the mental state is that of an imbecile." (Hewlett's *Pathology.*)

8. *Arteritis* is inflammation of one or more coats of an artery.

Arteriosclerosis is a degenerative process of the intima of an artery.

Teratoma is a congenital tumor containing fetal remains; it is supposed to be due to an abortive fetus being included in another fetus, which latter develops normally.

Opsonin is that quality of a serum which makes a microorganism more susceptible to phagocytosis.

Rhinoscleroma is an indurated new growth of the skin and mucous membrane of the nose.

Morphology is that branch of science which treats of the form and structure of organized beings, and of variations in such form and structure.

10. Tubercle bacilli are found in the urine in tuberculous diseases of the urinary tract.

To differentiate the tubercle bacillus from the smegma bacillus: After treating the film with the dilute mineral acid, dip it in absolute alcohol for one or two minutes; the smegma bacillus will be decolorized, whereas the tubercle bacillus will not be decolorized.

THEORY AND PRACTICE.

4. The various ways of treating syphilis with hydrargyrum, and their advantages and disadvantages, are:

Method.	Advantages.	Disadvantages.
By mouth.	Simple, easy, dosage easily regulated.	May upset digestion.
Fumigation.	Rapid effect. Psychic effect.	Troublesome, special devices or apparatus required.
Inunction.	Efficient. Does not disturb digestion. Useful, to give stomach a temporary rest.	Uncleanly.
Hypodermic injection.	Effective, rapid, does not disturb digestion.	Painful. Abscess formation. Requires attendance of physician for every dose.
Intravenous injection.		Dangerous.

OBSTETRICS.

1. Rest in bed is the only treatment required for continued menstruation during pregnancy; but the condition is rare, and one should suspect ectopic gestation, placenta prævia, or abortion.

2. The liquor amnii is the fluid contained in the amniotic sac; it is alkaline in reaction, has a specific gravity of about 1.001 to 1.008, its quantity is variable, but is generally about two pints. It consists chiefly of water, but contains small amounts of albumin, epithelial cells, urea, phosphates, chlorides, etc. Its source is unsettled.

Functions: (*a*) *During Pregnancy*: (1) As a protection to the fetus against pressure and shocks from without. (2) As a protection to the uterus from excessive fetal movements. (3) It distends the uterus, and thus allows for the growth and movements of the fetus. (4) It receives the excretions of the fetus. (5) It surrounds the fetus with a medium of equable temperature, and serves to prevent loss of heat. (6) It prevents the formation of adhesions between the fetus and the walls of the amniotic sac. (7) It has been supposed, by some, to afford some slight nutrition to the fetus.

(*b*) *During Labor*: It acts as a fluid wedge, and dilates the os uteri and the cervix; it also slightly lubricates the parts.

7. The following (from Gould and Pyle's *Cyclopedia of Medicine and Surgery*) is a useful classification of the hemorrhages in question:

A. Hemorrhages of Pregnancy: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) appoplexy of the decidua or placenta.

B. Hemorrhages of Labor: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of the cervix; (5) rupture or inversion of the uterus.

C. Hemorrhages of the Puerperium: Caused by (1) retained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

GYNECOLOGY.

1. *Menorrhagia* is an excessive loss of blood at the menstrual periods.

Metrorrhagia is a hemorrhage from the uterus at other than the menstrual periods.

Local causes: Uterine displacements, malignant disease, inflammations of uterus or appendages, fibroids, cystic degeneration of the cervix, subinvolution, ectopic gestation, abdominal tumors.

General causes: Hemophilia, scurvy, purpura, malaria, anemia, mitral disease, diseases of kidneys, or liver, acute infectious fevers.

Symptoms: The hemorrhage at or between the menstrual periods is the characteristic symptom.

2. *Five causes of sterility*: (1) Absence or lack of development of any part of the genital tract; (2) gonorrhea; (3) pronounced flexions of the uterus; (4) salpingitis; (5) great obesity.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 7
Arizona*	Ancil Martin, Phoenix	Phoenix	July 6
Arkansas*	F. T. Murphy, Brinkley	Little Rock	July 14
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	August 4
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 14
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	July 14
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 11
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 6
Idaho	W. F. Howard, Pocatello	Boise	Oct. 6
Illinois	J. A. Egan, Springfield	Chicago	July 22
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	Oct. 27
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept. —
Kansas	D. P. Cook, Clay Center	Kansas City	Oct. 13
Kentucky*	J. N. McCormack, Bowling Green	Louisville	July 7
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	July 7
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 14
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 6
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Aug. 5
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire*	Henry C. Morrison, State Library Concord	Concord	July 15
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct. 20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 13
New York	C.F.Wheelock, Univ .of State of New York, Albany	New York / Albany / Syracuse / Buffalo	Sept. 22
N. Carolina*	G. T. Sikes, Grissom	Winston,Salem	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 7
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	J C Mahr, Shawnee	Shawnee	Sept. —
Oregon	B. E. Miller, Portland	Portland	July 7
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	
Rhode Island	G. T. Swarts, Providence	Providence	Oct. 1
S. Carolina	W. M. Lester, Columbia	Columbia	June 8
Dakota	H. E. McNutt, Aberdeen	Deadwood	July 8
Tennessee*	T. J. Happel, Trenton	Memphis / Nashville / Knoxville	May,'09
Texas	G. B. Foscue, Waco	Waco	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	July 6
Vermont	W. Scott Nay, Underhill	Burlington	July 14
Virginia	R. S. Martin, Stuart	Richmond	
Washington*	C. W. Sharples, Seattle	Seattle	July 7
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 14
Wisconsin	J. V. Stevens, Jefferson	Madison	July 14
Wyoming	S. B. Miller, Laramie	Cheyenne	

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Diplomas.—The following States do not require a diploma: Alabama, Arkansas, Colorado, Massachusetts, Mississippi, Rhode Island, and Tennessee.

Limited Reciprocity.—The following States reciprocate only on the basis of a written examination: Colorado, Delaware, District of Columbia, Illinois, New Hampshire, New York, North Dakota, Texas, and Wyoming.

Illinois.—At a special meeting of the Illinois State Board of Health, held April 5, the board, by a formal resolution, approved of the proposition to subject all physician applicants for a State license to a practical examination covering one day, in addition to the written examination, which requires three days for completion.

South Carolina.—The medical practice act of this State has been amended, as follows: The State Board of Medical Examiners is authorized to revoke licenses for just cause; the "five-year clause," which exempted physicians of five years' standing from examination has been eliminated; osteopaths may take the examination, but are excused the surgery and materia medica, therapeutics, and practice papers.

South Carolina recognizes reciprocity with the following States: Kansas, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

Opium Dealers in China.—According to a press dispatch from Shanghai, the Chinese opium sellers have been drawing lots among themselves to decide which of them shall close on July 1, according to the resolution passed by the taxpayers on March 21. It is understood that all of the shops will be closed by the end of the year.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending June 27, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	406	168
Diphtheria	286	28
Measles	658	19
Scarlet Fever	360	30
Smallpox	..	—
Varicella	116	—
Typhoid Fever	58	7
Whooping Cough	17	4
Cerebrospinal Meningitis	3	2
Malarial Fever	—	—
Totals	1904	258

Health Report.—The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending June 26, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Alabama, Huntsville and vicinity	June 18	2	..
Mobile	May 31–June 6	1	..
California, Los Angeles	May 31–June 6	1	
Illinois, Springfield	June 4–11	3	..
Indiana, Fort Wayne	June 6–13	3	..
Jeffersonville	May 1–31	30	..
La Fayette	June 8–15	3	..
South Bend	June 6–13	4	
Terre Haute	June 6–13	1	..
Iowa, Atlantic, vicinity	May 16	12	..
Emerson	June 1	3	..
Mason City	May 2–June 1	19	..
Kansas, Topeka	May 31–June 6	1	..
Kentucky, Catlettsburg	May 24	1	..
Covington	June 6–13	1	..
Louisiana, New Orleans	June 6–13	3	..
Michigan, Detroit	June 6–13	1	..
Port Huron	May 23–30	4	1
Saginaw	June 6–13	4	..
Missouri, Kansas City	June 6–13	1	..
St. Joseph	May 31–June 6	5	..
Nebraska, Friend	June 18	1	..
Ohio, Cincinnati	June 11–18	2	..
Dayton	June 6–13	1	..
Norwich	June 1	4	..
Toledo	May 16–June 13	10	..
Tennessee, Mingo Mountain	June 2	25	..
South Pittsburg	June 3–10	1	..
Washington, Spokane	May 23–June 6	18	..
Wisconsin, La Crosse	June 6–13	3	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Apr. 26–May 2	8	3
Porto Rico, Mayaguez	May 31–June 6	2	..

SMALLPOX—FOREIGN.

Arabia, Aden	May 18–25	..	4
Belgium, Ghent	May 9–16	..	1
Brazil, Pernambuco	Apr. 1–30	..	65
Canada, Halifax	May 16–23	4	..
Halifax	June 6–13	7	..
Hamilton	May 1–31	31	..
Winnipeg	May 31–June 6	1	..
China, Foochow	Apr. 25–May 9	..	Present.
Hongkong	Apr. 25–May 9	30	22
Nanking	Apr. 25–May 1	..	Present.
Ecuador, Guayaquil	May 16–30	..	6
Egypt, Cairo	May 20–27	6	1
France, Paris	May 16–23	1	..
Germany, General	May 9–16	32	..
Great Britain, London	May 23–30	1	..
Southampton	May 22–30	2	..
India, Bombay	May 12–19	41	..
Calcutta	May 2–9	16	..
Italy, General	May 22–31	16	..
Naples	May 23–30	2	..
Palermo	May 9–23	4	..
Japan, Osaka	May 16–23	..	Present.
Java, Batavia	Apr. 11–25	7	..
Manchuria, Dalny	May 9–16	1	..
Mexico, Aguascalientes	May 31–June 7	..	1
Mexico City	Apr. 16–May 9	..	35
Peru, Lima	May 20–27	..	Present.
Portugal, Lisbon	May 9–30	10	..
Russia, Moscow	May 16–23	29	12
Odessa	May 16–23	3	..
Riga	May 16–30	9	..
St. Petersburg	May 9–16	52	10
Warsaw	Apr. 18–25	..	5
Spain, Barcelona	May 1–31	..	1
Valencia	Mar. 23–30	15	3
Turkey, Constantinople	May 17–31	..	11
Turkey in Asia, Bagdad	Apr. 18–May 16	83	10

YELLOW FEVER.

Brazil, Manaos	May 9–23	4	4
Para	May 16–30	5	5

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Original Articles.

THE CONQUEST OF THE VENEREAL DISEASES.*

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LONDON, ENGLAND.

The immense damage done by syphilis and gonorrhea—by multiplying disease and abbreviating life, by causing sterility and blindness, as well as the parasyphilitic affection of general paralysis and tabes dorsalis, by deteriorating both the present and future generations, and at the same time inflicting an enormous pecuniary tax on every civilized community—is now all too familiar to need emphasis. The recognition of it is ancient, and was the chief cause of the establishment of police methods of regulating prostitution; for prostitution being the focus of venereal disease, it was supposed possible to stamp out venereal disease among prostitutes, and so suppress it altogether.

That view is no longer held save by a few ancient authorities whose careers have been too closely identified with systems of police regulations to allow of their changing their beliefs in old age. If there is any one conclusion which emerges from the conflicting discussions of this matter at the Brussels Conference of 1899, and subsequently, it is that all the old systems of interference and of non-interference with the venereal aspects of prostitution are unsatisfactory. Brothels are no longer the chief factor in prostitution, the character of prostitution is changing and the methods of dealing with venereal disease must change. The future, it is now beginning to be felt, belongs neither to the police regulation of prostitution, nor to *laissez-faire* indifference, but to the general sanitary control of disease on the basis of the common law.

The growing objection to police regulation may be traced equally in scientific opinion and in popular feeling. In France and elsewhere the municipalities of some of the largest cities have either suppressed the system of regulation entirely or shown their disapproval of it. In Germany, where there is in some respects more patient endurance of interference with the liberty of the individual than in France, England, or America, various elaborate systems of organizing prostitution and dealing with venereal disease continue to be maintained, but they cannot be completely carried out, and it is generally admitted that in any case they could not accomplish the objects sought.* The recent abandonment by Denmark of the police system in favor of a medical and sanitary system is a significant sign of the times.

"The struggle against syphilis is only possible if we agree to regard its victims as unfortunate and not as guilty. We must give up the prejudice which has led to the creation of the term 'shameful diseases,' and which commands silence concerning this scourge of the family and of humanity." In these words of Duclaux, the successor of Pasteur at the Pasteur Institute, in his noble and admirable book, "L'Hygiène Sociale," we have indicated to us, I am convinced, the only road by which we can approach the rational and successful treatment of the great social problem of venereal disease.

No evils can be combated until they are recognized and discussed. It is a significant and even symbolic fact that the bacteria of disease rarely flourish when they are open to the free currents of pure air. Obscurity and concealment furnish the best conditions for their vigor and diffusion, and these favoring conditions we have for centuries past accorded to venereal diseases. It was not always so, as, indeed, the survival of the word "venereal" in this connection, with its reference to a goddess, alone suffices to show. Even the name "syphilis" itself, taken from the romantic poem in which Fracastorus sought a mythological origin for the disease, bears witness to the same fact. The romantic attitude is indeed as much out of date as that of hypocritical and shame-faced obscurantism. We need to face these diseases in the same simple, direct, and courageous way which has already been adopted successfully in the case of smallpox.

At this point indeed we encounter those who say that it is unnecessary to show any sort of recognition of venereal diseases, and immoral to do anything that might seem to involve indulgence to those who suffer from such diseases; they have got what they deserve and may well be left to perish. Those who take this attitude place themselves so far outside the pale of civilization—to say nothing of morality or religion—that they might well be disregarded. The progress of the race, the development of humanity, in fact and in feeling, has consisted in the elimination of an attitude which it is an insult to primitive peoples to term savage. Yet it is an attitude which should not be ignored, for it still carries weight with many who are too weak to withstand those who juggle with fine moral phrases. I have even seen in a medical quarter the statement that venereal disease cannot be put on the same level with other infectious diseases because it is "the result of voluntary actions." But all diseases, indeed all the accidents and misfortunes of suffering human beings, are equally the involuntary results of voluntary actions. The man who is run over in crossing the street, the family poisoned by unwholesome food, the mother who catches the disease of the child she is nursing—all these suffer as the involuntary result of the voluntary act of gratifying some fundamental human instinct—the instinct of activity, the instinct of nutrition, the instinct of affection. The instinct of sex is as fundamental as any of these, and the involuntary evils

*Read before the Chicago Women's Medical Club.

*An interesting personal investigation of German methods was lately made by F. Bierhoff, "Police Methods for the Sanitary Control of Prostitution," *New York Medical Journal*, Aug., 1907.

which may follow the voluntary act of gratifying it stand on exactly the same level. This is the essential and fundamental fact: a human being in following the human instincts implanted within him has stumbled and fallen. Any person who sees, not this essential fact but merely some subsidiary aspect of it, reveals that his mind is twisted and perverted, and he has no claim to arrest our attention.

Even when we have put aside the vast number of venereally infected people who are in the narrowest and most conventionally moral sense, "innocent" victims of the syphilis or gonorrhea they have contracted, there is still much to be said. The majority of those who contract venereal diseases by illegitimate sexual intercourse are young. They are youths, ignorant of life, scarcely yet escaped from home, or they are young girls, who have indeed ceased to be absolutely chaste, but have not yet lost all their innocence, and who do not consider themselves, and are not by others considered, prostitutes; that indeed is one of the rocks on which the system of police regulation of prostitution comes to grief, for the police cannot catch the prostitute at a sufficiently early age. Of women in France who become syphilitic, according to Fournier, twenty to forty per cent. are infected before they are nineteen; and among men, fifteen per cent. of the cases occur between eleven and twenty-one years of age. In Germany Erb finds that as many as 85 per cent. of men with gonorrhea contracted the disease between the ages of sixteen and twenty-five. These young things for the most part fell into a trap which Nature had baited with her most fascinating lure; they were usually ignorant; not seldom they were deceived by an attractive personality, often they were overcome by passion; frequently all prudence and reserve had been lost in the fumes of wine. From a truly moral point of view they were scarcely less innocent than children.

"I ask," says Duclaux, "whether when a young man and a young girl abandon themselves to a dangerous caress society has done what it can to warn them. Perhaps its intentions were good. but when the need came for precise knowledge a silly prudery has held it back and it has left its children without viaticum. I will go further and proclaim that in a large number of cases the husbands who contaminate their wives are innocent. No one is responsible for the evil which he commits without knowing it and without willing it." The majority of husbands who infect their wives it has been found contracted the disease before marriage. They entered on marriage believing that their disease was cured and that they had broken with their past. Physicians have sometimes (and quacks frequently) contributed to this result by too sanguine an estimate of the period necessary to destroy the poison.

Even those who may be unwilling to abandon an attitude of private moral intolerance towards the victims of venereal disease may still do well to remember that, since the public manifestation of their intolerance is mischievous, and at the best useless, it is necessary for them to restrain it in the interests of society. They would not be less free to order their own personal conduct in the strictest accordance with their superior moral rigidity; and that after all is for them the main thing. But for the sake of society it is necessary for them to adopt what they may consider the convention of a purely hygienic attitude towards these diseases. The erring are inevitably frightened by an attitude of moral reprobation into methods of concealment, and these produce an endless chain of social evils which can only be dissipated by openness. As Duclaux has so earnestly insisted, it is impossible to grapple successfully with venereal diease unless we consent not to introduce our prejudices, or even our morals and religion, into the question, but treat it purely and simply as a sanitary question. And if the pseudo-moralist still has difficulty in cooperating towards the healing of this social sore he may be reminded that he himself—like everyone of us, little though we may know it—has certainly had a vast army of syphilitic and gonorrheal persons among his own ancestors during the past four centuries. We are all bound together, and it is absurd, even when it is not inhuman, to cast contempt on our own flesh and blood.

I have discussed the attitude of those who plead morality as a reason for ignoring the social necessity of combating venereal disease because, although there may not be many who seriously and intelligently adopt so antisocial an attitude, there are certainly many who are glad at need of the existence of so fine an excuse for their moral indifference or their mental indolence.* When they are confronted by this great and difficult problem they find it easy to offer the remedy of conventional morality, although they are well aware that on the large scale that remedy has long been proved to be ineffectual. They ostentatiously affect to proffer the useless thick end of the wedge at a point where it is only possible with much skill and prudence to insinuate the thin working end.

The general acceptance of the fact that syphilis and gonorrhea are diseases and not necessarily crimes or sins is the condition for any practical attempt to deal with this question from the sanitary point of view which is now taking the place of the antiquated and ineffective police point of view. The Scandinavian countries of Europe have been the pioneers in practical modern hygienic methods of dealing with venereal disease. There are several reasons why this has come about. All the problems of sex—of sexual love as well as of sexual disease—have long been prominent in these countries and an impatience with prudish hypocrisy seems here to have been more pronounced than elsewhere; we see this spirit for instance. emphatically embodied in the plays of Ibsen, and to some extent in Björnson's works. The fearless and energetic temper of the people impels them to deal practically with sexual difficulties, while their strong instincts of independence render them averse to the bureaucratic police methods which have flourished in Germany and France. The Scandinavians have thus been the natural pioneers of the methods of combating venereal diseases which are now becoming generally recognized to be the methods of the future, and they have more or less completely organized the system of putting venereal diseases under the common law and dealing with them as with other contagious diseases.

The first step in dealing with a contagious disease is to apply to it the recognized principles of notification. Every new application of the principle, it is true, meets with opposition. It is without practical result, it is an unwarranted inquisition into the affairs of the individual, it is a new tax on the busy medical practitioner, etc. Certainly notification by itself will not arrest the progress of any in-

*Much harm has been done in some countries by the foolish and mischievous practice of friendly societies and sick clubs of ignoring venereal diseases and not according free medical aid or sick pay to those members who suffer from them. This practice prevailed, for instance, in Vienna until 1907, when a more humane and enlightened policy was inaugurated. venereal diseases being placed on the same level as other diseases.

fectious disease. But it is an essential element in every attempt to deal with the prevention of disease. Unless we know precisely the exact incidence, local variations, and temporary fluctuations of a disease we are entirely in the dark and can only beat about at random. All progress in public hygiene has been accompanied by the increased notification of disease, and most authorities are agreed that such notification must be still further extended, any slight inconvenience thus caused to individuals being of trifling importance compared to the great public interests at stake. It is true that so great an authority as Neisser has expressed doubt concerning the extension of notification to gonorrhea; the diagnosis cannot be infallible, and the patients often give false names. These objections, however, seem trivial; diagnosis can very seldom be infallible (though in this field no one has done so much for exact diagnosis as Neisser himself), and names are not necessary for notification and are not indeed required in the form of compulsory notification of venereal disease which existed a few years ago in Norway.

The Scandinavian plan in a modified form has lately been established in Denmark. This little country, so closely adjoining Germany, for some time followed in this matter the example of its great neighbor and adopted the police regulation of prostitution and venereal disease. The more fundamental Scandinavian affinities of Denmark were, however, eventually asserted, and in 1906 the system of regulation was entirely abandoned and Denmark resolved to rely entirely on thorough and systematic application of the sanitary principle already accepted in the country as well as by Sweden and Norway, although something of German influence still persists in the strict regulation of the streets and the penalties imposed under some circumstances on those who harbor prostitutes in their houses. The decisive feature of the present system is, however, that the sanitary authorities are now exclusively medical. Everyone, whatever his social or financial position, is entitled to the free treatment of venereal disease. Whether he avails himself of it or not he is in any case bound to undergo treatment. Every diseased person is thus, so far as it can be achieved, in a doctor's hands. All doctors have their instructions in regard to such cases, they have not only to inform their patients that they cannot marry so long as risks of infection are estimated to be present, but that they are liable for the expenses of treatment, as well as the damages suffered, by any persons whom they may infect. Although it has not been possible to make the system at every point thoroughly operative, its general success is indicated by the entire reliance now placed on it, and the abandonment of the police regulation of prostitution. A system very similar to that of Denmark was established some years previously in Norway. The principle of the treatment of venereal disease at the public expense exists also in Sweden as well as in Finland, where treatment is compulsory.

It can scarcely be said that the principle of notification has yet been properly applied on a large scale to venereal diseases. But in some countries, notably England and the United States, where national temperament and political traditions render the system of the police regulation of prostitution impossible—even if it were more effective than it practically is—the system of dealing with venereal disease on the basis of public health has to be recognized, as not only the best but the only possible system.

In association with this, it is necessary, as is also becoming even more widely recognized, that there should be the most ample facilities for the gratuitous treatment of venereal diseases; the general establishment of free dispensaries open in the evenings is especially necessary, for many can seek advice and help only at this time. It is largely to the systematic introduction of facilities for gratuitous treatment that the enormous reduction in venereal disease in Sweden, Norway, and Bosnia is attributed. It is the absence of the facilities for treatment, the implied feeling that the victims of venereal disease are not sufferers but merely offenders not entitled to care, that has in the past operated so disastrously in artificially promoting the dissemination of preventable diseases which might be brought under control.

If we dispense with the paternal methods of police regulation, if we rely on the general principles of medical hygiene, and for the rest allow the responsibility for his own good or bad actions to rest on the individual himself, there is a further step, already fully recognized in principle, which we cannot neglect to take: We must look on every person as accountable for the venereal diseases he transmits. So long as we refuse to recognize venereal diseases as on the same level as other infectious diseases, and so long as we offer no full and fair facilities for their treatment, it is unjust to bring the individual to account for spreading them. But if we publicly recognize the danger of infectious venereal diseases, and if we leave freedom to the individual, we must inevitably declare, with Duclaux, that every man or woman must be held responsible for the diseases he or she communicates. In England and the United States the law is more unsatisfactory and helpless in this class of offense than it is in France. The mischievous and barbarous notion, already dealt with, according to which venereal disease is the result of illicit intercourse and should be tolerated as a just visitation of God, seems still to flourish in these countries with fatal persistency. In England the communication of venereal disease by illicit intercourse is not an actionable wrong if the act of intercourse has been voluntary, even although there has been wilful and intentional concealment of the disease. *Ex turpi causa non oritur actio*, it is sententiously said; for there is much dormitative virtue in a Latin maxim. No legal offense has still been committed if a husband contaminates his wife, or a wife her husband. The "freedom" enjoyed in this matter by England and the United States is well illustrated by an American case quoted by Dr. Isidore Dyer of New Orleans in his Report to the Brussels Conference on the Prevention of Venereal Diseases, in 1899: "A patient with primary syphilis refused even charitable treatment and carried a book wherein she kept the number of men she had inoculated. When I first saw her she declared the number had reached two hundred and nineteen and that she would not be treated until she had had revenge on five hundred men." In a community where the most elementary rules of justice prevailed facilities would exist to enable this woman to obtain damages from the man who had injured her or even to secure his conviction to a term of imprisonment. In obtaining some indemnity for the wrong done her, and securing the "revenge" she craved, she would at the same time have conferred a benefit on society. She is shut out from any action against the one person who injured her; but as a sort of compensation she is allowed to become a radiating focus of disease, to shorten many lives, to cause many deaths, to pile

up incalculable damages; and in so doing she is to-day perfectly within her legal rights. A community which encourages this state of things, is not only immoral but stupid.

There seems, however, to be a growing body of influential opinion, both in England and in the United States, in favor of making the transmission of venereal disease an offense punishable by heavy fines or by imprisonment.* In any enactment no stress should be put on the infection being conveyed "knowingly." Any formal limitation of this kind is unnecessary as in such a case the Court always takes into account the offender's ignorance as mere negligence, and it is mischievous because it tends to render an enactment ineffective and to put a premium on ignorance; the husbands who infect their wives with gonorrhea immediately after marriage have usually done so from ignorance; it should be at least necessary for them to prove that they have been fortified in their ignorance by medical advice. It is sometimes said that the existing law could be utilized for bringing actions of this kind and that no greater facilities should be offered for fear of increasing attempts at blackmail. The inutility of the law at present for this purpose is shown by the fact that it seldom happens that any attempt is made to utilize it, while not only are there a number of existing punishable offenses which form the subject of attempts at blackmail, but blackmail can still be demanded even in regard to disreputable actions that are not legally punishable at all. Moreover, the attempt to levy blackmail is itself an offense always sternly dealt with in the courts.

It is sometimes said that it is very well to make the individual legally responsible for the venereal disease he communicates, but that the difficulties of bringing that responsibility home would still remain. And those who admit these difficulties frequently reply that at the worst we should have in our hands a means of educating responsibility: the man who deliberately ran the risk of transmitting such infection would be made to feel that he was no longer fairly within his legal rights, but had done a bad action. We are thus led on finally to what is now becoming generally recognized as the chief and central method of combating venereal disease, if we are to accept the principle of individual responsibility as ruling in this sphere of life. Organized sanitary and medical precautions and proper legal protection for those who have been injured, are operative without the educative influence of elementary hygienic instruction placed in the possession of every young man and woman. In a sphere that is necessarily so intimate, sanitary organization and legal resort can never be all-sufficing; knowledge is needed at every step in every individual to guide and even to awaken that sense of personal moral responsibility which must here always rule. Wherever the importance of these questions is becoming acutely realized—as is notably shown at the congresses of the German Society for Combating Venereal Disease—the problem is resolving itself mainly into one of education.* And although opinion and practise in this matter are to-day more advanced in Germany than elsewhere, the conviction of this necessity is becoming scarcely less pronounced in all other civilized countries, in England and America as much as in France and the Scandinavian lands.

A knowledge of the risks of disease by sexual intercourse, both in and out of marriage—and, indeed, apart from sexual intercourse altogether—is a further stage of that sexual education which must begin so far as the elements are concerned at a very early age. Information about venereal disease should not be given until adolescence. It is unnecessary and undesirable to impart medical knowledge to young boys and girls, and to warn them against risks they are yet little liable to be exposed to. It is when the age of strong sexual instinct, actual or potential, begins, that the risks under some circumstances of yielding to it need to be clearly present to the mind. No one who reflects on the actual facts of life ought to doubt that it is in the highest degree desirable that every adolescent youth and girl ought to receive some elementary instruction in the general facts of venereal disease, tuberculosis, and alcoholism. These three "plagues of civilization" are so widespread, so subtle, and so manifold in their operation, that everyone comes in contact with them during life, and that everyone is liable to suffer, even before he is aware, perhaps hopelessly and for ever, from the results of that contact. Vague declamation about immorality and vaguer warnings against it have no effect and possess no meaning, while rhetorical exaggeration is unnecessary. A very simple and concise statement of the actual facts concerning the evils that beset life is quite sufficient and adequate and quite essential. To ignore this need is only possible to those who take a dangerously frivolous view of life.

It is the young woman as much as the youth who needs this enlightenment. There are still some persons so ill-informed as to believe that though it may be necessary to instruct the youth, it is best to leave his sister unsullied, as they consider it, by a knowledge of the facts of life. This is the very reverse of the truth. It is desirable indeed that all should be acquainted with facts so vital to humanity, even although not themselves personally concerned. But the girl is even more concerned than the youth. A man has the matter more within his own grasp, and, if he so chooses, he may avoid all the grosser risks of contact with venereal disease. But it is not so with the woman. Whatever her own purity, she cannot be sure that she may not have to guard against the possibility of disease in her future husband, as well as in those to whom she may entrust her child. It is a possibility which the educated woman, so far from being dispensed from, is more liable to encounter than is the working-class woman, for venereal disease is less prevalent among the poor than the rich. The careful physician, even when his patient is a minister of religion, considers it his duty to inquire if he has had syphilis, and the clergyman of most severely correct life recognizes the need of such inquiry, and may, perhaps, smile, but seldom feels himself insulted. The relationship between husband and

*Modern democratic sentiment is opposed to the sequestration of a prostitute merely because she is diseased. But there can be no reasonable doubt whatever that if a diseased prostitute infects another person, and is unable to pay the very heavy damages which should be demanded in such a case she ought to be secluded and subjected to treatment. That is necessary in the interests of the community. But it is also necessary, to avoid placing a premium on the commission of an offense which would insure gratuitous treatment and provision for a prostitute without means, that she should be furnished with facilities for treatment in any case.

*The large volume, entitled *Sexualpädagogik* (1907), containing the proceedings of the third of these congresses, almost ignores the special subject of venereal disease, and is devoted to the questions involved by the general sexual education of the young which, as many of the speakers maintained, must begin with the child at his mother's knee.

wife is even much more intimate and important than that between doctor and patient, and a woman is not dispensed from the necessity of such inquiry concerning her future husband by the conviction that the reply must surely be satisfactory. Moreover, it may well be in some cases, that if she is adequately enlightened she may be the means of saving him, before it is too late, from the guilt of premature marriage and its fateful consequences, so deserving to earn his everlasting gratitude. Even if she fails in winning that she still has her duty to herself and to the future race which her children will help to form.

We must fully face the fact that it is the woman herself who must be accounted responsible, as much as a man, for securing the right conditions of a marriage she proposes to enter into. In practice, at the outset, that responsibility may no doubt be in part delegated to parents or guardians. It is unreasonable that any false delicacy should be felt about this matter on either side. Questions of property and of income are discussed before marriage, and as public opinion grows sounder none will question the necessity of discussing the still more serious question of health, alike that of the prospective bridegroom and of the bride. An incalculable amount of disease and marital unhappiness would be prevented if before an engagement was finally concluded each party placed himself or herself in the hands of a physician and authorized him to report to the other party. Such a report would extend far beyond venereal disease. If its necessity became generally recognized, it would put an end to much fraud which now takes place when entering the marriage bond. It constantly happens at present that one party or the other conceals the existence of some serious disease or disability which is speedily discovered after marriage, sometimes with a painful and alarming shock—as when a man discovers his wife in an epileptic fit on the wedding night—and always with the bitter and abiding sense of having been duped. There can be no reasonable doubt that such concealment is an adequate cause of divorce. Sir Thomas More doubtless sought to guard against such frauds when he ordained in his *Utopia* that each party should before marriage be shown naked to the other. The quaint ceremony he describes was based on a reasonable idea, for it is ludicrous, if it were not often tragic in its results, that any person should be asked to undertake to embrace for life a person whom he or she has not so much as seen.

It may be necessary to point out that every movement in this direction must be the spontaneous action of individuals directing their own lives according to the rules of an enlightened conscience, and cannot be initiated by the dictation of the community as a whole enforcing its commands by law. In these matters law can only come in at the end, not at the beginning. In the essential matters of marriage and procreation laws are primarily made in the brains and consciences of individuals for their own guidance. Unless such laws are already embodied in the actual practice of the great majority of the community, it is useless for parliaments to enact them by statute. They will be ineffective, or else they will be worse than ineffective by producing undesigned mischiefs.

It is for this reason that, notwithstanding various attempts at legislation in this direction, it is still premature to introduce the principle of compulsory certificates of health at marriage. So long ago as 1858 Diday of Lyons proposed that all persons without exception should be obliged to possess a certificate of health and disease, a kind of sanitary passport. This would be an excellent provision, but it is still too far ahead to be worth practical advocacy. Duclaux considered that the candidate for marriage should possess a certificate of health in much the same way as the candidate for life assurance, the question of professional secrecy no more coming into one question than into the other. There is no reason why such certificate, of an entirely voluntary character, should not become customary among those persons who are sufficiently enlightened to realize all the grave personal, family, and social issues involved in marriage. The system of eugenic certification, as originated and developed by Galton, will constitute a valuable instrument for raising the moral consciousness in this matter. Galton's eugenic certificates would deal mainly with the natural virtues of superior hereditary breed—"the public recognition of a natural nobility"—but they would include the question of personal health and personal aptitude.*

The question arises as to the best person to impart this instruction. There can be little doubt that before puberty the parents, and especially the mother, are the proper instructors of their children in esoteric knowledge. But after puberty the case is altered. The boy and girl are becoming less amenable to parental influence, there is greater shyness on both sides, and the parents rarely possess the more technical knowledge that is now required. At this stage it seems that the assistance of the physician should be called in. The plan usually adopted, and now widely carried out, is that of lectures setting forth the main facts concerning venereal diseases, their dangers, and allied topics. This method is excellent. Such lectures should be delivered at intervals by medical lecturers at all urban, educational, manufacturing, military, and naval centers, wherever indeed a large number of young persons are gathered together. It should be the business of the central educational authority either to carry them out or to enforce on those controlling or employing young persons the duty of providing such lectures. The lectures should be free to all who have attained the age of sixteen.

In Germany the principle of instruction by lectures concerning venereal diseases seems to have become established, at all events so far as young men are concerned, and such lectures are constantly becoming more usual. In England and the United States very little has yet been done in this direction, but in the United States, at all events, opinion in favor of action is rapidly growing.*

Something is clearly needed beyond these lectures on these matters. It should be the business of the parents or other guardians of every adolescent youth and girl to arrange that once at least at this period of life there should be a private, personal interview with a medical man in which the venereal risks and possibilities of life would be clearly pointed out. In the case of girls, a woman doctor would usually be

*F. Galton, *Inquiries Into Human Faculty,* Every Man's Library ed., pp. 211, *et seq.*

*An important auxiliary method of carrying out the task of sexual hygiene, and at the same time of spreading useful enlightenment is furnished by the method of giving to every syphilitic patient in clinics where such cases are treated a card of instruction for his guidance in hygienic matters, together with a warning of the risks of marriage within four or five years after infection, and in no case without medical advice. Such printed instruction, in clear, simple, and incisive language, should be put into the hands of every syphilitic patient as a matter of routine, and it might be as well to have a corresponding card for gonorrheal patients. This plan has already been introduced at some hospitals, and it is incomprehensible that so simple and unobjectionable a precaution is not universally adopted.

preferred. Sex is properly a mystery, and to the unspoilt youth it is instinctively so; except in an abstract and technical way it cannot properly form the subject of lectures. In a private and individualized conversation between the novice in life and the expert, it is possible to say many necessary things that could not be said in public, and it is possible, moreover, for the youth to ask questions which shyness and reserve make it impossible to put to parents, while the convenient opportunity of putting them naturally to the expert otherwise seldom or never occurs. Must youths have their own special ignorances, their own special difficulties, difficulties and ignorances that could sometimes be resolved by a word? Yet it by no means infrequently happens that they carry them far on in to adult life because they have lacked the opportunity, or the skill and assurance to create the opportunity, of obtaining enlightenment.

It must be clearly understood that these talks are of medical, hygienic, and physiological character; they are not to be used for retailing moral platitudes. To make them that would be a fatal mistake. The young are often very hostile to merely conventional moral maxims, and suspect their hollowness, not always without reason. The end to be aimed at here is enlightenment. Certainly knowledge can never be immoral, but nothing is gained by jumbling up knowledge and morality together.

In emphasizing the nature of the physician's task in this matter as purely and simply that of wise practical enlightenment, nothing is implied against the advantages, and indeed the immense value in sexual hygiene, of the moral, religious, ideal elements of life. It is not the primary business of the physician to inspire these, but they have a very intimate relation with the sexual life, and every boy and girl at puberty, and never before puberty, should be granted the privilege—and not the duty or the task—of initiation into those elements of the world's life which are at the same time natural functions of the adolescent soul. Here, however, is the sphere of the religious or ethical teacher. At puberty he has his great opportunity, the greatest he can ever obtain. The flower of sex that blossoms in the body at puberty has its spiritual counterpart which at the same moment blossoms in the soul. The Churches from of old have recognized the religious significance of this moment, for it is this period of life that they have appointed as the time of confirmation and similar rites. With the progress of the ages, it is true such rites become merely formal and apparently meaningless fossils. But they have a meaning nevertheless and are capable of being again vitalized. Nor in their spirit and essence should they be confined to those who accept supernaturally revealed religions. They concern all ethical teachers, who must realize that it is at puberty that they are called upon to inspire or to fortify the great ideal aspirations which at this period tend spontaneously to arise in the youth's or maiden's soul.

It is not for the physician to complicate and confuse his own task as teacher by mixing it up with considerations which belong to the spiritual sphere. But in carrying out impartially his own special work of enlightenment he will always do well to remember that there is in the adolescent mind a spontaneous force working on the side of sexual hygiene. Those who believe that the adolescent mind is merely bent on sensual indulgence are not less false and mischievous in their influence than are those who think it possible and desirable for adolescents to be preserved in sheer sexual ignorance. However, concealed, suppressed, or deformed—usually by the misplaced and premature zeal of foolish parents and teachers—there arise at puberty ideal impulses which, even though they may be rooted in sex, yet in their scope transcend sex. These are capable of becoming far more potent guides of the physical sex impulse than are merely material or even hygienic considerations.

It is time to summarize and conclude this discussion of the prevention of venereal disease which, though it may seem to the superficial observer to be a medical and sanitary question outside the psychologist's sphere, is yet seen on closer view to be intimately related even to the most spiritual conception of the sexual relationships. Not only are venereal diseases the foes to the finer development of the race, but we cannot attain to any wholesome and beautiful vision of the relationships of sex so long as such relationships are liable at every moment to be corrupted and undermined at their source. We cannot yet precisely measure the interval which must elapse before, so far as Europe at least is concerned, syphilis and gonorrhea are sent to that limbo of monstrous old dead diseases to which plague and leprosy have gone and smallpox is already drawing near. But society is beginning to realize that into this field also must be brought the weapons of light and air, the sword and the breastplate with which all diseases can alone be attacked. As we have seen, there are four methods by which in the more enlightened countries venereal disease is now beginning to be combated.* (1) By proclaiming openly that the venereal diseases are diseases like any other disease, although more subtle and terrible than most, which may attack anyone, from the unborn baby to its grandmother, and that they are not, more than other diseases, the shameful penalties of sin, from which relief is only to be sought, if at all, by stealth, but human calamities. (2) By adopting methods of securing official information concerning the extent, distribution, and variation of venereal disease, through the already recognized plan of notification and otherwise, and by providing facilities for treatment, especially for free treatment, as may be found necessary. (3) By training the individual sense of moral responsibility so that every member of the community may realize that to inflict a serious disease on another person, even only as a result of reckless negligence, is a more serious offense than if he or she had used the knife, or the gun, or poison, as the method of attack, and that it is necessary to introduce special legal provision in every country to assist the recovery of damages for such injuries, and to inflict penalties by loss of liberty or otherwise. (4) By the spread of hygienic knowledge so that all adolescents, youths and girls alike, may be furnished at the outset of adult life with an equipment of information which will assist them to avoid the grosser risks of contamination, and enable them to recognize and avoid danger at the earliest stages.

A few years ago, when no method of combating venereal disease was known except that system of police regulation which is now in its decadence, it would have been impossible to bring forward such considerations as these; they would have seemed Utopian. To-day they are not only recognizable as practical, but they are being actually put into

*I leave out of account, as beyond the scope of the present paper, the auxiliary aids to the suppression of venereal diseases furnished by the promising new methods, only now beginning to be understood, of treating or even aborting such diseases. See *e.g.* Metchnikoff, "The New Hygiene," 1906.

practice, although, it is true, with very varying energy and insight, in different countries. Yet it is certain that in the competition of nationalities, as Max von Niessen has well said, "that country will best take a leading place in the march of civilization which has the foresight and courage to introduce and carry through those practical movements of sexual hygiene which have so wide and significant a bearing on its own future, and that of the human race generally."

SIGNIFICANCE OF WASH WATER EXAMINATIONS FOR GASTRIC CELLS IN THE DIAGNOSIS OF ATROPHIC GASTRITIS; REPORT OF TWO CASES.

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In the field of gastroenterology few diseases present more difficulties in the way of accurate diagnosis than do the various types of chronic gastritis. For of common and widespread disorders most of the diagnoses are still made by inference from a long line of most varied subjective symptoms, the presence of a low hydrochloric acidity, a lowering of the quantities of the gastric enzymes, and an increase in the amounts of incorporated mucus and leucocytes found present in a test meal.

In forming deductions from the subjective symptoms alone we can easily fall into error, because other gastric conditions may give a like history of complaints and because there are no specific subjective symptoms of this chronic disease. Life in our large cities is so artificial and irregular, particularly in the dietetic way, that a succession of slight neurotic gastric disturbances could ensue in many persons the symptoms of which together might establish the anamnesis of a chronic gastritis.

The standard of hydrochloric acidity differs in different stomachs, and what would be a normal acidity in one might be a high or low acidity in another. Also, the running acidity in the same stomach is often changing in degree. This may be seen in normal conditions under a change in the character and quantities of food. The difference in the total normal acidities between the Reigel and Ewald meals (adaptation juice of Pawlow) proves this to be true for the one meal, and this raising or lowering acidity under favorable conditions for its progress may establish for a short time a different standard of acidity in the same stomach. Thus it is that any change in the eating habits is important to consider when figuring an abnormal acidity. In the gastric neuroses the widest range of HCl content is possible. There are the two extremes of the hyperchlorhydria on the one hand and the unquestioned instances of short neurotic achlorhydria on the other, not to speak of heterochylia and the effects of a depressed mental condition in the individual on the character of the gastric juice secreted during or after a meal taken at the time. Unless, in any gastric condition with symptoms, the hydrochloric acid content continues steadily too high or too low, or is making an increasing progress to an abnormal standard, it cannot be regarded as of much significance. This requires the giving of more than one test meal before the degree of acidity can be determined as due to a gastritis.

With the quantity of the enzymes, mucus from the stomach, and a number of leucocytes, it is different. Here we deal with definite suggestive signs. When the enzymes are low in quantity the gastric juice necessarily lacks in digesting power, and this usually means organic changes in the structure of the cells in the gastric tubules, their detachment from the tubules, some circulatory disturbances in the walls of the stomach, or any combination of the above. That a juice may be low in its acidity and still possess a normal amount of the proenzymes can be seen in some of the neurotic hypochlorhydrias. Usually it is practical to infer that the degree of acidity is a fair standard upon which to judge the amount of the enzymes present, but such a rule cannot be depended upon in the chronic gastritides. In these conditions the more delicate peptic cells are usually the first to be affected and they may be seriously degenerated, and, therefore, their secreting function modified, while still the acid cells are functionating comparatively well. The general employment of the Mett tubes for proteolysis and the graduated milk tests for chymosis will prove this to be so.

In the early course of a chronic gastritis the stomach secretes an increased amount of mucus. Only rarely does a chronic gastritis begin without this increase. But this increased secretion may become arrested in the early course of the disease and not again return. Then there is the one condition of catarrhal inflammation with much mucus accompanied with a high acidity and sufficient enzymes (gastritis acida) on the one hand, and a gastritis with practically no mucus, no hydrochloric acid, and no enzymes (advanced atrophic gastritis) on the other. The first condition plainly deals with a digesting stomach; the other with an organ which is practically only a receptacle for food and in which the only digestion is the continued amylolytic one of the ptyalin. As the first, as well as other types of gastritis may progress to the last, how are we to be able to determine the crossing point between the two if we depend too much upon the estimation of the amount of incorporated mucus alone in our diagnoses of the atrophic conditions?

The number of free leucocytes that a stomach contains is a very important diagnostic sign of organic disease, and to their number as well as to their character we should give more attention than is now commonly done. Unfortunately, we have no practical good way of counting them here as is done with the blood. With the latter the means are comparatively accurate. We draw the blood into a perfectly graduated tube and dealing with a small known quantity of diluant and the counting scale we can be practically positive of their numbers. But with the stomach we deal with a large hollow viscus by means of a quantity of fluid contents (some of which escapes into the duodenum and some cannot be withdrawn from the stomach) and this fluid must stand for hours before we are enabled to find the leucocytes. Furthermore, even with the centrifuge they do not all settle to the bottom. At best, we can only infer their increase and to do this fairly accurately means long practice in the examination of wash waters. The free nuclei may be mentioned in this connection as of little value in the diagnostic way, except that they do not seem to be as numerous when the acid and enzymes are low. They are the digested remains of the bodies of any of the cells that have lined the structures from the lips to the pylorus, and also from the mucous corpuscles and leucocytes.

It is in the weighing of the above-mentioned findings that most of the diagnoses of chronic gas-

tritis are made. In the mild and medium cases when the gastric cell exfoliation is not present to any practical extent the above data must serve for the basis of our deductions. But from the standpoint of diagnosis, prognosis, and therapy in the advancing destructive cases of gastritis more than these are required. In the atrophic conditions, this is made possible by a careful examination of the numbers, the type, and state of health of the gastric cells found free in the stomach. The textbooks on the diseases of the stomach do not give significance to the value of such examinations. Here it is evident that we deal with the organic cell of the *tunica propria* itself, and the technique, as well as the method of examination, is simple. Since they cannot readily be made out in the thick mass of a test meal the stomach must be empty when we go after them, and this means the lavage of the jejune morning, after a light supper taken early the evening before, and a night of freedom from digestion. By these means the cells when exfoliating from the free surface of the stomach or desquamating from the tubules will collect in sufficient numbers for their discernment.

The technique that I have generally employed, and which was followed in the two cases herein reported, is the same as that described by me before. ("Gastric Exfoliation as a Feature in the Production of Acute Gastric Ulcer," Medical Record, November 30, 1907.) It is desirable to begin by aspirating the empty stomach before the ingestion of the compound saline solution. For this purpose I employ my regular test meal bottle. ("Test-meal Extraction," *N. Y. State Medical Journal*, June, 1908.) The disturbing factor in the examination of such aspirated fluid as may be obtained before the giving of the saline water is that generally this fluid contains too much mucus for a careful scrutiny of the cells. Still they can often be made out and then they are found not so much changed as they are liable to be when drawn hours later from the standing wash water, even when the compound saline solution had been employed. When any organic cells outside of the living body are subjected to the continued action of water they usually undergo a hydrolytic process, swell, change in contour, and do not stain as definitely as when in the tissues or when freshly drawn. The gastric cells are no exception to this rule. To prevent this, in so far as it is possible, it is desirable to employ for the washing purpose a solution which in character and specific gravity approximates that of the blood. This is done by the addition of salines. The installation that was used contained 250 c.c. of water to which were added 21 grains of sodium chloride, one grain each of sodium sulphate, sodium carbonate, and sodium phosphate, and 1½ grains of potassium chloride. This is drank, or run down through the tube, the patient is made to exercise vigorously, or the fluid is agitated in the stomach by sharp taps with the hand upon the abdomen over the gastric region; it is aspirated after five minutes and permitted to stand for several hours, the upper part of the fluid is syphoned off, and the sediment, in small lots, centrifuged for examination by the microscope. The stains which have served me best are one-half per cent. aqueous eosin, one per cent. methyl eosin and hemotoxylin, Biondi's polychrome methylene and carbol fuchsin. I would recommend for general use the eosin and hemotoxylin.

The acid cells from the stomach stain readily with most of the anilin dyes. They are seen between the leucocyte and squamous epithelium in size and their main features are their confluent stippling of the cell protoplasm with eosinophilic granules and their well-defined nucleus. In shape they may be described as irregular although most of them are oval. With the eosin and hemotoxylin stain, which serves well in differentiating the acid from the peptic cells (the first taking the eosin, the latter the hemotoxylin), the nuclear membrane is usually well defined. The nucleus itself is usually lighter and a trifle larger than those in the peptic cells and stains in a blotchy way. These cells when desquamating in any numbers are easy to find, and upon their presence the main dependence must be placed in the diagnosis of atrophic gastritis.

The peptic cells offer much greater difficulties in the way of their finding and discrimination than do any of the other organic elements found in the stomach. They stain poorly, the body just barely, the nucleus much better. With care and patience in the search they can often be seen, but never as plainly as the acid ones. Their cell protoplasm is indistinct and with the hemotoxylin stain is found faintly bluish in color. At best they take eosin, or, in fact, any of the anilin stains, very poorly. Their nucleus stains deeply and generally uniformly throughout. Neither the nuclear membrane nor nuclear granules can be distinctly discerned. This also differentiates them from the acid cells. The nucleus itself is seldom found oval as is often the case in the parietal cells. They are much smaller in size than the latter, being in size between them and the leucocyte, for the mononuclear variety of which they may be mistaken. Because their protoplasm digests away so readily (when the cells are free) and because of their poor staining properties and the question of their presence even if seen, the search for them need not be continued when numbers of the more plainly recognized acid cells are discovered. Sometimes they take the carbol fuchsin stain better than they do the hemotoxylin. Some of the free nuclei noted are undoubtedly from these cells, because I have seen such nuclei with just a shred or the faintest band of the characteristically stained protoplasm about them.

The columnar cells from the stomach are not difficult to make out. It must be remembered that in the posterior nares and the upper half of the pharynx the epithelium is of the cylindrical variety and these may be shed and swallowed. The cilia of these cells would serve to distinguish them from the gastric epithelium. They stain better than the peptic cells, although not so well as the acid. Their shape is characteristic, their protoplasm is not granular, and they have a long, flat looking nucleus which is almost in the center between the ends of the cell, while in the acid and peptic cells the nucleus is generally nearer to the edge of the protoplasm. They are easily detached by the stomach tube and thus are not so significant in this connection, unless exfoliating in large numbers, as the peptic juice secreting cells would be. They are often found in groups, and hemotoxylin stains them well.

In cases of atrophic gastritis, particularly, there may be seen a ring of cells (cast) more or less complete, which, in my opinion, consists of groups from the depths of the tubules. Sometimes a mass of rounded or cuboidal shaped cells may be exfoliated from the lower regions of the infundibula and these would strongly resemble the above. The goblet cells are rarely found and are not difficult to differentiate from the true columnar.

Case I.—January 3, 1906. T. B., age fifty-three years. Born in Ireland. Occupation, ex-police-

man. Family history, negative. Personal history, had measles and diphtheria when a child. Fifteen years ago had a tapeworm which was removed. A second one was removed three years ago. Up to seven years ago he drank intemperately of al-

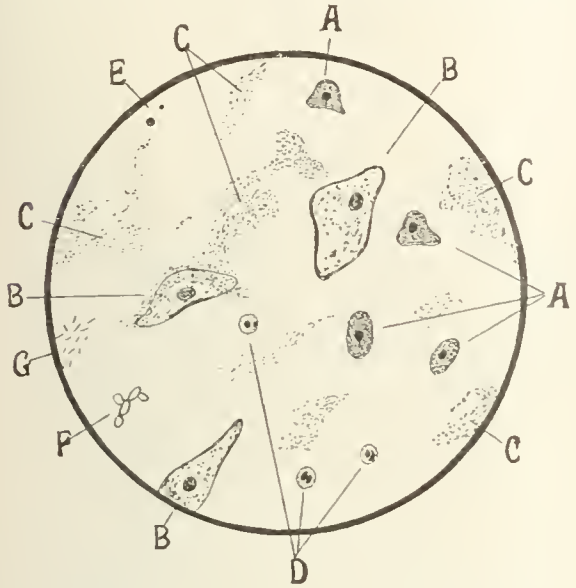

FIG. 1.—View through the Microscope of the Sediment from Case I, of Atrophic Gastritis. A, acid or parietal cells; B, squamous epithelium; C, mucus from the stomach; D, leucocytes; E, free nuclei; F, yeast fungi; G, bacilli. X 460.

coholic liquors, mostly whiskey; since then he has abstained completely. Other than his gastric trouble he has had no other illness.

Gastric history: Had stomach trouble for fifteen years. During this time has had intervals of relief, longer in the beginning, but in the past year and seven months the distress has been continuous. First symptoms were weight and distress in the epigastrium after eating. In the past eighteen months lost 47 pounds in weight. "Began to get nervous just about the time the loss of weight started; now I'm irritable, don't know what I want or what to do, and cannot sleep nights." Has a craving appetite (bulimia) and whenever he takes food has a wild roaring and tumbling sensation in the stomach. Constantly belching gas which is odorless and tasteless. Feels very weak physically and cannot walk more than a few blocks without resting. Bowels obstinately constipated.

Physical examination: Talks excitedly and has an anxious look in his face. Seems to lack the power of consecutive thought. Weight, 141 pounds. Body shows that he has lost considerably in weight. Skin dry and sallow looking. Examination of heart, lungs, and liver revealed nothing abnormal. Urine contained one-half per cent. of albumin and a considerable number of casts. Has a well marked gastric splash (three hours after breakfast). Greater curvature of the stomach lies above the umbilicus. The patient winces on pressure over the stomach and becomes nauseated when pressure is made in the epigastrium. Tongue coated. Was highly nervous and apprehensive during the examination.

Analysis of Ewald test meal extracted the next morning. Looks well digested. Return 110 c.c. Incorporated mucus not increased in quantity. Congo and litmus negative. Free HCl absent. Combined HCl 3°. Total acidity, 9°. Starches well digested. Fehling's test for sugar positive and quick. Very little lactic acid. A loop of the test meal taken from the filter paper and examined unstained, showed a number of leucocytes and squamous cells, the starches in a good state of digestion, and no Boas-Oppler bacilli. Subsequent estimation of the quantities of enzymes with the Mett tubes (for pepsin) and milk for chymosin showed a very low digesting power in the gastric juice.

The next morning before breakfast I aspirated his fasting stomach and drew out 17 c.c. of thick fluid, which on examination consisted mostly of mucus (most of this was probably swallowed during the night). He then drank 250 c.c. of the combined saline water which was withdrawn, permitted to stand for four hours, syphoned down to 70 c.c., centrifuged in lots and examined microscopically with the following findings: Acid cells from the gastric tubules present in large numbers; some peptic cells; leucocytes numerous; free nuclei and mucus present in all fields; squamous cells abundant; some yeast fungi and bacilli found.

Diagnosis: Advanced atrophic gastritis and chronic nephritis.

The subsequent history of this patient is worth relating. Under dilute hydrochloric acid, taken one, two, and three hours after his meals and acid gastric douches, a diet free from meats, eggs, and milk, his stomach at the end of two weeks showed a total hydrochloric acid acidity, after an Ewald meal, of 9° (all combined), and a total acidity of 13°. But he complained that he felt no better and had lost another pound and a half in weight. Although the results from his treatment seemed encouraging he evidently felt otherwise about it, so he continued his rounds of private physicians and dispensaries until he landed a bed patient in one of the large general hospitals in the city. Here, a diagnosis of probable carcinoma of the stomach was made, an exploratory incision was performed (nothing malignant or surgical was found), and the patient died three days afterward of an acute exacerbation of his chronic nephritis, induced probably by the ether given at the time of his operation.

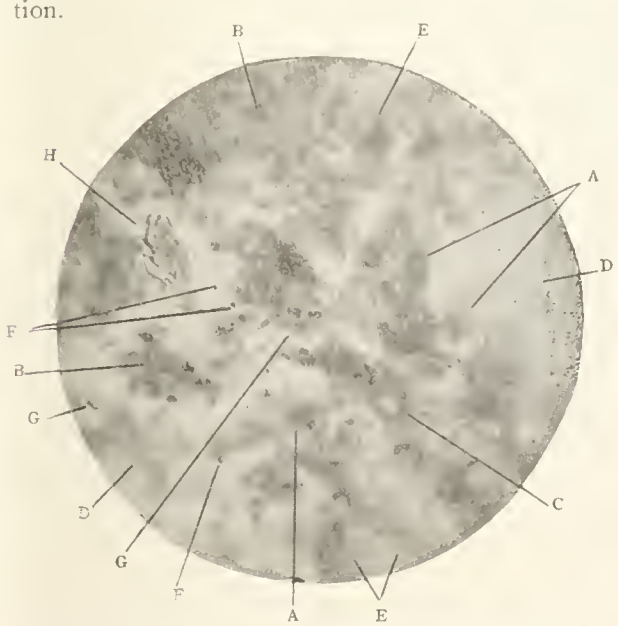

FIG. 2.—Photomicrograph of the Centrifuged Wash Water from Case II of Atrophic Gastritis. Stained with eosin and hematoxylin. A, acid cells from the gastric tubules; B, peptic cells from the gastric tubules, also the cuboidal cells from the lower parts of the infundibula of the glands (mostly the first); C, rings of cells from the tubules (casts of the glands); D, columnar epithelium from the stomach; E, squamous cells; F, free nuclei; G, leucocyte; H, vegetable substance. X 560.

CASE II.—April 4, 1907. Miss M. S., twenty-five years old. American birth and of good family. Occupation, at home. Family history, a maternal uncle died of carcinoma ventriculi at the age of fifty-one years, otherwise negative. Personal

history, was a seven-month child; had variola, scarlatina, and parotiditis when a child; began menstruating when seventeen years of age; had typhoid fever at twenty. "Never was strong physically." Habits good.

Gastric history: Had stomach trouble for seven years. It began shortly after her attack of typhoid fever and its onset was gradual. At times, when careful with what she ate, was comparatively free from distress. Various acute attacks in the past had been diagnosed as "gastritis," "nervous indigestion," and "weak stomach." Always felt best when away from city life. Complains of a sensation of weight and fullness in the epigastrium after meals. When the stomach is troubling her has much palpitation of the heart. Has often vomited a watery looking fluid (probably mucus). Has many headaches, and pains and a tired feeling in the calves of her legs. Has a bitter taste in her mouth mornings. Two years ago, when her stomach was not troubling her especially, she ate rather heavily one evening of chicken salad, after which she was taken acutely ill, had to go to bed, where she remained for ten days with a gastric disturbance accompanied with an elevation of temperature and which at the time was diagnosed as "gastric fever." Bowels constipated, but move with small doses of fluid extract of cascara. Has lost no weight.

Physical examination: Weight, 127 pounds. Looks moderately anemic. Heart and lungs normal. Has a systolic hemic murmur over the body of the heart and a bruit in the external jugular veins. Blood examination showed 3,400,000 reds, 7,000 leucocytes and 73 per cent. of hemoglobin. Abdomen well formed but walls have poor contracting power. Lower border of the stomach 2 c.m. below the umbilicus. Hepatic flexure of the colon and right kidney also displaced downward. Stomach very tympanitic. No splash on vibrating over the stomach, but slight succussion sounds on shaking the body from side to side. Stomach apparently empty of food (four hours after a breakfast consisting of orange juice, a roll, and hot milk). An indefinite sense of distress on pressure in the gastric region, but no actual pain. Examination of urine showed a phosphaturia, otherwise normal.

Ewald test meal extracted two days later. Return 55 c.c. and looks like fine oatmeal water. Free HCl absent. Combined HCl, 10°. Total acidity, 14°. Starches well digested. Mett tubes showed poor proteolysis and chymosin reaction 1:20. Many yeast fungi and sarcinæ.

Examination of the sediment in the saline water, which was permitted to stand for five hours, showed many acid and peptic cells, a few columnar, one goblet cell and an abundance of squamous cells, small rolls of discolored mucus, an increased amount of leucocytes and free nuclei. Some of the gastric cells were perfect casts of the tubules.

Diagnosis: Advanced atrophic gastritis, and anemia.

Subsequent history: Under a carefully selected bland diet, tonics, general hygienic measures, and intragastric douching with a weak solution of silver nitrate, 1:1,000, she improved perceptibly. Dilute hydrochloric acid taken after her meals had to be discontinued because of the distress it caused. The taking of fully peptonized milk with her meals helped in the general digestion of other foods taken at the same time. After four months of treatment the acid cells were no longer to be found free in the stomach (on three occasions). She gained nine pounds in weight. Her highest acidity, after an Ewald meal, was found two months after the treatment had been instituted, and was total HCl, 17° and total acidity, 19°. On January 9, 1908, she again came under observation, having gotten acutely worse a short time before. The total HCl was then found to have dropped to 9° and the gastric cells were again found in the morning stomach as before.

NERVE ANASTOMOSIS IN INFANTILE PARALYSIS.

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In the entire field of Orthopedic Surgery there is nothing which deserves more care and study on the part of the surgeon than the treatment of infantile paralysis, and the disabling and unsightly deformities incident to this disease. Undoubtedly a great many of these deformities could be prevented or ameliorated by the prompt institution of treatment during the acute stages of the disease tending to limit the area involved, or when the acute symptoms have subsided, by fixation of the limb in its normal position by a suitable splint or other form of apparatus, to prevent the contractures which always follow lack of treatment. It is strange indeed that a correct diagnosis is not more often made in this affection, which is so commonly met with both in epidemics and sporadically, and even when made, little is attempted to prevent deformity. Too often are these deformities allowed to go unchecked by the general practitioner, except perhaps for some vague directions to the parents to get a brace from an instrument maker and give the child massage and electricity.

When seen by the orthopedist these deformities usually require some form of operation for their correction and braces to preserve the results. But do the operations of tendon transference, etc., commonly used to-day meet all the requirements of this condition? Doubtless they go a long way toward improving the growth and function of the affected limb, when combined with the use of appropriate mechanical support, but would it not be infinitely more satisfactory if by repairing or replacing the affected nerves, we could restore the function of the paralyzed muscles and obtain a useful limb, instead of having to depend for years on some supporting apparatus? That the transplantation of nerves is feasible can no longer be doubted, and this fact has been proved not only by experiments on animals, but by the great improvement which has followed in those cases of infantile paralysis in which it has been employed.

The various operative measures commonly used at the present time may be classified as follows: Tenotomy and myotomy, tendon and muscle transplantation, astragalectomy, arthrodesis, osteotomy.

Excellent results may be obtained from the first mentioned in the milder grades of deformity, as severing the overactive muscles or tendons tends to restore the normal relation in the limbs, but some form of apparatus is necessary for some time afterwards to prevent recurrence.

Nicoladoni's method of tendon transference, which consists in attaching the distal end of the tendon of a paralyzed muscle to a healthy muscle in order to restore the function of the former, is far from giving the results expected of it, and when this is done dependence must be placed largely on artificial support.

Far more satisfactory is Lange's method, as im-

proved on by Hoffa, R. T. Taylor, Dane, and others, by which the healthy tendon is either sutured directly to the periosteum, passed through a bony canal, and then fastened to the periosteum, or after being passed through the bony canal is then doubled back on itself and there sutured. Lengthening contracted tendons by means of white silk sutures and then attaching them to the periosteum has much to commend it, and a recent report in the *Boston Medical and Surgical Journal* by Bradford and Soutter of a series of thirty-five cases in which this latter method was used, shows the excellent results obtained by it at their hands.

The muscle transplantations usually employed by Hoffa and others consist in shifting one head of the pronator radii teres to the external condyle of the humerus, thus making it act as a supinator; conversion of the sartorius into an extensor of the leg by implanting it into the quadriceps extensor; and the transference of a part of the trapezius in the deltoid. Recently Sachs has reported an operation in which he transplanted the whole origin of the pectoralis major over the paralyzed deltoid with almost perfect results.

Arthrodesis and astragalectomy may be employed after other methods have failed, or in cases in which the paralysis is so extensive as to render the other operations useless. A firmer joint is perhaps obtained by the former than the latter, though neither should be attempted in young children, as the bones must be fully ossified to insure absolute absence of motion. Osteotomy is to be employed only after other attempts at correction of the malposition have failed.

The writer cannot lay too much emphasis on the necessity of some form of mechanical support after each of these operative procedures, combined with massage, baking, electricity, active and passive motion, to prevent recurrence of the deformity and to aid the sound muscles in adapting themselves to their new functions.

Each of these procedures is, however, more or less of a makeshift and aims rather toward correction of the deformity than the cure of the disease. In going over the available literature on neuroplasty or nerve anastomosis, the writer was astonished at the scarcity of reported cases in which it had been applied to infantile paralysis, though there are a number of cases on record in which it has been used to advantage in regenerating traumatically paralyzed nerves.

A great many experiments have been worked out by various investigators, notably Howell of the University of Michigan, but these nearly all have to do with the regeneration of traumatically divided nerves. Spitzy's experiments and observations are the most noteworthy which deal specifically with infantile paralysis, and his conclusions agree in the main with those of Howell, Oppenheim, Kennedy, and others, namely, that a small living central nerve may regenerate a large degenerated peripheral stump.

The results of the investigations of these men certainly seem to point to ultimate success in the application of neuroplasty to the treatment of infantile paralysis, but as R. T. Taylor aptly points out, "we must bear in mind that often the adjacent nerve from which we hope to obtain central connection, is also impaired in function by the disease." In the opinion of the writer, based on the studies and reports of various surgeons, and on his own limited experience in this work, the conditions following anterior poliomyelitis and injuries to a nerve are to a great extent analogous, and whether we accept the peripheral or the central theory of nerve regeneration, the anastomosis between a central healthy living nerve and a degenerated peripheral stump, in certain selected cases, gives promise of far better success than any of the other operative measures in use at the present day. In any case the operation, if conservatively done, can do no harm, and we can always fall back on tendon transplantation in event of failure.

According to Spiller the chief dangers in operating on nerves in infantile paralysis are delayed union and overgrowth of connective tissue at the site of the wound. In the case of a large nerve such as the peroneal he advocates splitting the healthy nerve transversely and longitudinally and suturing the split-off bundle of fibers to the diseased nerve. When, however, only a small nerve, such as that supplying the tibialis anticus is involved, he thinks that by simply splitting the healthy nerve and inserting the peripheral end of the diseased nerve into the slit enough fibers are cut to insure union and regeneration. Spitzy, on the other hand, advocates this latter method (indirect anastomosis) only, thus minimizing the danger of injury to the unaffected nerve fibers.

The various methods of anastomosing nerves have been classified by Charles H. Frazier as follows:

1. End-to-end anastomosis of the peripheral segment of the affected nerve with the central end of a segment split from the unaffected nerve.

2. Lateral anastomosis of the peripheral segment of the affected nerve with the unaffected nerve.

3. Lateral anastomosis of the central end of a segment split from the unaffected nerve with the diseased peripheral nerve.

4. End-to-end anastomosis of both central and peripheral ends of the affected nerve with the split segments of the unaffected nerve (Basil Kilvington).

5. Lateral anastomosis of one or more muscular branches of the affected nerve with the unaffected nerve.

I have never had occasion to use the last two methods, but I feel that the first, or end-to-end anastomosis of split-off segments of the two nerves, promises the best results, as closer union may be obtained, and it is more favorable to the rapid growth of new axis-cylinders into the peripheral stump. The majority of surgeons seem to be agreed that it would be unjustifiable to divide entirely the healthy nerve as advocated by Basil Kilvington.

Operative interference with the nerves should never be attempted for at least a year after the onset of the paralysis, so that the muscles which are only temporarily affected may have time to regain their power and tone. During this time massage, electricity, baking, and active and passive motions are of the utmost importance. These latter therapeutic measures are most essential to the after-treatment of all cases in which nerve-grafting has been done, and good results are not to be expected if they are not persisted in faithfully for a long time.

The question of suture material is an important one, but it seems to be the general consensus of opinion that the best results are obtained with some form of animal suture, though white silk has its distinguished advocates. I prefer fine catgut, either plain or carbolized. In making the anastomosis as few stitches as possible to obtain close coaptation should be taken, and these should pass through the nerve sheath only and not through the trunk of the nerve. The best procedure is to pass two sutures through the sheath on each side of the point

where the nerve is to be divided, and using these to raise the nerve with, cut between them with a sharp knife. In this way unnecessary handling of the nerve and the use of forceps are avoided, which is most desirable. The use of scissors in dividing the nerve is to be strongly condemned, as they bruise the fibers too extensively.

As stated elsewhere the reported cases of infantile paralysis in which neuroplasty has been employed are very few. Peckham of Providence, R. I., who, so far as I can ascertain, was the first to use it in this country, reported a fairly successful case in 1898, and a second one some time after. James K. Young of Philadelphia, Frazier, Hackenbruch, Harris and Low of London, and R. T. Taylor of Baltimore have all reported cases of infantile paralysis in which nerve anastomosis was followed by marked improvement, in one or two instances approaching cures. In 1907 Babcock of Philadelphia reported a most interesting case of brachial palsy following anterior poliomyelitis, his operation being by far the most elaborate of its kind that has come under my notice. Briefly, he divided the diseased sixth cervical nerve high up on the right side, and after isolating it as far downward as possible, united it end to end with a bundle of nerve fibers split from the sixth cervical on the left side. In making the anastomosis a passage was tunneled from side to side between the anterior muscles of the neck and the trachea, and the ends of the nerve bundles were then united through an incision just above the suprasternal notch. In this way new nerve paths were formed from the healthy left brachial plexus to the paralyzed right. Three and a half months after operation there was not only marked improvement in sensation and development, but there was some power of voluntary motion, and the chances are good for a complete recovery.

The two cases operated on by R. T. Taylor, and which the writer in his capacity of Resident Surgeon at the Hospital for Crippled Children of Baltimore, had every opportunity of studying, were both extensively paralyzed, one being a paraplegic. The improvement in these cases, while not as great as we had hoped for, was still sufficiently marked to encourage us to proceed along the same lines, and we subsequently operated on two other cases, confining ourselves, however, to monoplegics.

In the last year and a half the writer has operated on three cases of infantile paralysis, one nearly a year ago and the other two about three months ago. These latter I will take up in a subsequent report, but it may not be amiss to mention here that at an examination made two days ago (March 31) there were distinct signs of returning sensation and power.

Case I.—A. B., aged ten years. First seen April 22, 1907. The father and mother are strong and healthy; one sister has a paralytic talipes valgus, and another paralytic talipes equinovarus. Four other brothers and sisters normal. The child was perfectly healthy up to four years ago. Breast-fed twelve months; walked and talked at fifteen months; teething normal. Had whooping cough at two years of age and measles about a year later. No other diseases of childhood.

The present illness began in August, 1903, during a very hot spell. The child went to sleep near a window in the afternoon and the same night had high fever and vomiting; he complained of severe headache and photophobia, and other meningeal symptoms were marked. Symptoms lasted about a week, and he was out of bed in ten days, but could not use the right leg. This has improved so that the boy can walk, but he limps badly and drags the right foot, which is turned in. General condition is good, appetite and bowels are normal. There was never any paralysis of the excretory organs. Physical examination shows a good general condition. He is a strong, well-nourished child. There is slight right talipes equinovarus, the equinus element being most marked; the foot cannot be manually corrected on account of the strongly contracted tendo Achillis. The peronei seem to be the only muscles affected and the boy cannot abduct or dorsally flex the foot. There is no response to the slowly interrupted faradic current along the distribution of the peroneal nerve. Nerve transplantation advised.

Operation, April 29, 1907. An incision was made over the biceps tendon and the external popliteal nerve was exposed and partially divided between sutures. A longitudinal incision was also made in the nerve extending above and below the transverse incision, thus isolating a small bundle of fibers above and below. A similar procedure was gone through with on the internal popliteal, the dissection being made close to the bifurcation of the sciatic. The central segment of the internal popliteal was then sutured to the peripheral segment of the external popliteal with fine carbolized catgut, an end-to-end anastomosis being made. In the same way the central stump of the external was sutured to the peripheral stump of the internal popliteal, making a crossed transplantation. The skin was closed with a subcutaneous silver wire stitch. At the same time the tibialis anticus, tendo Achillis, and plantar fascia were divided subcutaneously, and the whole limb was put up in a plaster cast.

The skin wound healed by first intention, and six weeks after the operation the cast was removed and an ankle brace with inside upright was substituted. There seemed to be no improvement in the function of the limb at this time, though the position was much better. From this time on a strict course of electricity, baking, and massage was persisted in, with the result that at the end of four months the foot could be slightly abducted and dorsally flexed, and there was distinct response to faradic stimulation. The treatment, in carrying out which the writer was faithfully seconded by the child's parents, was continued, so that at the present time the motions of the foot have returned to such an extent that the child can walk without the brace and put the foot squarely on the ground. Abduction and dorsal flexion are quite forcible, and response to faradic stimulation is pronounced. The brace is still being worn for protection and the other treatment carried on as heretofore. Since the operation the leg has increased one-quarter of an inch in size.

In conclusion the writer wishes to express his firm conviction that to nerve anastomosis we must look for the most beneficial results in many cases of infantile paralysis—results which can never be obtained from the other operative measures now in use, and which will be the means of converting into useful citizens many little sufferers who otherwise would be doomed to lifelong dependence on crutches or braces, burdens to themselves and to the community.

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INSANITY; ITS GENESIS AND TRANSMISSIBILITY.

By SAMUEL WESLEY SMITH, M.D.,

NEW YORK.

Though cases of insanity are not unknown among savage races, they are so rare under such primitive conditions of humanity, that we would be safe in assuming them to be diseases of civilized life. As barbarous communities advance socially, insanity keeps pace with the progressive development.

An interesting question arises in this connection: "What part does heredity perform in the production of insanity under such circumstances?" So far as known, insanity did not exist at all, at any time in the history of those races, unless in exceedingly rare and isolated cases, which can hardly be admitted as factors in producing the results stated. Consequently, the conclusion is forced upon the mind that hereditary influence had little or nothing to do with the causation of insanity among people who were rising in the scale of civilization. It is reasonable to assume that there was a time when insanity did not exist, and that when it finally did appear, heredity was not a factor in its production. Such an original condition of humanity free from the taint of insanity, would, as a hereditary influence, be much more powerful in perpetuating the normal type, than any subsequent disease would be in deteriorating it permanently. Nature is constantly striving towards the elimination of disease of all kinds, towards the removal of all defects, mental or physical, and this recuperative, restorative agency would tend to counteract and ultimately remove them from the organism.

Assuming that the insane diathesis is conveyed to the progeny, sometimes to manifest itself without a break in the continuity, at other times, intermittently, there is transmitted at the same time a primary restorative force which makes its presence felt, not intermittently, but constantly and continuously.

Many diseases are productive of a disturbance of the mental faculties, which either from their being associated with the course of a particular disease, or from their slight intensity, are not included under the head of insanity proper. But it should not be forgotten that those temporary impairments of the mental equilibrium may and probably do in the majority of cases, so affect the mechanism of mind that individuals may become really and permanently insane through the operation of causes which would not injuriously affect them at all but for the previous trouble. Occasionally, however, a disease may produce a permanent impairment of the thinking apparatus, and the person become incurably insane, without a possible suspicion of heredity having anything to do with the genesis of the disorder.

There is a general position taken by the members of the medical profession that a constitutional condition may be developed in a family, which, although it may never manifest itself in a concrete form as disease, may materially influence development, decrease the power of combating disease, or make itself felt in a more subtle manner by a mere tendency to degenerative changes. In this way, it is supposed, hereditary predisposition may be a common factor in all insanities—in the congenital class as an arrester of brain development, in the acquired as a producer of the nervous diathesis.

Personally, I do not think we should travel so far afield in tracing the origin of the great majority of cases of insanity.

In most cases, the causes producing aberrancy of mind are limited to the individual. The parents, or others more remote in the family line, probably had sins enough to answer for, without being held responsible for either the actions or condition of their crazy descendants. Vicious habits of youth and even of those of more mature age; excessive indulgence in the use of ardent spirits and narcotics; the mad rush for wealth and social distinction, and other salient features of our complex civilization are almost wholly responsible for furnishing patients for our institutions for the insane.

Despite those adverse features of our civilization, which tend to impair us mentally and physically, I do not think that the proportional increase of the insane is such as to cause any uneasiness. If there is an increase at all, it is more apparent than real, and is probably due to the fact that many are now sent to institutions for the insane who were previously cared for at their homes. I imagine that this class of the deranged would stand a better chance of recovery at their homes, or in smaller institutions, than in some of our overcrowded State Hospitals for the insane.

To digress for a moment, I desire to say that in eight or nine of our largest and best equipped State Hospitals for the care of the insane, there were on September 30, 1906, 1922 patients in excess of their architectural capacity. To obviate this condition, I will repeat what I had to say to the State Association of Superintendents of the Poor at Plattsburg in the autumn of 1888:

"Inasmuch as the State has failed in the past to keep pace with the natural increase of the insane, I fear we will again find our State Institutions overcrowded as in 1877. After twelve years' experience in the exclusive care of the insane a return to county care of the chronic insane became imperative. Believing, as I do, that history *will* repeat itself, I would suggest a plan which I believe ought to meet with the approval of those interested in the proper care and maintenance of those unfortunate and helpless wards of the State. It is this: That when it becomes evident that State institutions for the insane were overcrowded and caring for a number of patients beyond their architectural capacity,

the Board of Supervisors of any county so desiring, should be authorized to purchase ground and erect buildings with an architectural capacity of twenty to thirty per cent. in excess of the number of insane in the county. When such buildings have been erected and approved by the State Board of Charities, or other authority, and accepted by the State, the State should pay to the county one-half of the cost of the building, provided the total cost did not exceed $300 per capita. The Governor shall appoint three trustees and the Board of Supervisors of the county two trustees for the government of said institution, said Board to have entire management of the institution as exercised by the Boards of Managers of State institutions for the insane."

One would imagine that peaceful, uneventful lives, passed amid surroundings conducive to repose and peace of mind, would be comparatively free from aberrancy of mind, as compared with the cities. Such, however, is not the case, and though the proportional number of the insane is larger in the large cities than in the rural districts, there are various factors which enter into the calculation, so far as the city communities are concerned, which, when considered, make us wonder that the proportion of insane in the country should have been so large, when causes of excitation were so few.

A well-known alienist of New York, in an article published recently in a leading New York newspaper, wrote as follows: "The great factor in determining insanity is heredity, and I might say it is also the causation of most other nervous diseases." This alienist quoted Ribot as defining heredity to be "that biological law by which all beings tend to repeat themselves in their descendants. By it the groundwork remains unchanged amid incessant variations."

While I do not wish to minimize the effect of heredity as an agent in the transmission of either mental or physical tendencies and qualities, I believe that many attribute entirely too much to it in determining the conditions of mental and physical life.

The alienist quoted cites a passage from the Bible in support of his views, and would have Moses, or whoever wrote it, stand sponsor for his extreme position on the subject of heredity. The writer of the sacred text in declaring that the sins of the father shall be visited upon the children unto the third and fourth generation, had reference, in my opinion, to the imputation of moral guilt, with its consequences to the progeny, not to the transmission of any taint, mental or physical, in the way of heredity.

The same contributor, apparently endeavoring to fortify his views relative to the universality of the operation of the law of heredity, advances the claim in its behalf that genius and extraordinary talent of any kind are striking confirmations of this law, and cannot account otherwise for "the lives of our three martyred Presidents, Lincoln, Garfield, and McKinley." Had the writer ever read Grey's Elegy, he would have, I think, held a different opinion. The poet's speculations upon the possibilities of some human lives passed under different circumstances, are juster and more philosophical than these. The poet shows how some "mute, inglorious Milton," "noble Hampden," or a "Cromwell guiltless of his country's blood," lacking opportunity, lived and died obscure, and was buried in a nameless grave in that country churchyard.

When the adverse circumstances under which many live in the large cities is considered; when we bear in mind the temptations which lure to excesses of various kinds in them; when we think of the din, the tumult, and the mad rush, the tension of brain and the excitement of mind, the marvel is that there should be so few insane in the city, and so many in the country.

There is another factor in our modern city life, especially in our city of New York, which has an important bearing upon this question of insanity. The large numbers of foreigners living here, many under conditions not conducive to health of either body or mind, their homesickness and loneliness, doubtless furnish a larger proportional number of the deranged than the rest of the population do. Probably many arriving here as immigrants carry the germs of mental and physical disease with them, while it may be that some are permitted to land who are really insane.

An article on "Psychopathic Rulers" by Dr. Allan McLean Hamilton, appeared in the March number of the *North American Review*. In its wholesale denunciation of ruling families, ancient and modern, it is worthy of the most ultra of socialistic propagandists. The author refers to the insane Cæsars, but in my reading of history I never became aware that any of the Cæsars were insane. The first of them, Julius Cæsar, great in various departments of human activity, was a genius, which, I presume, would include him in the category of the insane, according to the theories of Dr. Hamilton and Prof. Lombroso. Cæsar Augustus, one of the best of the Roman Emperors, the nephew of Julius Cæsar, was without doubt one of the sanest of men, and Nero, the last Emperor of the Julian family, began life as a model young man and then, as sometimes happens even in our days, he cut adrift and became desperately wicked. No one, however, unless a New York insanity expert, would have adjudged Nero insane. He was radically bad, and that was all the dementia about him. Further on the doctor writes: "The careful investigation of some such line, for instance as the Bourbons, will disclose widespread degeneration, and it is known that one notable lunatic, 'Joanna the Mad,' was responsible for much of the moral and intellectual Bourbon decay. Her great-granddaughter, Marie de Medici, married Henry IV of France, and the progeny immediately presented the taint of insanity, which subsequently cropped out very extensively in the French and Spanish line." This statement is absurd. Henry IV, the first of the Bourbon line, known to history as "the great and good King," was no saner than his wife Marie de Medici. Their grandson, Louis XIV, the "Grand Monarque," gave no evidence in his life and conduct of being tainted with insanity, nor am I aware that any of his descendants, good or bad, were insane.

Our proscriptive alienist does not believe in half measures, and he includes the Hapsburgs, the Oldenburgs, the Romanoffs, the Stuarts, and the present reigning family of Great Britain in his category of psychopathic rulers. The family of Hapsburg is represented by the present Emperor of Austria-Hungary and none but the boldest of alienists would even dare to insinuate that the venerable monarch who has ruled so sanely and justly for a long term of years is anything else than the most rational of men. The present Emperor of Russia is of Romanoff-Oldenburg stock. Neither he nor his father nor his grandfather could possibly be regarded as insane in any particular. Catherine II and her son Paul were not estimable individuals in any respect, but their malady was moral, not mental, and their cruelty and viciousness were the result of a bad heart, rather than a deranged mind.

Regarding the Stuarts, the writer quoted says: "The mental instability of the Stuarts in England is well known." I never knew before that the Stuart kings were fit subjects of inquiry by a lunacy commission. How the "Scottish Solomon," James I, would smile if informed that the court physician doubted his sanity. Charles I, his son, was arbitrary and had too high an opinion of the kingly prerogative, but though he lost his crown and his life in consequence of his despotic notions, he was all his lifetime as far as possible removed from a suspicion of suffering from a mental derangement. James II, the last of the Stuart Kings, would be without doubt regarded by the writer of "Psychopathic Rulers" as the craziest of all the Stuarts for, did he not, as they said at the time, "sell three kingdoms for a mass"? Men before then and since have sacrificed their lives as a matter of principle and for conscience' sake, and right-thinking men have called them patriots and martyrs. James II sacrificed a triple crown for his faith—an act which certainly does not presuppose weakness of mind or instability of any kind.

Again Dr. Hamilton remarks, "The weakness and profligacy of the Georges, who were more or less deranged, were notorious.... Queen Caroline was more insane than her foolish and dissipated husband, and it was only when the Saxe-Coburg blood was infused that it neutralized that which was synonomous with degeneracy, and with the accession of Victoria a new order of things was established to the great good of the English nation." This statement is not only misleading, but is also incorrect. So far as the Georges were concerned George III was the only one that displayed any symptoms of mental disorder and this, most certainly, was not due to any hereditary taint. Queen Caroline was sufficiently wronged during her lifetime, without being villified after death.

But to come nearer home our alienist sounds a note of alarm which, though introduced with all seriousness, can scarcely fail to make sensible people smile. He tries to show that there is a grave danger threatening the country, the possible election of a psychopathic President. The President of the United States is invested with such a degree of power, that, in the opinion of Hamilton, it might prove disastrous to the country were a psychopathic chief magistrate elected. While he does not suggest that candidates for the Presidency should be examined by a lunacy commission, he thinks the country should have some guarantee as to the mental soundness of candidates for that high office.

7 West Twenty-sixth Street.

LACTIC ACID BACILLI CULTURES IN NOSE, THROAT, AND EAR WORK.

By H. HOLBROOK CURTIS, M.D.,

NEW YORK.

The positive results obtained from the use of the lactic acid bacilli in the digestive tract, after the Metchnikoff method, have led me, at the suggestion of Dr. Chas. E. North, to experiment in the respiratory passages with cultures of Massol's bacillus, obtained from the Lederle laboratory. While it was with a certain amount of skepticism that the experiments were begun, the good results in certain cases have been so marked that the conclusion seems warranted that a very valuable advance has been made in the treatment of pathogenic conditions of the nose and the accessory cavities by the use of the lactic acid secreting bacilli.

In the test cases, we examined the secretion from the nasal fossæ before the bacilli were introduced, and again after successive applications of the culture. In some cases after a limited number of injections not only have the pyogenic bacteria been destroyed, but there has been found a total absence of all bacteria in the secretions.

Injections by means of a catheter into a profusely discharging frontal sinus have caused a diminution of the discharge, amounting to ninety per cent., after the second dose of a cubic centimeter of the culture; and this in a case of over a year's duration. In several instances of chronic ethmoiditis with profuse postnasal discharge, the condition has been so relieved that the patient has asserted himself entirely cured.

Of especial benefit it seems to be in the treatment of the early stages of atrophic rhinitis. In these cases the crusts liquefy and the nose presents an entirely different appearance after two or three applications. It is too early to state that there has been an actual cure in any of these cases, but the evidence has been so strong that it would seem to point to ultimate good results. I have no hesitation in saying at this stage that there is no topical application which approaches in any manner the efficacy of the lactobacilli culture in the treatment of mucopurulent secretion from the nose.

Should future experimentation substantiate the evidence of results obtained thus far, it would seem that a new era in the treatment of pathogenic bone cavities has been instituted—and that the theories of Metchnikoff admit of a much wider application than he has claimed. What will be the success of this treatment in suppurative chronic otitis media remains to be seen. As it is my intention to speak from a clinical and not from a bacteriological point of view, I will further on cite a series of cases which have been under observation during the past month, and postpone absolute conclusions as to the real value of the treatment until such time as other observers have verified the almost specific virtue which the culture seems to possess. The method of application has been as follows: In the nasal cavity a cubic centimeter of the culture broth has been sprayed under pressure on either side of the middle turbinate, in order to reach the anterior and posterior cell orifices, the theory being that the bacilli will find their way into the ethmoid cells and the accessory cavities, and by their secretion destroy the pyogenic bacilli which are causing the disease. A sterilized narrow test tube into which has been poured a cubic centimeter of the culture admits a sterile Sass spray tube and makes the application of the medium by compressed air pressure very convenient. In the sphenoid, frontal, and maxillary sinuses the culture may be syringed through the metal catheters appropriate to the locality. It is too early to state what improvement, if any, may be expected from this treatment in cases where there exists necrosis of the bone, but where the disease is confined to a pus-secreting membrane in the accessory cavities, it promises most excellent results.

The treatment of the cases cited below has been as follows: The nose is cleansed by sterile water or a mild saline solution, no antiseptic being employed. If a sinus is injected, or the meatus sprayed, the patient is directed not to blow the nose for an hour or two and to employ nothing as a spray or douche until the following day, when a mild saline solution may be employed if imperative, for cleansing purposes.

The cases now under observation are treated

every second or third day. The element of suggestion in the cases reported in this paper has not been eliminated, as it was considered necessary to obtain the patient's consent before experimenting; but, as it has been demonstrated that no bad results can occur, provided the proper precautions are taken, in future the patients under observation will not be aware of the nature of the application.

Case I.—Banker, age 56. Has suffered for twenty years from profuse postnasal discharge. Right frontal sinus affected. Operated upon from within in 1905 and douched. All the ethmoidal region involved. Pain in frontal region and headache a constant factor. Douching does not now reveal presence of pus in frontal sinus. Constant hawking disturbs sleep at night. The nose was cleansed with distilled water, and sprayed as described into the middle and superior meatus. The first treatment was given May 12. On the 13th the discharge was thinner, 15th much less, 17th very much less and pain gone, on the 22d there was no discharge containing pus and there had been no pain. June 4, conditions seem normal. Patient says he is practically well—never dreamed of such comfort. June 19, no recurrence of pain or discharge.

Case II.—Mr. S., age 60. A year ago came from Brooklyn with empyema of right frontal sinus. Tip of middle turbinate removed and sinus catheterized and douched. Pain was relieved, but discharge though much diminished, never ceased. May 16 injected one cubic centimeter of the culture through a catheter into the sinus. May 18 repeated treatment. May 24, reports discharge diminished 75 per cent. June 4, son called and reported discharge entirely stopped.

Case III.—Mr. G., age 54, lawyer. Has suffered from chronic suppurative ethmoiditis with profuse postnasal dropping for many years. Removed a spur and cauterized turbinates. May 14, 18, 22, and 24, sprayed nose, not yet healed, with the Massol bacillus culture. Patient reports that the second application diminished the discharge 75 per cent., the fourth proved even more efficacious; all hawking stopped. "No more discharge than natural." June 18, patient continues free from morning accumulation in throat and has no mucopurulent discharge.

Case IV.—Miss C., age 25. Lymph node appeared in neck a year after the removal of a chain of glands. In operating for removal, the sac was ruptured, and the cavity was curetted and syringed with lactobacillus culture. The wound closed up in a week; no drainage after the first day.

Case V.—May 15. Child, 9 years. Incipient atrophic rhinitis. Thick crusts around vestibule and inferior meatus full of mucopurulent secretion. Sprayed every day for two weeks with the Massol culture. From the first application softening of the crusts was noticed. The flecks of slate colored material on the middle turbinates disappeared. Discharged apparently cured June 18.

Case VI.—Child, 11 years. Same general conditions as in Case IV. Atrophic rhinitis. Nurse has offensive ozena. Commenced treatment May 16 and has continued four weeks. The child is reported as being very much improved, being entirely free from "scabs." The nurse who has been using the same treatment, viz., a daily spray of Massol bacillus culture, says the crusts are dissolving; it is very easy to blow them out. Does not have to use swabs and douches. No odor. Both cases report marked improvement. Sailed for Europe June 13.

Case VII.—Antrum and frontal sinus empyema of the left side. Woman, aged 25. Cause, grippe infection in December last. Removed first molar and syringed antrum daily with antiseptic douches. Delayed radical canine fossa operation, hoping to avoid it by conservative methods. A brown and unhealthy pus clot as large as a nickel five-cent piece was constantly found in the antrum washing. On May 20 an injection of 1 c.c. lactobacillus culture was begun every other day. Discharge changed at once, the brown pus gave place to a lighter yellowish flocculent discharge which did not sink to the bottom of the dish. Frontal sinus could not be douched owing to deflected septum and impossibility of entrance within. Nose was sprayed. June 8 patient reports great improvement. June 20, frontal sinus has been constantly improving under home treatment with the Massol bacillus culture in an adrenalin atomizer, until to-day there is no pus in nose; antrum is practically well. Only three injections were given in antrum.

The histories of the above cases seem to me to be in themselves a sufficient apology for what might appear a somewhat premature announcement.

118 Madison Avenue.

SOME CASES, OTHER THAN OBSTETRICAL, IN WHICH HYPODERMATIC INJECTIONS OF ERGOT HAVE BEEN OF GREAT SERVICE.

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NEW YORK.

Dr. Alfred T. Livingston, in the *Journal of the American Medical Association*, March 21, 1903, and in the Medical Record, November 23, 1907, has dealt with the uses of ergot in a very able manner. I am in absolute accord with his general deductions given in the latter article, and which, for the benefit of those who have not read that article, I take the liberty of reproducing. Dr. Livingston says: "The general deductions that appear to be warranted, from my personal experience with the therapeutic application of ergot, are: (1) That its direct and specific effect is the contraction of unstriated muscular fiber, or other involuntary contractile tissue. (2) That it does not markedly contract that which is normal in tone; but (3) That it is emphatic in its contraction of that which is lacking in tone, and (4) That it is prompt and striking in such effect, in proportion to the recency of occurrence of the atonic state in such fiber. (5) That its widest field of usefulness is its application to the muscular coat, or other contractile tissue, of weak and relaxed blood-vessels. (6) That it there tends to equalize vascular tension; to distribute the blood equably throughout the body; to restore or to promote functional activity of glands and organs generally, and vasomotor centers particularly. (7) That it is useful to restore tone in the unstriped fiber of the walls of the hollow viscera, stomach, bowels, bladder, uterus, etc. (8) That the prevalent, popular notion, existing even in the medical profession, that it is a dangerous drug, and likely to produce ergotism, is unfounded as regards the modern pharmacopial preparations, at least as regards such as I used during the past thirty-four years. (9) That its local action upon the stomach is often offensive, especially if full doses are given; that its absorption from the stomach is uncertain, both as to promptness and degree; and, therefore, (10) That its administration should be limited as much as possible to hypodermic injection, which assures immediate effect, admits of exact regulation of dose,

and avoids nausea and other ill effects of its administration per os."

As I recognize that the therapeutic application should be more extensively employed by my fellow practitioners, I therefore, submit three typical cases out of a series of several hundred in which I have employed intramuscular injections of ergot with very happy results. This method of treatment will be found of great value in pathological conditions of the blood-vessels and therefore of especial service to the skin specialist. During the past seven years I have used it in over three hundred cases of acne rosacea with gratifying results in every case. It is my belief that the staphylococci will not attack a portion of the body unless there is first a sluggish flow of the blood due to an atonic condition of the muscular coat of the blood-vessels, rendering that section of the body a ready prey to bacterial invasion. The effect of ergot is to tone the muscular coat and so maintain an even, steady flow of blood. An old method, and one still employed, of treating some stubborn cases of acne was scarification, which was usually followed by unsightly scars. In the use of ergot hypodermatically we have a more efficient remedy and the complete elimination of the possibility of scar formation. It is needless to say that in addition to ergot the use of ointments and washes locally should not be neglected, as they materially aid in eradicating the infection.

The ergot should be injected deeply into the muscles, preferably the gluteal region. The frequency of the injection varies with the condition of the patient. I have usually given injections on alternate days. There is a decided objection on the part of some physicians to the use of the hypodermic needle. I believe this to be quite unwarranted, as I have personally administered upwards of forty thousand injections in the correction of various facial deformities, specific diseases, and other conditions without untoward effects, but with definite therapeutic results.

Case I.—M. S., male, aged fifty-six, sells newspapers, greatly addicted to the use of alcohol; had a very severe case of acne rosacea. His face was entirely covered with the eruption and he had the characteristic red nose that accompanies indulgence in too large quantities of mixed ales. Injections of ergot were administered on alternate days until in all six injections were given. As a result of the first injection an ecchymosis took place. This merely goes to show that the blood-vessels were extremely atonic. After the second injection there were no following ecchymoses. The result of these injections was the complete cure of the condition, and now, at the expiration of two years, there has been no semblance of a return, even though the patient still continues to drink his usual amount.

Case II.—L. A. B., female, aged about sixty, very fat, weighing over two hundred pounds, treated seven years ago for varicose veins of the right leg by injections of ergot every other day until seven injections were given. Although the veins are not normal, the current of blood is quite good even at this late date. In this case, after the third injection I discontinued the use of the bandage and up to the present time it has not been necessary to replace it.

Case III.—G. P. W., male, aged thirty-five, commercial traveler, greatly addicted to the use of cigarettes, but temperate in other respects; he smokes several packages of cigarettes a day, and is very nervous, so much so, in fact, that he could not write an order properly. I endeavored to persuade him to give up smoking but without success. On examination I found his venous circulation far from perfect. The veins were engorged and the flow of blood sluggish. After five injections on alternate days the nervousness had entirely disappeared and at the same time the desire for cigarettes had ceased. A year later he again began the use of tobacco in this form but more moderately, and thus far there has been no return of the nervousness.

Sugar.—Sugar is often given a bad name from a physiological standpoint, but in many instances it is questionable whether it is deserved. It seems inconceivable that the bountifulness with which the world is supplied with sugar should mean anything else than that it is designed for human food. Sugar is one of the most powerful foods which we possess, as it is the cheapest, or, at any rate, one of the cheapest. In muscular labor no food appears to be able to give the same powers of endurance as sugar; and comparative practical experiments have shown without the least doubt that the hard physical worker, the athlete, or the soldier on the march is much more equal to the physical strain placed upon him when he has had included in his diet a liberal allowance of sugar than when sugar is denied to him. Trophies, prizes, and cups have undoubtedly been won on a diet in which sugar was intentionally a notable constituent. It has even been said that sugar may decide a battle and that jam after all is something more than a mere sweetmeat to the soldier. The fact that sugar is a powerful "muscle food" accounts probably for the disfavor into which it falls, for a comparatively small quantity amounts to an excess, and excess is always inimical to the easy working of the digestive processes. A strong solution of sugar is irritating to the tissues, will set up superficial inflammation, and may produce a form of eczema. It is well known that an excessive diet of sugar irritates the mucous membrane of the stomach and encourages the production of mucus and of a highly acid gastric juice. The ingestion of much sugar spoils the appetite. Children who have been tempted to overindulge in "lollipops" between regular eating times do not want their ordinary meal. The schoolboy spoils his dinner by eating too many sweet things before that meal. An overindulgence in sweet liqueurs, in sweet ices, and in "crystallized" fruits after dinner retards the digestion of the meal. Sugar satiates; it is a concentrated food. Where sugar does harm, therefore, it is invariably due to excess. Taken in small quantities and distributed over the daily food intakes sugar contributes most usefully in health to the supply of energy required by the body. In certain diseases, of course, the presence of sugar in the diet is plainly undesirable. Generally speaking, however, there is a prejudice against sugar which is not justified by physiological reasoning—at all events, when it is eaten in moderation; and it is a curious fact that the man who practically abstains from sugar, or reduces his diet to one almost free from carbohydrates in favor of protein foods such as meat, often shows feeble muscular energy and an indifferent capacity for physical endurance.—*The Lancet.*

Typhoid Fever and Descending Infection of the Biliary Passages.—A. Lamierre and P. Abrami have made experiments in animals and observed cases in human beings which show that the old accepted belief that typhoid infection of the biliary passages was always an ascending process is erroneous. They find that the infection is a descending one, the typhoid bacilli entering the bile passages from the blood and thus causing suppurative lesions of the gall-bladder. The bacilli are eliminated by the liver and the system may be protected against the action of these germs by this elimination which carries the bacilli away from the system.—*La Presse Médicale.*

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THE FIGHT AGAINST UNCINARIASIS IN PORTO RICO.

The colonial possessions of the United States have brought with them many new medical as well as economic and political problems. The dysenteric diseases of the Philippine Islands, the yellow fever of Havana, the endemic anemia of Porto Rico have all been carefully studied since the Spanish-American War has placed the responsibility, permanent or temporary, for the health of the inhabitants of Cuba, the Philippines, and Porto Rico in the hands of the American medical profession, and the work of Strong in Manila, of Findlay in Havana, of Ashford and King in Porto Rico has been wonderfully productive of results. Yellow fever is no longer endemic in Havana, the Philippine studies have added much to our knowledge of the pathogenesis of diarrhea, and Dr. Ashford's announcement that the anemia of Porto Rico was due to a parasite, which was classified later by Stiles as *Uncinaria americana*, opened a way to the successful fight against this condition which was causing untold economic losses to the island. In a report of the permanent commission for the suppression of uncinariasis ("Anemia in Porto Rico"), this work is given in detail. Omitting the particulars in regard to the attempted education of the natives by various instructing circulars and posters, we find, in the results of the work, that 89,233 were treated for uncinariasis during 1906 and 1907, these patients making some 500,000 visits to the stations established by the commission. In all of these, microscopical examination of the blood and of the feces was undertaken, making the diagnosis positive. Then thymol and betanaphthol were administered as specifics for the disease, a purgative of sodium sulphate being given before and after the medicine. As a result, 25.71 per cent. of the patients were cured completely; 17.38 per cent. were "practically cured," having received four doses of the medicines which probably resulted in the expulsion of over 96 per cent. of the parasites; in 16.20 per cent. the condition was bettered; 40.50 per cent. are still under treatment, and only 0.21 per cent. died during the two years.

Much valuable information has been collected by the commission in regard to the symptoms and pathology of uncinariasis. Of course, in a country where 90 per cent. of the working population harbor the parasites of the disease, the cure of several thousand persons is only a step toward ridding the country of the plague. The commission, therefore, recommends that at least fifty permanent stations be established for the treatment of the disease; that a campaign of education should be carried out teaching the inhabitants to avoid spreading the disease by sanitary disposal of all excreta; that legal measures should be adopted, enforcing the wearing of shoes by all laborers employed by the government, who should, moreover, be employed only on presentation of a certificate showing them free of the disease in question. The commission says properly that such regulations, although appearing to threaten the personal liberty of the citizen, in the end will benefit both the individual and the whole society of the island.

NATURE AND TREATMENT OF LEUKEMIA.

The primary diseases of the blood constitute but a lately opened chapter of human pathology, yet they have formed a subject of such interest both to the research workers and to the practical clinicians that their symptomatology and the pathological changes occasioned by them in the human organism have received much special attention. The cause of them, however, has remained undiscovered, and the treatment has been very inefficient. It may be assumed that parasitic etiology is improbable, since the attempts of Mosler and Bollinger to infect susceptible animals by the leukemic blood were completely unsuccessful, and like experiments carried out by Schupfer with patients suffering from incurable carcinomatous disease could produce no leukemic changes. Most interesting findings in regard to the pictures of the blood seen in leukemias have been lately published by Grüneberg (*Medizinisch-naturwissentschaftliches Archiv*, Volume I). His examinations of embryos has shown that human embryonal blood answers completely to the picture of lymphatic leukemia, and even the increase of normoblastic red cells after the sixth month makes the blood quite comparable to the conditions found at certain stages of the disease when compensating processes seem to be most evident. The essence of the leukemias, therefore, is the return of the blood to its embryonal composition so far as its cellular elements are concerned. In an article in the *Berliner klinische Wochenschrift* for June 15, 1908, Grawitz indeed says that in many occasions the leukemia is nothing but the unlimited attempt at blood formation which has been called forth by some such cause as chronic inflammatory and suppurative conditions. Ziegler and Tochmann have published a case in which a simple neutrophile leucocytosis of 28,000 leucocytes called forth by a chronic staphylococcus infection changed to a leucocytosis of 240,000 cells, mostly myelocytic in character.

Grawitz reports the success he has had in the treatment of leukemias during the last three years, that is, since the *x*-rays have been utilized for this purpose. Ten of the twenty-six patients suffering from myelogenous leukemia recovered under treatment with the rays, the spleen diminishing to normal size, and the blood assuming its usual picture. Three of the ten had relapses, but a second course of treatment again proved efficacious in curing them. Only one patient with lymphatic leukemia was cured of the disease, if freedom from the signs

of the affection for the period of two years constitutes a cure. In general, this type of the disease proved quite refractory to the *x*-ray therapy. However, up to the introduction of this treatment, the outlook for all leukemic patients was very dark indeed. If one type of the disease even can be successfully controlled, it means that a great many victims may be annually saved. It seems probable, too, that early diagnosis and the improvement of the technique of treatment will increase the percentage of the cures.

OPHTHALMOVASCULAR CHOKE.

Derangement of function in any given organ is rarely unattended with manifestations referable to other organs as well, and there is sometimes danger that the underlying disorder may be overlooked by reason of the obtrusiveness of the secondary phenomena. It has come to be recognized pretty generally that eyestrain due to refractive error or muscular imbalance is responsible for a number of distressing and obscure symptoms, speedy relief from which has been afforded by proper correction of the ocular abnormality. There are, however, not a few instances in which visual discomfort persists in spite of the most careful and expert treatment. Some of these, no doubt, are related to incorrigible defects of accommodation. Others, it would seem, may be traced to local circulatory conditions characterized by interference with the intraocular blood-supply.

For one group of the latter, Dr. G. M. Gould (Bulletin of the Johns Hopkins Hospital, April, 1908) proposes the term ophthalmovascular choke, and he reports ten illustrative cases. In the ramification of the retinal arteries and veins some of these vessels come to lie upon and compress others, thus preventing proper ingress and exit of blood. As a result, the nutrition of the parts must eventually suffer some impairment. Ophthalmoscopic examination not rarely discloses tortuosity, distention, pulsation, and flattening of retinal vessels. Subjectively, a characteristic symptom is the so-called fading image, a term that appears sufficiently self-explanatory. In some instances attacks of fainting or swooning have been observed, and also a peculiar type of photophobia.

Therapeutically, relief can be obtained only by abstention from use of the eyes. Massage of the globes has been employed without success. Gould suggests the use of long-continued instillations of a weak solution of eserine. Perhaps the administration of nitroglycerin or some other form of nitrite might prove useful. It seems not impossible further that other well-known ocular disorders may have their origin in the circulatory disturbances under discussion.

The Value of a Differential Leucocyte Count in Acute Appendicitis.

The question of the value of a differential leucocyte count in acute infections is still the subject of considerable difference of opinion. Sondern, who has done much work along this line, attaches great value to the differential count as an aid in diagnosing the gravity of infections, claiming that the relative number of polynuclear cells is an indication of the severity of the toxic absorption. Recently A. H. Noehren (*Annals of Surgery*, February, 1908) has furnished additional data on this subject. They are based on the examination of the blood in sixty cases of acute appendicitis just before operation, which made it possible to compare the count with the actual condition present. His statistics included cases of diffuse purulent peritonitis, gangrene of the appendix, localized abscess, and inflamed appendix without adhesions. He found that in every case with ninety or a higher percentage of polynuclear cells immediate operation was surely indicated. Every case under eighty per cent. could probably have waited, as all but two were encapsulated abscesses or simple inflamed appendices: the two exceptions were cases of gangrenous appendix, both of which had 78 per cent. polynuclears. The relative disproportion of the polynuclear percentage to the total number of leucocytes did not seem of much value, as six out of fourteen cases of diffuse or spreading appendicitis showed no disproportion. Noehren cites a few cases in which the history and physical examination left one in doubt as to whether an immediate operation was necessary or not; the polynuclear percentage was high and the condition found subsequently warranted immediate operation. We may thus conclude from his studies that the differential leucocyte count is of value in deciding whether an appendicitis case should be operated upon immediately or whether it can wait. None of his cases with a polynuclear percentage of over eighty could have been considered a waiting case. Noehren does not mention how many cells were counted in each case, stating only that the differential count is a simple procedure which can be more quickly accomplished than an ordinary leucocyte count. This is hardly correct, when we consider that five hundred cells should be counted to obtain an accurate idea as to the percentage of polynuclear cells.

Differentiation of Pathogenic from Nonpathogenic Streptococci.

In 1897 Bordet observed a peculiar color of the blood of certain animals that had died of an acute streptococcus infection, which he interpreted as evidence of hemolysis. A few years later Schottmüller claimed to be able to differentiate pathogenic from nonpathogenic streptococci by this means. He held that after inoculating solid blood-agar media with pathogenic streptococci a clear zone (hemolysis) would be found around each colony, while a green zone would result if the organism was nonpathogenic. His findings being based on nine years' experience are deserving of consideration, yet they have by no means been generally accepted. In the *Zeitschrift für Geburtshilfe und Gynäkologie*, Vol. 61, No. 3, F. Freymuth describes his experiments regarding this subject, the merits of which do not confirm Schottmüller's conclusions. He used twenty-six varieties of nonpathogenic streptococci obtained from pregnant women just before delivery, women who later had a normal puerperium. The pathogenic variety was obtained from the uterus of a woman who died of puerperal sepsis. Eight different kinds of blood-agar media were inoculated with the different streptococci. He found that the kind of medium and the amount of blood used (defibrinated or washed erythrocytes) had no effect on the hemolytic qualities of the streptococci. In all the media all the streptococci at times caused

a hemolysis, and at times none. Occasionally both phenomena were present on the same plate. Both the pathogenic and nonpathogenic organisms when transplanted from a plate on which they caused hemolysis often failed to do so when transplanted to a second plate of a similar medium. Likewise colonies which caused no hemolysis on the first plate caused it when transplanted to a second plate. Freymuth's work is exhaustive, and he reached his conclusions only after making many control tests. We thus see that hemolysis is an unreliable indication of the pathogenicity of streptococci.

Lung Suture in Penetrating Wounds.

Most instruments which penetrate the parietal pleura touch the visceral pleura and invade the parenchyma of the lung for a greater or lesser distance. Besides dyspnea, hemorrhage is very frequently an alarming symptom of such accidents. If large vessels are injured or the hemorrhage is profuse most surgeons believe in suturing the lung tissue. When hemorrhage is not alarming all are agreed that closure of the wound is the best way of favoring repair, though they are not agreed as to the best method of closing it. The majority favor packing and careful bandaging. F. L. Dumont, writing in the *Deutsche Zeitschrift für Chirurgie*, Vol. 92, Nos. 4, 5, and 6, recommends resection of the rib, enlarging of the pleural wound, and removal of all blood clots. The wound in the lung, including the visceral pleura, is then sutured; this stops all bleeding and prevents further escape of air through the wound. If the parietal pleura can be brought together he closes it, otherwise he brings the injured lobe of the lung into the pleural wound and sutures it to the edges of the parietal pleura. Then he closes the muscle and fascia wounds. The advantages he claims for this method are that he is sure to stop all hemorrhage, thus avoiding a hemothorax which might cause serious disturbances by displacing the mediastinum. Even if the hemothorax is absent the pneumothorax alone often pushes over the mediastinum, thus affecting injuriously the heart and healthy lung. This pneumothorax is done away with by suturing the parietal pleura or fixing the lung in the wound, Dumont preferring the former if possible. These are advantages, to be sure, but his other claim that absolute closure by suture makes an infection less likely is contrary to the belief of most surgeons, and only further successful experience with his method will prove that this claim is true. He believes that even if an empyema sets in secondarily the curing of the hemopneumothorax puts the patient in such good condition that he can readily stand a thoracotomy for empyema.

Diuresis Following Ether Anesthesia.

It is usually thought that ether anesthesia leads to a more or less pronounced retention of urine. P. B. Hawk (*Journal of Medical Research*, May, 1908) has tested the correctness of this view by a series of careful experiments upon dogs, in all of which preliminary nitrogen equilibrium was secured. In every instance the ether narcosis was followed by an initial diuresis, which usually persisted for some time; the urine first voided after the anesthesia possessed higher specific gravity than under normal conditions, and in seven out of nine cases was changed from the normal acid to amphoteric in reaction. Of further interest was the observation that the animals suffered an invariable loss of flesh.

News of the Week.

Healthy Year for New York.—For the half year ending June 30, according to figures compiled by the Department of Health, there were 38,722 deaths, a rate of 17.46 a thousand. The average deaths for the first six months during the last ten years was 48,386. Measles and scarlet fever show an increase in the number of cases; diphtheria and croup are about stationary, as are also the deaths of children under five years of age; but typhoid fever, tuberculosis, pneumonia, and cerebrospinal meningitis show substantial decreases.

The Fourth's Toll.—Early statistics collected by the *Chicago Tribune* showed that the Fourth of July celebration this year cost the lives of forty-eight persons, while the injured numbered 1,124. The death list of New York City up to midnight, July 4, was seven, and the number of known injured over 300.

The Floating Hospital of St. John's Guild began its summer trips on July 6. The hospital has accommodations for 1,600 people. Six trips a week are made, two from the east side and two from the west side of New York, and two from Brooklyn. A physician and seven graduate nurses are in attendance.

Roof Pavilion for the Roosevelt Hospital.—Plans have been filed for remodeling the south addition of the administration wing of the Roosevent Hospital so as to provide for a roof pavilion for the fresh-air treatment of surgical cases. A space thirty-nine feet long and twenty-nine feet wide will be available. The additional interior space gained by changing the peak roof into a flat one will be used for hospital purposes.

Charitable Bequests.—By the will of the late William Barr of West Orange, N. J., a number of institutions in Orange and in St. Louis, Mo., receive bequests. The Orange Memorial Hospital and the Record Ambulance Maintenance Fund of Orange each receive $5,000. St. Luke's Hospital, the Children's Hospital, and the Episcopal Orphans' Home, of St. Louis, each receive $10,000, and St. Mary's Infirmary, Bethesda Home, and the Blind Girls' Home, of the same city, receive each $5,000. Almost the entire estate of the late Benjamin Rose, of Cleveland, Ohio, has been left for the founding of institutions for the aged and for deformed children. The estate is thought to amount to almost $5,000,000. St. Francis Hospital and St. Joseph's Home for Consumptives, New York, each receive $2,000 by the will of the late Thomas Cunningham. By the will of the late William Farr of Philadelphia the sum of $7,000 is bequeathed to the Medical, Surgical, and Maternity Hospitals of the Women's Homeopathic Association, and $5,000 to the Jewish Hospital Association.

To Drive Out House Flies.—The Water Pollution Committee of the Merchants' Association of New York, has asked the Board of Health to undertake the distribution among householders and hotel and restaurant keepers, of cards bearing rules of value during "fly time." Some of the rules are as follows: "Keep the flies away from the sick, especially those ill with contagious diseases. Kill every fly that strays into the sick room. His body is covered with diseased germs. Do not allow decaying materials of any sort to accumulate on or near your premises. All refuse which tends in any way to fermentation, such as bedding, straw, paper waste, and vegetable matter, should be disposed of or covered with lime or kerosene oil. Screen all food."

Free Ferry Rides for School Children.—The children of the public schools in the lower part of Manhattan are to be given free transportation over the municipal ferry to Staten Island, in order to enable them to use the athletic fields there. This is in accordance with a recent resolution of the Sinking Fund Commission.

The International Esperanto Congress meets at Dresden, Germany, in August. An invitation is to be extended to the delegates to hold their meeting in 1909 in this country.

Immigration Statistics.—During the first half of 1908, 377,664 of the laboring element of the United States left the country for Europe. In the same period only 186,586 arrived here. For the same period in 1907, the figures were 155,792 departures and 739,748 arrivals of alien steerage passengers. It is estimated that unless a decided increase soon occurs the figures for this entire year will be under 400,000 arrivals. In order to disprove statements made by the Immigration Restriction League that steerage conditions should be radically changed and the companies compelled to provide 25 per cent. more cubic space, a representative of the National Liberal Immigration League with his family sailed recently in the steerage of one of the French Line steamships.

Draining Mosquito Marshes.—The contract for the draining of the Cheesequake Meadows, N. J., the breeding place for New Brunswick mosquitos, was awarded last week. The work is under the direction of Prof. John B. Smith, the State entomologist, and is being extended systematically down the coast. This year territory as far south as Toms River will receive attention, and next year the lines will, it is hoped, reach to Atlantic City.

The Phi Delta Medical Fraternity held its annual convention in Brooklyn last week. At the dinner on July 3, addresses were made by several of the professors of the Long Island College Hospital.

Dr. Osler and the Homeopaths.—A letter written by Dr. William Osler in response to an invitation to speak at the annual dinner of the Alumni of the New York Homeopathic College in May, 1905, has recently been made public. It is as follows: "Dear Dr. McDowell—I do not think that we have a common ground at present so long as your school clings to the law of similia, which from the modern scientific point of view is as antiquated and unreasonable as is the so-called allopathic system from which we modern physicians have departed. With kind regards and best wishes, and thanking you most sincerely for the compliment, sincerely yours—William Osler." This was the basis for the assertion made this year and widely quoted in the newspapers, that Dr. Osler had called the homeopaths a "bunch of quacks," an imputation which Dr. Osler resented and which has called forth his denial and the copy of the letter as above. Dr. Osler says, in writing to the New York *Sun*: "I do not often take the trouble to correct newspaper statements, but I could not allow such a barefaced lie to be circulated without a denial."

Pure Water and Typhoid Reduction.—The total number of cases of typhoid fever in Philadelphia for the six months ended June 30 was 2,195, and the number of deaths from the same cause 351, as compared with 4,995 cases and 606 deaths for the corresponding six months of the preceding year. This most gratifying result is attributed almost exclusively to extension of the system of filtered water, which it is believed will be complete by April, 1909.

Dr. S. A. Knopf of this city has been appointed honorary president of the Congress of French Speaking Physicians of North America, which is to be held in Quebec on July 20-22. Dr. Knopf will deliver an address entitled "Le Sanatorium, le Dispensaire et l'Hôpital Spécial pour le Traitement des Tuberculeux."

To Stop Adulteration.—Farmers and dairy owners who transgress the regulations of the Chicago Health Department will have to contend hereafter not only with the city but with the State of Illinois. Negotiations have been practically completed between the milk inspection bureau of the Chicago Department of Health and the Illinois State Board of Health, through which the two bodies will cooperate in inspection, giving each other the benefit of all information gathered and assisting each other in prosecuting persistent offenders. As an immediate precaution against the sale of watered or tainted milk in Chicago, the City Inspectors will begin taking samples of milk from all cans shipped into the city. The shipments of six thousand dairies and farmers will be inspected and tested for any traces of watered milk. All dairies supplying Chicago will be graded on a basis of 100 per cent. Those which are marked 60 per cent. or lower will be notified to clean up immediately, and copies of the notifications will be sent to the State Board of Health. It is hoped that great results will be achieved from this plan, thus increasing efficiency and preventing disease.

Medical Inspection of Schools in Chicago.—The medical inspectors of Chicago public schools examined 5,819 school children during the week, and excluded 179 on account of contagious diseases. Physical examinations of school children to the number of 3,763 have been made since June 20, 1908. Of this number, 2,389, or 63.5 per cent., were found to need medical or surgical attention.

Civil Service Examinations.—On July 25, 1908, the State Civil Service Commission will hold examinations for the positions of State Prison physician, at a salary of $2,000, and of Woman physician, State Hospitals and Institutions, at a salary of $1,000 to $1,500, and maintenance. Information and application blanks will be sent upon request to the Chief Examiner of the Commission at Albany. The last day for filing applications is July 18.

American Hospital Association.—The tenth annual conference of the American Hospital Association will be held at Toronto, Canada, on September 22 to 25, 1908.

Plague in Caracas.—The German minister to Venezuela in asking for official information regarding bubonic plague in Caracas, has called forth the first recognition by the government of the existence of the disease in the city. The closing of an infected market and other stores has resulted, and the building of a hospital is planned. La Guayra reports no new cases. At Porto Cabello, Venezuela, a fever, thought to be yellow fever, but probably the plague, is said to be epidemic. The situation in Trinidad is improving.

Rats to Go.—Preparations for a wholesale extermination of rats have been begun in New Orleans by the Board of Health. A number of the rodents are to be inoculated with the virus of a fatal disease and turned loose so that they may infect other rats. If first experiments prove successful, thousands of rats will be inoculated and sent out all over the city.

Posters in Tuberculosis Campaign.—The Committee on the Prevention of Tuberculosis has sent out copies of a poster which they have had prepared to 10,000 Italian families in New York. The poster is a brightly colored, lithographed scene in Venice, which it is thought will appeal to the Italians, and on the wide margin good advice as to fresh air, proper food, temperate habits, etc., is set forth. The same idea will later be carried out among other nationalities.

Uniforms for Doctors.—The San Francisco Board of Health at a recent meeting ordered that after July 1 all employees of the Board be required to wear "olive drab" uniforms. A motion that the wearing of the uniform be optional with the doctors in the employ of the Board was voted down.

Marriage Licenses.—During the month of June, 4,476 marriage licenses were issued in New York City. The total number of licenses granted for the first six months of the year is 15,102.

Nurses' Home Opened.—The headquarters of the Royal National Pension Fund for Nurses in London were opened by the King and Queen of England on July 4. The welfare of nurses has been the especial care of the Queen for many years, and the buildings which were built and will be maintained by contribution from many wealthy persons are designed to provide for a cocmfortable old age.

The Iowa Union Medical Society held its semi-annual convention on June 22 at Iowa City. The following officers were elected: *President*, Dr. L. W. Dean, Iowa City; *Vice-President*, Dr. W. R. Whiteis, Iowa City; *Secretary*, Dr. A. Crawford, Mt. Vernon; *Treasurer*, Dr. G. P. Carpenter, Cedar Rapids; *Board of Censors*, Dr. Edwin Burd, Lisbon; Dr. J. W. La Grange, Marion; Dr. H. W. Bender, Cedar Rapids.

The Wisconsin State Medical Society at its meeting on June 26 elected the following officers: *President*, Dr. Gilbert E. Seaman; *First Vice-President*, Dr. H. J. Stalker, Kenosha; *Second Vice-President*, Dr. J. M. Dodd, Ashland; *Third Vice-President*, Dr. H. B. Sears, Beaver Dam; *Secretary*, C. S. Sheldon, Madison; *Treasurer*, S. S. Hall, Ripon.

Obituary Notes.—Dr. John A. Royer of Toledo, Ohio, died at the Toledo Hospital, on June 14, from cerebral hemorrhage, at the age of 67 years. Dr. Royer was a veteran of the Civil War and a graduate of the Bellevue Hospital Medical College in the class of 1867.

Dr. Peter V. Burnett of Brooklyn was killed, on June 29, by a fall from the roof of the Mt. Sinai Hospital where he was a patient. Dr. Burnett was graduated from the New York University Medical College in 1876, and was widely known as a specialist in diseases of the nose and throat. He was 54 years of age.

Dr. Alfred McLaughlin of San Francisco died on June 23, at Pleasanton, Cal., after a long illness, aged 37 years. He was a graduate of the Medical Department of the University of California.

Dr. Daniel W. Lynch of West Bend, Wis., died at his home on June 25, from a complication of diseases. He was 61 years old. Dr. Lynch was graduated from the Northwestern University in 1875, and after post-graduate courses abroad settled in West Bend, where he had since practised.

Dr. Henry Ganter of Floraville, Mo., died suddenly on June 26, of heart trouble, at the age of 59 years.

LETTERS TO A NEUROLOGIST.

To which are appended brief replies purporting to set forth concisely the nature of the ailments therein described, with remarks on their appropriate treatment.

VIII. Hysteria in a Young Man.

Toronto, December 2, 1907.

Dear Doctor:

My wife's cousin is a doctor in New York. Some time ago I wrote to him and described my case, and he advised me to consult you. My occupation, that of buyer for a clothing house, takes me to your city twice a year, and I should like to call upon you the next time I go, if, after reading the description of my sickness that I enclose, you think you can cure me.

I am thirty years old, and have been married for three years. My present complaint is numbness of the tongue, pricking sensation in the left side of the face, bad taste, sense of suffocation, throbbing sensation in the left ear, and occasional headache. These symptoms sometimes come very frequently and last for a few minutes. In addition, I have shooting pains in the left side of the head and occasionally a queer feeling of heat in different parts of my head. These are the symptoms which I have most of the time, but in addition to them I have very queer attacks.

The first attack occurred the 12th of April, 1902. I was at home talking to my mother. I had a sensation as if I were very cold. This lasted a few minutes, then I experienced a twitching in the back of the neck and a throbbing, fluttering sensation in the throat, as if an alarm clock were going off there. Then my tongue began to tremble, or, better said, to stick out and draw back rapidly, and my head to twitch and jerk violently to the left, as if I were having a convulsion. I ran into the next room and lay upon the floor. Soon I felt pain over my heart and went into a faint. I don't know how long it lasted. I did not completely lose consciousness, but I recall that I was very nervous and shaky for some time after it.

A week later I had another attack. Altogether, I have had three of these attacks, the last one a few days ago. I was lying on the couch, when suddenly I called my wife, and said: "See my face, how it is twitching?" She tells me that the face and eye of the left side were turned to the left. My left hand twitched, and my breathing became irregular and spasmodic. This lasted about twenty minutes, during which time I could not see, hear, or articulate. I could only mumble, although I knew perfectly well what I wanted to say. I did not lose consciousness, and I knew what was going on all the time.

So far as I know, the only cause that I can attribute for the first attack was fright. One week before it occurred I went, at the request of a friend, to visit his daughter, who was confined in an asylum in Rochester. As soon as I came into her presence she rushed at me, as I thought, to attack me, but I found out later that she wanted only to kiss me. Soon afterward I experienced a sensation which started from the stomach and went to the throat, and then to the left side of the face and head. When she made the attempt to jump at me, I had a sensation in the lower part of my spine as if it were being forcibly opened, then a queer crawling sensation in my back, and finally I became cold and nauseated. I could not get out of there fast enough,

and when I got home I took some whiskey, but I could not sleep, not only that night, but for several nights. I thought she was always back of me. I had diarrhea and was all excited. I remember now that I had an attack once before something like this one. I had gone to visit my father, who was working in Rochester. I was talking to him, when suddenly I felt a sensation in the throat as if I were choking, and I was seized with the fear that I was going to die. I ran into the yard, and someone gave me whiskey, which I drank, and felt relieved. I remember now that I had a terrible sensation of pressure on my chest.

I forgot to say that in July I had an experience which may have had something to do with bringing on my first attack. I had gone off with a party on an excursion, and we were sitting down to have some refreshments. Someone said to me, "What will you have?" and I said, "I'll have some raspberries." One of the girls said, "Your face looks as red as a raspberry." I immediately became chilly, and had these peculiar sensations in the throat, the significance of which at that time I did not know, but I have had them so often since that I have become accustomed to them. After that I felt very queer and weak.

An attack comes on about as follows: I feel as if something starts to draw in my throat, then comes a sensation as if I were going to vomit or belch gas. Then the tongue begins to shake and harden up on one side like a cramp. It continues to work harder until I get frightened and excited, and it keeps on working faster until my face gets flushed like someone ashamed, and makes the blood go to the head. Then I stand up and say to myself, "What is going to come? I only hope it will go over quick." Then my hands begin to go; I can see and hear, but after that I cannot see and hear, and when I get down on the floor I cannot tell whether it is dark or light. It seems that when I look at a certain thing, I see it perhaps for a second, then it passes away and I lie down. I never lose consciousness until I fall into a deep sleep. In the first attack I had a pain in the heart, and lower down—a feeling as if something were going to break or burst.

The most curious thing about these attacks is that they have some relation to dreams. I have had about twelve dreams of them. I dream that I am at my work and that something comes up behind me which frightens me—never two people, always one person or a dog. Then I am aware that this twitching on the side begins, the dog or person still following me. Then I awaken. Sometimes when I go to bed I am in an excited state and I get these suffocation sensations perhaps a dozen or twenty times before I fall asleep. When sleep comes I begin to dream, and in these dreams it seems that I am walking on the street or I am in a street car and consumed with fear. I am always in fear, and as I walk further I meet a person or a dog and they frighten me, and during this fright I begin to get cold just the same as I do in the attacks. I get very excited, my face begins to twitch to one side, my head goes over, and I lay down on the flfloor or on the ground, and my hand begins to work up and down, also my head. Then I am awake, but soon I fall into a deep sleep. Also about my tongue—I have dreamt several times that I am losing my tongue, and sometimes I think food, or something I had in my hands, gets between my teeth. There is no pain, but it seems very funny, very peculiar, and I can't describe it so well. It seems as if a mouthful of meat has got between the teeth, and I take hold of it and pull it out, and the more I pull the more I get, and then I awaken all excited, nervous, and irritable. I feel sometimes that the hair of my head stands right up straight, and I have a numbness of the scalp—like a creeping sensation on the scalp. I have also dreamt that I have been in the same house where I had my first attack. I sometimes dream of people who are in that house, and it makes me feel very bad, and I begin to get this peculiar feeling which starts from the solar plexus, or the stomach, and gradually goes up to the throat like a ball—but sometimes I overcome it, I do not always go into a convulsion. Then I dream that I have a convulsion when people are talking to me on this subject, and when I awaken there is nobody around me—I am in bed all the time. I also dream at times that I am suffocating. I sometimes suffocate so that I think I am going around like a wheel for about three or four seconds. This is about all I can say of the dreams. But the tongue—I have often dreamt, then I was pulling something off my tongue like flesh—often.

The only thing about my family history that I know is that my father, when he was twenty-two years old, had a convulsion of some sort. He was sitting on a chair and fell off, and does not know anything that happened just before or for some time after. I have one sister, who, when eighteen years of age, was sent to a sanatorium for a period of two months—she was like in a mild attack of mania. She has since been well and working. They say that when I was a child I used to have fainting spells whenever anyone looked at me. For instance, my mother says that, when I was going to school, if anyone looked at me on the street I would faint, then they would put something over my face, and I will be all right again. That was in Europe, and I don't remember anything about it.

For a week preceding the last attack I was said to be very irritable and discontented, nothing seemed to please or satisfy me. After an attack, I feel nervous, frightened, and agitated. I have seen a great many good physicians, among them, Drs. ....., ..., ..., ..., ..., ... and nearly everyone else whom I have been told might help me. Will you please let me know what you think is the trouble with me and what chance have I to get better. I shall do my best to follow out any treatment you may prescribe.

New York, December 6, 1907.

Dear Sir:

I have read the account of your illness that you sent me a few days ago, and I am able to answer your questions. You are suffering from hysteria, and your chances of recovery depend upon what you mean by recovery. If you mean, will you be able to rid yourself of the attacks that you describe, I think I can say to you that you will succeed. If you mean, can you divorce yourself entirely from the nervous instability of which your symptoms are manifestations, then I think the question cannot be answered in the affirmative.

I know of no more difficult task for the physician to set himself than to attempt to say to a lay person of average intelligence and education, what is meant by hysteria. There is less agreement among physicians as to what hysteria means than about any other subject. By some it is used to indicate emotional instability and the possession of symptoms which are feigned, both of which could be overcome by the patient if he or she exerted their will power. This view is not taken by the laity alone—it is even held by some physicians. On the other hand, hys-

teria is used by some as a term of opprobrium, and a person is said to have hysterics in the same way as they are said to be an anarchist or a free silverite, or a Mormon.

In former days, "hysteria" was thought to occur only in females, and it was supposed to flow in some mysterious way from disorder of the reproductive organs; but such ideas have long since given way to the conception that it is a disorder occurring in persons who have inherited an unstable nervous organization, and who, particularly, are "suggestible," who have been exposed to some emotional or mental shock, such as fright. In other words, the word "hysteria" is being used to denote disorder of personality. We know its manifestations just as we know the manifestations of personality, but the constitution of personality is difficult to define.

We may be very familiar with a thing, still be unable to define it—electricity, for instance. We know its properties, its manifestations, capacities, at least in part, but just what it is we do not know. We are in much the same position about hysteria. There are few diseases that have been more thoroughly studied, and not many whose features are more readily recognized. An eminent French physician, Lasegue, said many years ago that a definition of hysteria had never been given, and never will be Despite the fact that many have tried to define it, and some have maintained success in this direction, the statement of Lasegue still remains true.

The most generally accepted view of hysteria today is that it is a special mental state—call it disease if you like—due to cerebral insufficiency. This cerebral inadequacy makes itself manifest in so many ways that the resulting symptoms are almost innumerable, and they may parallel those of any disease. We have been in the habit of stating that such symptoms may be classified into those that exist more or less constantly, perhaps without the patient's knowledge, unless his attention has been called to them, and which are known as the stigmata of the disease, and those that occur occasionally and which are often transitory. The latter come on abruptly, and apparently are often of much severity, such as in your own case. They are generally described as an "attack." The stigmata are, however, by no means permanent, and they are wanting in the majority of instances.

In your own case, for instance, the symptoms of the "attack" are those which concern you most, and, as your say yourself, they constitute that from which you seek relief. A physician would probably find on an examination of you between the attacks certain symptoms which he would interpret as hall-marks of the disease. What I want to impress upon you is that the disorder from which you suffer exists between the attacks as well as during them, even though the feature of the disease which alarms and concerns you are the attacks, therefore treatment of you must take into consideration your state of health at all times.

It is impossible to outline to you in a letter the treatment you should have in order to relieve you of the distressing and incapacitating symptoms of your disorder, nor do I understand that you request that this be done. The one essential thing for you to do is to place yourself in the care of a physician who is familiar with the disorder hysteria, and who is willing to give as much time as is necessary to determine the cause of your attacks. I believe that he will have very little difficulty in tracing them to fright, for the history you have given of such occurrences in your infancy, as well as the one that occurred when you visited your friend in the asylum, are obviously in causal relationship to your attacks. Appropriate investigation will reveal that there have been other frights which you have perhaps "forgotten," and which are particularly associated with a dog. The memories of these frights must be reawakened and revivified, and when they are brought up to the judicial throne of your consciousness when it is most awake and alert, it must pass upon them, with convincing assurance that they have done you no harm; or, at least, that they have done you no greater harm than that which you have already experienced. It is the lingering memory of these remote experiences that are now out of the circle of the thought-procedure which constitutes your consciousness, or daily mind, as you know it, that is harassing you both in your sleeping and in your waking moments.

Naturally, it is quite impossible for you to do this sort of thing by yourself. In reality, the application of it constitutes what is called psychotherapy. If you are a reader of the daily papers you have undoubtedly often seen this word in print during the past year or two. The art of psychotherapy has been one of the important assets of the physicians since the prehippocratic period; the science of it is now being constructed. To work successfully in the field of psychotherapy one must have a knowledge of psychology, psychiatry, and physiology, unless you happen to be a clergyman of a certain type and are a born psychotherapeutist, not a made one.

I think if you will put yourself in the care of Dr. ..... of your city, a young physician who has had adequate experience in the ..... Hospital here, in the treatment of such disorders as yours, and follow implicitly the instructions that he gives you, relying entirely upon what he says relative to the outcome of your disease, you will soon be free from "attacks."

Yours very sincerely.

———— ————.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent)

HOSPITAL SUNDAY FUND—CAMBRIDGE UNIVERSITY—CAVENDISH LABORATORY—IRISH UNIVERSITIES BILL—CORONER TROUTBECK AGAIN—VIVISECTION PARLIAMENTARY RETURN—A SHOCK TO PRUDES—EPIDEMIC OF MUMPS—OBITUARY, A CENTENARIAN.

London, June 20, 1908.

To-morrow is Hospital Sunday, and the usual appeals have been issued. Monday last seems therefore a well-chosen day for the interesting ceremony at the Mansion House. This was the presentation to the Corporation by the Council of the Hospital Sunday Fund of a bust of the late Mr. George Herring, who during his life gave £90,000 to the fund and by his will endowed it to the extent of over £600,000. He was one who disliked being thanked for his beneficent use of the wealth he had attained, but, as remarked by Mr. Holland in presenting the bust, though his life was his own his memory is ours. The Lord Mayor, in accepting and unveiling the bust, said it would be a bright reminder to future generations that such men did not die, and the best appreciation of George Herring's work was to be seen in the letter which the King had sent him some time before his death, a copy of which has been engraved on a plate beneath the bust.

The formal installation of Lord Rayleigh as Chancellor of the University of Cambridge in succession to the late Duke of Devonshire took place on Wednesday. After an appropriate tribute to his predecessor and an expression of thanks for the honor of being elected to the Chancellorship, of which he said "no man, however litle ambitious, could be insensible," he referred to his former associations with the university and humorously alluded to some "connected with certain feverish hours spent in trying to persuade examiners that I knew more than I did." He then passed

on to his "more pleasant office" of conferring the honorary degrees.

On the previous day Lord Rayleigh opened the new wing of the Cavendish Laboratory for Experimental Physics, which has cost between £7,000 and £8,000, exclusive of the amount required for equipment. He spoke of the time he spent as professor there and the help he received from many, including Lord Kelvin, than whom, he said, there was never a more original man. Helmholtz, too, he made the acquaintance of at that time, and he was the only physicist to be put in the same rank as Kelvin. Lord Rayleigh went on to say that since his own retirement the laboratory, in charge of his able successor, Professor Thomson, had increased its fame in every direction, and the young men trained in it, one of them his own son, would be outspoken in recognition of the debt they owe to it and to the direct teaching of Professor Thomson. He then declared the building open.

The Irish Universities Bill is giving Mr. Birrell more trouble than he expected. Apart from the question of the Dublin Medical School, it has aroused antagonisms between the clericals and nationalists. Then on the resumption of the committee stage in Parliament he received a resolution passed by the nonconformist group urging him to agree that affiliated universities shall be absolutely free from denominational tests and atmosphere to both students and teachers. This puts him on the horns of a dilemma. If he satisfies this group he will offend the Roman Catholic bishops; if he arranges with the latter in the matter of Maynooth, the former are likely to desert him.

Coroner Troutbeck is not content with his unenviable notoriety. He still cultivates his dislike of medical evidence unless that of his brother-in-law. He lately held an inquest on a case in which an operation had been performed by Sir Victor Horsley. That gentleman said he did not know why he should have been called as a witness; the case was quite simple and had been duly certified by the usual attendant. The Coroner said that operations had greatly increased and if they were to any extent a cause of death they came within the Coroner's Act. Sir Victor rejoined that if so 10,000 additional inquests would have to be held every year. Sir Victor afterward wrote to the *Times* exposing the absurdity of Mr. Troutbeck's claim, which if allowed would put an end to the practice of surgery, for what surgeon would care to operate if in every fatal case he was called upon to satisfy an incompetent judge of such questions that his operation had not accelerated death? Mr. Troutbeck has written to the *Times* to defend his claim that deaths after operation are not natural, and with the insolence of an incompetent official says: "The objection of Sir Victor Horsley to publicity is significant. Why should it exist?" The Coroner further says that "the people have a right to know the full cause of death in those cases where their relatives have had the misfortune to die after an operation." To any such claim the answer is a direct denial. If admitted it would be just as reasonable to apply it to other than surgical treatment. The people have no right and assuredly no desire to pry into their neighbors' sorrows or intrude on them in their bereavement. The people have no respect for "Coroner's inquest law" and an immense majority have a very great repugnance to inquests in all but the most necessary cases. Moreover, the Coroner's Act restricts their duties to cases in which there is reasonable cause to suspect "a violent or unnatural death," or a sudden death of which the cause is unknown. Mr. Troutbeck will never persuade the people that death after surgical or medical treatment is "unnatural." The holding of unnecessary inquests is also a ratepayers' grievance, as they have to bear the cost. That they would do well to call Mr. Troutbeck to account would appear from a statement in the *Times* that between May, 1903, and February, 1905, he called in his particular specialist, Dr. Freyberger, 816 times instead of the last doctor in attendance. During the same period all the other coroners of London called in an expert in only 46 cases. The correspondence in the *Times* further brings out the fact that on behalf of three medical societies Sir Victor Horsley headed the deputation which in 1903 brought before the Lord Chancellor misdirections of juries by Mr. Troutbeck and consequent wrong verdicts. Lord Chancellor Halsbury said "his impression was not in favor of the Coroner's practice," but he seemed afraid to exercise his only power "to remove a coroner for misconduct in his office." One of the letters in the *Times* says: "Year by year hundreds of death certificates have been registered in Mr. Troutbeck's district in which an operation has been set down among the causes of death. Yet, till he could attack Sir Victor Horsley, who took part in the agitation against him some years ago, Mr. Troutbeck let them pass."

Many other significant statements have appeared in the correspondence in the *Times*, in which a leading article thus summarizes the matter: "Surely it is high time for the Lord Chancellor to intervene. We have now a new Lord Chancellor, who is reputed to have the courage of his convictions. The people to whom Mr. Troutbeck appeals should represent their grievance as ratepayers."

If the mental derangement of the anti-vivi's could be in any way alleviated we might expect much from the parliamentary return issued on Wednesday of the experiments on living animals during the year 1907. It is to be feared, however, that those agitators who pervert the truth will continue to publish the misstatements which have been authoritatively disproved. The comments on the return by the leading newspapers should suffice to relieve the minds of genuine animal lovers, whose sympathies have been preyed upon by unscrupulous agitators. One of the leading papers declares there is no justification for the ideas that were current thirty years ago, and the return shows that the term vivisection as popularly employed is an entire misnomer, and the paper says that the pictures of the dog and vivisector put up at railway stations by anti-vivisection societies are "not only one-sided," but are also "absolutely untrue to life," for "nothing of the sort suggested ever happens." The enormous majority of the experiments in 1907 are shown in this parliamentary paper to have involved no use of the knife at all. Further, any operation capable of causing pain was invariably performed on an unconscious subject. Again, the return says "in no case has a cutting operation more severe than a superficial venesection been allowed to be performed without anesthetics." For the benefit of the "man in the street" I could wish the term superficial venesection had been explained or the less technical one "bleeding" been adopted, for the tradition of bloodletting in disease is pretty well known to all classes. There are agitators who stigmatize the proceedings of the Royal Commission on Tuberculosis, the Sleeping Sickness Committee, or the Cancer Research Fund as vivisection and who do not hesitate to pervert the truth in order to arouse the indignation of their dupes and so extract contributions to their societies. In fact, falsehood seems an important part of the stock in trade of these agitators. When their victims become aware of the nature of the inoculations about which they have heard such denunciations and compare them with the "operation" of vaccination which they have undergone, they will perhaps admit the value of such "experimentation on animals" in the hope of putting an end to some of Nature's extremely painful and prolonged "experimentations" on man, as, for example, cancer, tuberculosis, and other diseases.

"Amazing Statues in the Strand" was the theme of the posters of our sensation papers on Friday and the vigilance association has been called upon to interfere on account of the alleged indecent ornamentation of the new building of the British Medical Association. Of course every doctor has been questioned about it and no little amusement caused. I have not been to look, but those who have tell me there is nothing worse in the statues than is to be seen in most art galleries. Still the staid gentlemen who are supposed to rule the association have been subjected to much annoyance and have put forth the excuse that they had not seen the models—an excuse at which many laugh and others say how diligent they can be on occasion. The *Medical Press* chaffingly offers to introduce the secretary "to an excellent stall in Covent Garden where fig leaves are on sale at popular prices." *The Times* is surprised to find a portion of the London press "assuming the moral attitude of the Pope, who ordered the Vatican Venus to wear tin petticoats." The *Journal* of the Association after a labored defence says it is a case of "an old maid with a spy-glass," and the building committee will leave the statues where they are.

An epidemic of mumps broke out on H.M.S. *Nelson*, the training depot for naval stokers at Portsmouth. Thence it spread to the Royal Naval Barracks. The whole complement of the depot ship was placed under canvas in the recreation ground of the naval hospital and the ship's surgeon and hospital surgeon make an examination every morning for fresh cases. On Tuesday fourteen men and on Wednesday twenty were transferred to the hospital. The vessel is being disinfected and it is intended to keep the company under canvas for a month.

By the death of Dr. Thomas Lambert Hinton, which

took place on Sunday, we lose the senior member of the College of Surgeons, who attained his 100th year on the 1st of May. In 1829 he joined the First Bengal Fusiliers as assistant surgeon, and served with that regiment until 1846. His diplomas were dated 1833. Once on his way home he was wrecked off Cape Finisterre and, before being rescued, swam for some time with a child which had been thrown out to him. He was educated in London, Oxford, and Paris. At one time he held the post of Surgeon to the Reading Dispensary. He had a distinct recollection of the news of the battle of Waterloo.

Dr. Garrett Horder of Cardiff died on the 15th inst., aged 65. He will be greatly missed by earnest fellow workers for the good of the profession, as he was an excellent colleague, and zealous in all good works toward this end. He studied at the London Hospital and qualified in 1866.

OUR PARIS LETTER.

(From Our Special Correspondent.)

SOCIÉTÉ DE CHIRURGIE—GENERAL SPINAL ANESTHESIA—DEATHS OF PROFESSOR TERRIER AND PROFESSOR CORNIL.

PARIS, June 10, 1908.

SPINAL anesthesia was the subject of an interesting discussion at the Société de Chirurgie, M. Chaput defending this method very warmly. In his service, 435 operations were performed after anesthesia by the spinal method was induced, and the mortality of the series was zero. As an anesthetic an isotonic solution of pure stovain was used. In order to prevent the frequently reported headaches following spinal anesthesia the injection of the anesthetic was preceded by the escape of fifteen to thirty cubic centimeters of spinal fluid. The following doses of the anesthetic were used in the work: Four to five centigrams for operations upon the lower extremities and for herniæ; six centigrams for abdominal operations; eight to ten centigrams for operative work on the upper portions of the body. Eight times syncope accompanied with the arrest of the pulse was observed, but the injection of salt solution soon revived the patients. M. Chaput said that the advantages of spinal anesthesia were as follows: Its safety in operations upon the lower parts of the body, the absence of albuminuria and of vomiting following the anesthesia; the possibility of feeding the patients immediately after the operation, except, of course, in cases where abdominal section was necessary. Spinal anesthesia, however, was contraindicated in aged people and in very weak patients, who are specially predisposed to syncope.

M. Hartman warned against the idea that spinal anesthesia is a harmless procedure in all cases, for he had seen two cases of death with this method. During the course of one operation the table was raised and this was followed by the immediate disappearance of the pulse at the wrist, although caffeine was administered hypodermically, and saline solution used by infusion, the patient succumbed after seven hours. The other fatal case occurred under nearly the same circumstances, the operating table being raised in order to elevate the patient's pelvis. Professor Le Dentu thought that, besides the very serious accidents and deaths due to the use of spinal anesthesia, there were many minor effects which would seriously inconvenience the patient. Thus, in a small number of cases, he had observed complete paralysis of the shoulder muscles, which continued for from fifteen days to three weeks. M. Rochard has also observed cases of paralysis following spinal anesthesia with stovain, among them a case of paralysis of an external muscle of the eye, a case of retention of urine, and a case of incontinence of feces.

M. Guinard has observed accidents that appeared some time after the use of spinal anesthesia. In one patient, a woman, paralysis of the lower extremities appeared three months after the anesthesia, the patient dying at the end of one year. The speaker said that he had also observed a case of sudden death which occurred three weeks after the use of spinal anesthesia. In another patient, fifty-two years old, he had noted the appearance of weakness of the lower extremities three months after an operation in which spinal anesthesia was used. The affection seemed incurable, and the malady progressed, ending in the death of the patient within six months. M. Nélaton had likewise observed a case of spinal anesthesia which was followed by incontinence of urine and of feces, the patient finally dying. Several serious consequences of spinal anesthesia had been observed by M. Legueu. One patient, seventy years old, had incontinence of feces and of urine following the operation, and died in six weeks, having lost much flesh and having become quite cachectic during the illness. Incontinence of urine and rectal prolapse appeared in another patient, thirty years old, some three months after spinal anesthesia. This patient, indeed, became ataxic in his gait and suffered from partial anesthesia of the lower extremities. M. Jean Louis Faure thought that spinal anesthesia should be used only when general anesthesia by the usual methods was clearly contraindicated. Personally he preferred chloroform inhalation. Professeur Reclus expressed his unqualified disapproval of spinal anesthesia. He said that in the evolution of animals those survived best who had their spinal cord protected by a cutaneous, a muscular, and a bony covering over and above the cerebrospinal liquid and the triple meningeal membranes. Such protection given to this organ proved to him that the spinal cord was an extremely delicate structure, and it was good policy not to subject it to the influence of toxic substances. He preferred local anesthesia to spinal anesthesia, with the use of the same anesthetic; such method, too, was much less unpleasant to the patient. M. Quenu likewise expressed himself as an opponent of spinal anesthesia and strongly protested against the continuation of the method in further practice.

M. Pièrre Delbet has seen spinal anesthesia used in seventy-nine cases, and his experience has led him to abandon it completely. Among the patients there were two old men suffering from intestinal obstruction, and neither of them survived the operation under spinal anesthesia. In addition he had observed many secondary accidents, such as elevation of temperature, headache, epileptiform attacks, various disturbances of the rectum and of the bladder, usually characterized by incontinence of feces and of urine, and paralytic phenomena in the lower extremities. In his whole series of cases the results had been very unfavorable. As a result of his experience above detailed, he was forced to oppose the method very strongly.

With the death of Professor Terrier there has disappeared one of the greatest and most lovable personages of the French medical community. He was born in the year 1837, and at the age of thirty-five became Adjunct-Professor of Surgery. In 1873, a year later, he received the title of Surgeon to the Hospitals, becoming a little later Professor of Clinical Surgery and member of the Académie de Médecine. He had accepted with great enthusiasm the idea of antisepsis in its first appearance, and it was he who created the aseptic technique of surgery. He was the first to abandon the many useless and even harmful details of the antiseptic technique, and gradually gave the method up completely for asepsis. About this great teacher of surgery there soon gathered a number of disciples, and among them we find the well-known names of Broca, of Gosset, of Robert Proust and others. He was a model of scientific honesty and was always considered as a great figure in the history of contemporaneous medicine. His friends raised their admiration of him to a cult, and even his enemies, of whom he had few, never lacked respect for his personality.

Medical science has suffered another great loss in the death of Professor Cornil, who was always looked upon as a great master of pathology. His scientific work is qute abundant; he commenced by publishing together with Ranvier a manual of pathological histology, which met with a very favorable reception. Later he published studies in nephritis in collaboration with Brault, and they have remained an authoritative exposé of the subject. He also published with Hérard a treatise on pulmonary tuberculosis; in a study of the pathological lesions of syphilis he described very accurately the changes caused by the virus of this disease in the integument. In 1882 he was elected to the Chair of Pathological Anatomy which was left vacant by the death of Charcot. All his scientific works bear the stamp of careful, painstaking, and precise observation; not a detail discovered by his experienced eye was published by him until after it was subjected to careful consideration and control by repeated examinations. The result of this is that his discoveries have become permanent additions to our scientific data. He was an indefatigable worker, standing always on the side of progress and against routine, and ever ready to see and to accept new truths. Every day of over twenty-five years of active work he labored and wrote with the placid peace of a master, and it was this placidity and smiling good fellowship that endeared him to everybody who was brought into relationship with him. In his death the Paris medical faculty has lost one of its greatest ornaments.

OUR VIENNA LETTER.

(From Our Special Correspondent.)

GRAY HAIR—ULTRAMICROSCOPIC EXAMINATION OF MILK—SERUM DIAGNOSIS OF SYPHILIS—ETIOLOGY OF GALLSTONES—DUCTLESS GLANDS AND METABOLISM—A SKIN REACTION WITH DIPHTHERIA TOXIN.

VIENNA, May 15, 1908.

SCHEIN of Budapest has attempted to explain the turning gray of the hair. He says that in older people the hair develops without pigment, and the ordinary course of events is for the pigmented hairs to fall out and be replaced by others without pigment. There is no connection between the turning gray of the hair and the state of nutrition of the scalp. Schein has found in some cases that in areas where the hair previously contained a greater quantity of pigment this disappeared more rapidly than in the hair in the surrounding regions. In cases in which early grayness occurs more pigment has developed in the course of the separate hair generations, and it has also been used up in greater amounts than in other places. When the Roentgen rays are used it is found that at first pigmentation is increased, but later on the hair in the regions exposed develops without any pigment. The deeper the original pigmentation ot the hair, and the more rapidly the separate generations follow each other, the more quickly the hair turns gray, for greater demands have been made on pigment production in the papillæ concerned. It is easy to understand that the exhaustion of the pigment supply is not uniform, for the different hairs are separate individuals with variations in pigment formation and pigment atrophy. Details of the process cannot be ascertained until we have more precise information in regard to the manner in which the pigment is formed in the cells. For the present we must be satisfied with knowing that grayness appears first in those areas in which the hairs have used up the largest amount of pigment, and that pigment atrophy is closely concerned with the question of pigment formation.

Professor Kreidl has examined numerous varieties of milk with the ultramicroscope. In the course of observations on human, cow's, rabbit's, guinea pig's and cat's milk, he found that the first of these differs from all the others in that it does not contain a corpuscular element which is to be observed in the others. In the milk of the lower animals the plasma is densely crowded with a large number of very minute particles which Kreidl calls laktokonia. These possess active molecular motion, and Kreidl is conducting further investigations as to their nature.

Working in Kreibich's clinic in Prag, Klaussner has elaborated a new method of serum diagnosis in syphilis. On diluting small amounts of the serum from papules and chancres with several c.c. of distilled water and adding a definite quantity of syphilitic serum, a flocculär precipitate is formed, while the serum of non-syphilitics either produces no precipitate at all, or the latter appears in very small amount after the lapse of twenty-four hours.

Exner and Heyrovsky have made investigations on the origin of gallstones. They find that the bile acids and their salts are broken down by various bacteria, which, in ascending order of activity, are streptococci, staphylococci, *Bacillus friedländer, Bacillus coli, Bacillus pyocyaneus, Bacillus proteus,* and the typhoid bacillus. The last within five days may reduce the content of bile salts in a medium to one-nineteenth of the original amount. Cholesterin, which forms the major part of gallstones, is soluble in watery solutions of bile salts, and the destruction of the latter renders the cholesterin insoluble so that it is precipitated. The same thing may result through decomposition of bile owing to the action of bacteria. In this way the neutralization of the bile acids results in the precipitation of cholesterin and other substances which form the starting point of gallstones.

Falta, Eppinger, and K. Rüdinger have been studying the relations between the ductless glands and metabolism. Extirpation of the thyroid glands leads to athyroidism and the administration of large amounts of thyroid gland extract causes a condition of hyperthyroidism. It is not possible to induce a similar state of hyperpancreatism or to abrogate entirely the activity of the chromaffine system, but this may be stimulated to hyperfunction through the intravenous injection of adrenalin. The absence of thyroid activity reduces metabolism, the breaking down of albumins being especially affected. In hyperthyroidism metabolism is much accelerated, and it is possible to diminish the demand for albumins by substituting carbohydrates, but in athyroidism this cannot be done. The carbohydrates therefore tend to spare only that part of albumin metabolism which depends on the activity of the thyroid gland. This fact probably has a bearing on carbohydrate metabolism, since glycosuria easily appears in hyperthyroidism. The following experiment illustrates this point: If one milligram of adrenalin per kilogram of body weight is injected subcutaneously into a dog, glycosuria results and albumin metabolism is stimulated. If the thyroid gland is extirpated the glycoscuria does not appear. If the animal is given thyroid extract, however, the injection of adrenalin is followed by a glycosuria. The removal of the pancreas caused adrenalin to become effective on injection into dogs without thyroid glands. The action of adrenalin is therefore influenced both by the pancreas and the thyroid gland.

Schick has reported before the Gesellschaft für Kinderheilkunde the results of experiments made with diphtheria antitoxin in the effort to produce a cutaneous reaction. He found that on making cutaneous inoculations with a concentrated solution of diphtheria toxin, in the course of six or eight hours a papule appears, which at the end of twenty-four hours is surrounded by a red areola, reaches its acme of development on the third or fourth day, and then gradually disappears. The lesion has the same appearance as that produced by v. Pirquet's tuberculin inoculation. The diphtheria reaction is not caused if the toxin has previously been mixed with antitoxin or if the subject has previously been immunized with diphtheria antitoxin. During the first year of life the reaction is usually negative. From the third to the seventh year it is usually positive, only to become negative again after the tenth year. Of twenty-three patients with diphtheria eighteen reacted positively, two reacted very slightly, and in three the test was negative. A positive reaction indicates that the body is deficient in antitoxic substances. The procedure does not have the diagnostic value of v. Pirquet's reaction, but it may be found to be useful in indicating how much serum it is advisable to inject in cases of diphtheria. In the discussion v. Pirquet observed that the reaction possessed a different significance from that with tuberculin. The absence of a reaction showed that there were present in the body active antibodies. Its practical value lay in the fact that by this means it was possible to test out diphtheria antitoxin on human beings. Toxin and antitoxin might be mixed *in vitro* and it could then be determined by inoculation whether the mixture was still toxic or not.

OUR LETTER FROM COPENHAGEN.

(From Our Special Correspondent.)

A MILK EPIDEMIC OF SORE THROAT—TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX—DEATHS OF DRS. GULDBERG AND BRÜNNICKE.

COPENHAGEN, June 14, 1908.

AT a special meeting of the Medical Society of Christiania an interesting discussion took place on an epidemic of severe angina caused by milk infection. The sanitary inspector of Christiania, Dr. Ustvedt, read the introductory address. On March 3 and following days an extraordinary large number of cultures, sent in by the physicians for examination for diphtheria, were received at the laboratory of the Board of Health. It was at once observed that in the majority of the cases the microbe present was a streptococcus easily to be distinguished by its size, manner of distribution, and predilection for certain culture media. As the same streptococcus kept on occurring in the cultures from new cases, an inquiry was instituted in order to find out, if possible, the source of infection. It turned out that the infection could be traced to the milk of a certain dairy. In many cases whole families were attacked at once, all the members of which had drunk unboiled milk from the dairy in question. In several cases one or more members of a family escaped infection, though the rest of the family suffered from angina. In all these cases it was proved that these persons had not drunk of the suspected milk, while the rest of the family had had the inculpated milk for a beverage. Quite casually it became even possible to trace the infection to a single cow. After several investigations had been carried out without result, one of the veterinary officers of the Christiania inspection of foodstuffs heard that a cow had been slaughtered on a farm which sent its milk to the suspected dairy, and succeeded in finding the frozen udder of the cow in question thrown away among other offal. On examination this udder was found to contain two abscesses in connection with the milk ducts,

from the pus of which a streptococcus was isolated with exactly the same characteristics as those distinguishing the microbe found in the cultures from the throat cases. After this result there could be no doubt that the real source of the infection had been discovered. It was very remarkable that the cow was said not to have presented any symptom of disease, though the pus contained in its udder proved to be very virulent and able to cause a large series of infections in human beings, notwithstanding the fact that it must have been extremely diluted before it came in contact with the mucous membrane of the fauces of the diseased persons. The total number of those notified to the sanitary authorities as suffering from milk angina was between 500 and 600, but many more infections are known to have occurred. The epidemic had its special clinical features, and was, on the whole, of a far more serious nature than the ordinary angina. The onset of the symptoms was very acute, with a rise of the temperature to 104° F. Very pronounced swelling of the lymph glands, not only of the submaxillary but also of the occipital and cervical lateral glands down to the collar bone. A whole series of serious complications of a pyemic nature was observed, albuminuria being very common. Several deaths occurred from septicopyemia. The chief sanitary officer of Christiania, Dr. G. E. Bentzen, read a paper on the introduction of more strict regulations for the milk trade in Christiania, but the measures which he proposed did not meet with general approval from those present. Among the contributions made by the following speakers the most interesting was that of Dr. Malm. He had had occasion to examine the pus both from the abscesses in the udder of the cow and from a suppurating joint in one of the patients who died in the epidemic. The streptococcus found in both cases possesed exactly the same characteristics. He drew attention to the fact that practically all the sufferers in this epidemic had angina, while the ordinary clinical picture in cases of milk infection was that of a gastroenteritis. He had, however, found that Grey-Edwards and Severn had in 1897 observed a similar though far smaller epidemic. According to communications from Stockholm a similar epidemic had also occurred there in April.

At the last meeting of the Copenhagen Society for Physical Therapeutics and Dietetics Professor Saugman read a paper on Forlanini's treatment of pulmonary tuberculosis by artificial production of a pneumothorax. He thought that the method was chiefly indicated in very serious cases, but so far his results had been encouraging. Dr. Würtzen said that he had also tried the method, but his experience was as yet too small to allow of definite statements. His remarks chiefly concerned the technique of the treatment. He has constructed a special trocar together with Dr. Kier-Petersen. It is solid at the distal end and rather blunt, so that it will not easily produce a lesion of the lung. In the middle of the cannula there is a longitudinal narrow slit of two centimeters' length, so that there is every probability that one or other part of this slit will coincide with the pleural cavity. By this means they insure the injection of the nitrogen air into the pleura and not into the lung or other tissues.

The professor in anatomy at the University of Christiania, Dr. Guldberg, has recently died. He was the first representative of the modern teaching of anatomy in his university and has published several important contributions also on anthropological topics.

The Councillor of State, Dr. Brünnicke, has just died in Copenhagen at the age of 85. For twenty-six years he had been physician in charge of one of the departments of the Kommune Hospital and was a highly esteemed teacher.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 25, 1908.

Local Treatment of Acute Inflammations of the Throat from the Standpoint of Pathology.—J. L. Goodale says that in a beginning tonsillitis antiseptic applications may perhaps be used with benefit with a view of aborting the attack, but if this initial procedure does not sterilize the parts, and the usual cryptic deposits appear with systemic involvement, further applications of antiseptics may be not only useless but even harmful. They may diminish the number of bacteria in the crypts which are generating toxin and thus prolong the period required for the formation of the requisite amount of antibodies, and they may exercise destructive action on the tissue cells and phagocytic leucocytes of the host. Antiseptic applications may be followed by increased fever and adenitis, indicating increased absorption of toxin into the system. In certain cases in which acute attacks seem to be aborted by local antiseptics, inflammatory manifestations may shortly follow in neighboring regions and last for a number of days or weeks. Under such circumstances it may be that the checking of the attack checked also the establishment of immunity, and that for its final accomplishment a longer period of growth of the organism upon the membranes of the upper air tract was necessary. Perhaps after all the best plan in case the attack is fairly under way is to put the patient to bed and not meddle with him.

Achondroplasia.—W. N. Bullard and A. W. George summarize as the essential features of this condition the following lesions: Sclerosis of the epiphyseal cartilage while in preparation for multiplication. Lack of serial arrangement of the cartilage cells and deficiency in cartilaginous ossification while processes from the marrow cross the line of ossification. Abundant periosteal ossification produced as well by means of osteoblasts as by direct calcification of the fibrous lamellæ, but only eventuating in the formation of a spongy bone with thick resistant lamellæ. Sclerosis of the bone marrow. They then describe one case which has come under their own observation, and present some excellent radiographs illustrating the difference of the appearance of the bones of the arm and hand as compared with normal conditions. Their patient was first seen when ten months old, and has been under observation for the past four years. It was noted that the patient presented no thyroid gland, and the treatment has consisted in giving thyroid extract in ten-grain doses three times daily—also at intervals cod liver oil and bone marrow. The results have been good, for while the child still presents certain bony deformities his mental development is up to the average and he is able to play as do other children.

New York Medical Journal, June 27, 1908.

The Tuberculin Inunction.—The method of making the tuberculin test without rupture of the continuity of the skin is thus described by E. Moro: A mixture is prepared of Koch's old tuberculin 5 c.c., and anhydrous wool fat 5 grams. Of this a piece the size of a pea is rubbed into the skin of the chest or abdomen, over an area of four square inches for half a minute and then left on the skin to absorb spontaneously. On the second day or even earlier a positive result is indicated when small papules appear over the area of the inunction or in its immediate vicinity; negative when the skin shows no changes of any kind. With the positive reaction one often observes only a few very pale papules. Occasionally the papules are very numerous and red, and only exceptionally the skin in the region of the inunction is very much reddened and itches. The papules usually disappear by the end of a week. No other local and no general symptoms have been noted. The author believes that this method is just as reliable as the conjunctival or the von Pirquet methods. Comparison of the latter method and that by inunction led to the observation of the following differences: (1) In advanced cases of tuberculosis the skin loses earlier its reactionary power to the inunction. (2) In cases showing no clinical signs of tuberculosis the percentage of positive results is much smaller in the inunction method. As opposed to the conjunctival and subcutaneous applications the inunction is entirley harmless. The patients never object to its use.

Mercury and Tuberculosis.—W. F. Bernart says that mercury when given by injection possesses certain actions exclusive of its antisyphilitic ones. This applies especially to the bichloride. This drug when injected in full doses has a decided antithermic action in nearly all cases where the fever is the result of some germ invasion. Besides this, it also exerts what might be termed a sedative influence, that is, it decreases the nervous tension, or, as the patient expresses it, it makes him lazy and indolent. This latter action might be the result of a mild metallic poisoning. In view of this, it is not at all surprising that certain tuberculous patients at first seem to be favorably influenced by this method of treatment. In a series of syphilotuberculous patients treated as above indicated the author noted the following effects: (1) The control of the active syphilis in many of the tuberculous patients seemed for the time to benefit the tuberculosis also. (2) In patients with pulmonary tuberculosis, after the first control of the syphilis and if the treatment was continuously pushed, a few months would show a gradual aggravation of the tuberculosis. (3) The genitourinary tuberculous patients, outside of the benefit to their syphilis, showed no improvement in their tuberculosis. (4) Two patients with tuberculous eye trouble were benefited, one markedly so and the other but moderately so. This is not surprising, as the

intravenous injections of mercuric chloride exert a decided and beneficial influence over infections and ulcerations of the eye. (5) The patients with pulmonary tuberculosis, evidently suffering from the absorption of septic materials, probably due to a secondary germ infection, were decidedly benefited up to a certain point, after which, if the mercurial treatment was continued, their retrogression was rapid.

Acute Syphilitic Nephritis.—J. Ballagi refers to the scanty references in literature on the causal relation of syphilis to kidney disease and finds an indefinite consensus of opinion on the subject. He says that a patient with chronic nephritis who acquires syphilis is hardly a fit subject for prolonged mercurial treatment but when it is possible to decide with certainty that syphilitic infection occurred before the appearing of any symptoms of nephritis, and that the patient did not take any mercury at all, then we are justified in suspecting the nephritis to be of luetic origin, and we would not make a mistake in introducing a mercurial treatment. When no history is obtainable, chemical analysis of the urine, saliva, blood, etc., may decide the question. Mercury can be detected in the organismus months after it was incorporated, and with so much more certainty when recent mercurial poisoning—that is, mercurial nephritis—is present. He warns against the injection of calomel or gray oil, but has never had any unpleasant effects from the bichloride in five per cent. solution. The author closes his paper with the history of one personal case, that of a man of thirty-five years, who presented himself with the usual symptoms of an acute parenchymatous nephritis and a very definite history of a syphilitic infection some two months previously. Under bichloride injections the case cleared up satisfactorily. A brief bibliography is appended.

Results Obtained from Use of Diphtheria Antitoxin Refined and Concentrated by Gibson's Method.—The method of Gibson referred to consists in the elimination from the serum of the nonantitoxic substances and is described in the *Journal of Biological Chemistry*, Vol. I, Nos. 1 and 2, January, 1906. R. E. Wodehouse describes his results with this refined and concentrated preparation in a series of 345 patients treated in Toronto institutions. Only four developed an urticaria larger than 10 cm. in diameter surrounding the point of injection. In two the affected area remained confined to the thigh and buttock. In one the abdomen and extremities were involved. In several cases painful myalgia developed. The author's reasons for continuing to use the Gibson preparation are thus stated: (1) In therapeutic use, often 10,000 to 15,000 units of antitoxin are indicated for one injection. If concentrated to a potency of 1,500 units to 1 c.c., 10 c.c. only are necessary for the latter dose, whereas in using the old form of antitoxin, with a potency of 500 units to 1 c.c., the tissues are necessarily distended three times as much by the injection of 30 c.c. (2) The much smaller sized syringe and needle necessary were very potent factors in dealing with neurasthenic, frightened patients, who always see every detail. (3) The systemic affections were markedly reduced. (4) In a hospital where both diphtheria and scarlet fever are treated, the early recognition and isolation of scarlet fever or measles, developing in the diphtheria ward, is most important. When refined and concentrated antitoxin has been used, there is no necessity for retaining patients with erythematous rashes under observation for several days, as we know these rashes rarely follow its use, whereas under the old methods, using the unrefined horse serum, with its accompanying rashes, the early diagnosis was always doubtful.

Journal of the American Medical Association, June 27, 1908.

Hyperemia.—J. F. Binnie describes the Klapp modification of the Bier hyperemia treatment and gives a brief statement of his experience in its use. It consists in the daily application of cupping glasses adapted to the part five minutes at a time, alternating with three minutes' rest, for a total period of forty-five minutes. Suction is produced by means of a rubber bulb or a syringe, and should be strong enough to cause redness; if the part becomes blue or pain or paresthesia is caused, the suction is too strong. The suction causes inflow of blood and increased exudation, thus bringing a more active protective material to the point where it will do the most good. The periods of rest allow the blood to escape and a fresh supply of protective material to be brought. Wright believes that the escaping blood contains a vaccine which stimulates the production of antibodies throughout the system. If pus is present, it should be evacuated by a small cut or puncture and the cupping will aid in its removal. In his dispensary practice Binnie has learned to trust this treatment in those forms of cervical adenitis common among the poor, and usually produces a cure in seven to ten days with notable absence of scar. He has seen a large number of buboes promptly disappear after evacuation under this treatment, and it acts like a charm in the treatment of furuncles, the abortion of boils being frequently produced.

Local Applications in Surgery.—J. E. Moore criticises the belief in the utility of local applications in surgical conditions, the supposed good results following their use being in his opinion attributable to Nature and not to the local remedy. He asks why should we apply morphine locally when it relieves pain only after it is absorbed, and it is absorbed much more quickly when administered by the stomach or hypodermically? It is because we do not give Nature due credit for her healing powers that such an absurd cult as Eddyism has taken such a hold on the public mind. Liniments have their uses, but their curative effect is not demonstrated. They may relieve pain and the massage do good, but Moore considers their greatest effect to be a mental one. It is rare that blisters do more than add to the discomfort of the patient, and dusting powders are deservedly going out of use. Medicated dressings, he asserts, have practically gone out of date, iodoform gauze is about the only one left, and it is on its last legs. Simple protective sterile dressings are all that is needed. Irrigation with strong chemical solutions are still used to an unwarranted extent; anything beyond irrigation with salt solution to mechanically remove retained discharges is meddling. The use of 95 per cent. carbolic acid as recommended by Powell is an important advance, as it destroys all bacteria and may cut short a virulent infection, and if followed within two minutes with alcohol, there is no chance of absorption. Heat and cold are popular and therefore over-used applications. They relieve pain, but their curative value is doubtful. Their use in a deep-seated disease like appendicitis seems to Moore the height of folly. The worst thing about them is that their use may lead to fatal delay. The abuses of hot and cold applications are too numerous to mention, but one of the most frequent is in phlegmon of the hand. Every surgeon, he says, has seen cases in which poultices have been employed until the tendons have been destroyed. The local use of heat in such cases is grateful to the patient, and it should be used for that purpose only, not to supplant or interfere with rational surgical measures.

Colles' Fracture.—Colles' fracture is defined by L. W. Ely as a fracture, usually with impaction, of the lower inch of the radius, almost invariably due to a fall on the heel of the extended hand. The radius breaks here at its weakest point, where the cancellous structure of the bone is not arranged to withstand a force applied longitudinally, and the thicker layer of dense bone just above resists the strain and is driven down into the lower fragment. The outer part of the bone suffers more than the inner because the inner is held fast by the ulna and hence it swings up and receives more of the force of the blow. Not until the styloid process of the ulna is broken and the triangular fibrocartilage is dislocated is the internal portion of the bone exposed to impaction. The fall is also usually on the radial side of the hand. The posterior or dorsal aspect of the bone usually suffers most, and this fact is thus explained by Ely: A section at the usual seat of fracture shows the bone here shaped roughly as a right-angled triangle with the hypothenuse forward. When a force is exerted on a line parallel to the hypothenuse, midway between it and the apex, the apex will yield much more readily than the broad base. Such a force the transverse line of the carpus exerts. Again the bone in the anterior part is much denser than that in the posterior. Pain and disability were marked in a recent case; pressure on the lower three-fourths of an inch of the radius causes pain, and the finger feels a break in the contour. In case of simple slight impaction there will be nothing characteristic beyond swelling and thickening of the radius. Fracture of the carpus, most frequently of the scaphoid, is often mistaken for Colles' fracture. The main diagnostic point here is the extreme sensitiveness over the broken bone, usually in the region of the anatomic snuff-box. The disability is not so great unless there is also semilunar dislocation. If the *x*-ray is used it is well to test both wrists, and sometimes an old fracture of the scaphoid can not be differentiated from a Colles' fracture. The prognosis without treatment is not usually good. The main indication is to break up the impaction and keep the fragments in place. The notion that an impaction should be let alone can not be too strongly condemned. Ely insists on its reduction under anesthesia, not by traction, but by working the fragments backward and forward on each other until crepitation is felt. For a splint, he prefers the plaster-of-Paris gauntlet to any other form of dressing, and gives full directions for putting it on. He applies it from the elbow to the fingers, leaving a wide hole for the thumb, and slits it up on the radial side to guard against damage from swelling. He leaves it on for from nine days to a

month, and insists that, with proper adjustment, immobilization never causes ankylosis.

The Lancet, June 20, 1908.

Sarcoma of the Right Os Innominatum Simulating Appendix Abscess.—The patient of E. H. Harries was a girl of 12 years sent to hospital with the diagnosis of appendicitis. Four days previously she had been seized with a pain in the right side of the abdomen, running down the leg, which was kept bent, constipation but no vomiting. It was learned later that she had limped a little for some weeks. There was a swelling in the right iliac fossa, tender on palpation, and not definitely fluctuating. Immediate laparotomy was decided on and incision made over the swelling, the peritoneal cavity not being opened. Exploration through the wound down into the pelvis gave exit to considerable gelatinous material and necrosis of the ilium was found. The child did badly, and in a few weeks a second operation was done and much foul smelling tissue removed through the reopened original wound. The child still did badly and died in about two months after admission to hospital. Autopsy showed among other lesions the following: In the paravertebral hollow on the right side over the vertebral extremity of the sixth and seventh ribs was an oval soft tumor of about the size of a walnut. On cutting into it soft grayish diffluent material escaped and the seventh rib underlying was found to be eroded. The metastatic spleen nodules were found histologically to present the same characters as the primary bone tumor. The intestines, pancreas, and kidneys showed no pathological change. The mesenteric glands were not enlarged. The right iliac fossa was found to be invaded by an irregular infiltrating diffluent growth. The muscles and fatty tissue in the neighborhood were all involved. On cutting into them purulent grumous material escaped in large quantities. Douglas's pouch was filled with material like laudable pus. The ilium at the base of the growth was found to be greatly eroded. The right psoas iliacus was completely atrophied. The hip-joint was not implicated.

Acidity of the Urine.—Seven cases are reported by F. A. Watkins, who refers to the success claimed by French physicians in treating cases of acid intoxication by the administration of phosphorus preparations which are selected according to the degree of acidity of the urine. The estimation of the acidity of the urine is for the purposes of this therapy carried out by Boussingault's method of titration with a standardized solution of sucrate of calcium. Full details as to chemistry, etc., are given in the author's paper. It is important that patients suffering from loss of phosphates should partake of a rich diet in these salts. The following articles are enumerated in the order of preponderating percentages: gruyère cheese, haricot beans, mutton, beef, white cheese, eggs, cereals, and milk. Cerebos salt contains 4 per cent. of phosphates, so is an important adjunct to the diet from the point of view under consideration. With regard to drugs, phosphoric acid and its salts, according to the degree of acidity of the urine, are all useful. If the reaction is normal, the phosphorus should be given in neutral form. For this purpose a new salt called sodium sesqui-phosphate has been introduced. Two grams per day are given in divided doses. The author claims that the best remedy for raising the urinary acidity is phosphoric acid but it must be given in large doses. If the specific gravity is much above normal much water should be taken with the design of keeping the urine below 1.020. For this purpose it may be necessary to supply the patient with a urinometer. The alkaline mineral waters are very effective in reducing the acidity of the urine; but during their exhibition it is very necessary to make periodic estimations of the urine so as to regulate the dose of alkalies. If the hyperacidity is only moderate it will rapidly yield to effervescing phosphate of sodium. In greater degrees of acidity it may be necessary to give the alkaline phosphate of sodium. It is a much easier matter to lower the acidity than to raise it.

The Supports-in-Chief of the Female Pelvic Viscera.—R. H. Paramore regards the mechanical side of this question as still unsettled. Mere study from the side of anatomy is insufficient, for we must at the same time bear in mind actual living processes. He describes the pelvic diaphragm in great detail and calls attention to the analogy between the collective supports of the uterus and those of the duodenum. He says that when we glance at the visceral connective tissue strands which radiate from the circumference of the pelvic wall to the cervix it, indeed, looks as though these strands might support the uterus. But when we compare this apparatus with the pelvic diaphragm lying beneath we find the essential difference between these two structures is, that while the pelvic diaphragm on account of its striated muscle, is a highly elastic obturator, the pelvic visceral connective tissue is little if at all elastic. It is this lack of elasticity, the impossibility of yielding to excessive pressure from above without stretching, and the equal impossibility of returning to a previous position after such stretching that makes it impossible for the visceral connective tissues to play the part of a support adaptable to all the requirements of the pelvis. Such connective tissue, however, does prevent the too great descent of the uterus during defecation. The pelvic diaphragm should be considered as identical in structure and function with the anterior abdominal wall. The pelvis and abdomen are essentially one cavity, but since the area of the pelvic outlet is many times smaller than the area filled in by the anterior abdominal wall, the work to be done by the levator ani muscle, in successfully resisting the pressure caused by increase of the contraction of the abdominal wall muscles, is considerably less than the work which the anterior abdominal wall musculature has to perform to produce this pressure. Thus a relative thinness and apparent weakness of the levator ani muscle is explained. The outcome of the simultaneous contraction of these two groups of muscles, in the superior one of which the thoracic diaphragm must, of course, be included, is the intraabdominal pressure. This pressure acts by thrusting the pelvic viscera still further downwards upon the pelvic floor; and in the presence of this downthrust the viscera are maintained in their position by the levator ani muscle. Since this is attached to the pelvic wall by connective tissue it is plain that to this the strain and stress of supporting the viscera and opposing the intraabdominal pressure must be transmitted. An inquiry into the conditions of successful connective tissue functioning in the body shows that this is entirely dependent upon the functioning of the muscles with which the connective tissues are connected.

Berliner klinische Wochenschrift, June 15, 1908.

The Treatment of Ileus.—Braun discusses the question of the indications for surgical treatment in intestinal obstruction and the results of such treatment. The operation is indicated in almost all cases in which the diagnosis of mechanical ileus has been made, and the full symptom picture of the obstruction is not to be awaited in such cases, especially as more or less exact diagnosis as to the nature of the condition and to the localization ought nowadays be made quite early. Braun has observed sixty-nine cases, of which twenty-seven or about 40 per cent. died. Five of the fatal cases, however, resulted from the original disease, carcinoma, and not from the obstruction, which was successfully relieved. Six patients were cured by high irrigations, eleven out of the thirty-three patients in whom the obstruction was a primary condition were cured by the laparatomy, the rest dying in spite of the operation. Palliative measures, among them punctures of the bowel, enterostomies and enteroanastomoses were used in thirty patients suffering from tumors or adhesions. Fifteen of these latter were cured by the treatment.

Ophthalmodiaphanoscope.—Under this name Hertzell describes an instrument constructed by him, which is introduced into the mouth and illuminates the fundus of the eye from the back. The fundus may then be observed directly, the new illuminations offering many advantages over the usual ophthalmoscope, among them, simplicity of technique, absence of disturbing reflexes, larger field of vision, and the fact that better attention can be given to the appearances of the fundus, since the illumination need not be kept in mind any more. Hertzell has succeeded in reflecting the picture of the fundus on a screen, and thinks that this may enable more accurate measurements of the papilla to be made in pathological cases, as well as lead to the introduction of direct photography of the eye fundus. Moreover, the new illumination gives somewhat different pictures of the eye conditions from those seen by the ophthalmoscope and may thus lead to better understanding of the normal and the pathological appearances of the fundus.

Münchener medizinische Wochenschrift, June 16, 1908.

Spontaneous Rupture of the Rectum.—Burkhardt says that only fourteen cases of this accident have been reported in the literature, three having occurred in persons not suffering from any disease of the bowel. The other patients were affected by prolapse of the rectum or had diverticula. The author adds another case occurring in a healthy young man during excessive straining in defecation. An operation, with the formation of artificial anus, showed that the peritoneal cavity was opened and feces escaped into it. The patient recovered, making the first case on record of recovery after the intraperitoneal rupture of the rectum.

Artificial Hyperemia in Animal Experiments.—Frangenheim says that under the action of pure hyperemia are included all the phenomena that are produced in acute suppurative conditions by the congestion and the suction.

The experiments with animals are well fitted for the study of such action. If staphylococci or streptococci are injected into the vein of a rabbit's ear, and artificial hyperemia produced at some distant site of the body, that site becomes the seat of an abscess. Other artificially produced abscesses were never diminished by the application of artificial hyperemia, while in control animals the lesions diminished progressively without any treatment. The treated abscesses contained virulent cocci for weeks during and after the treatment. Microscopical examination showed a great deal of young connective tissue in such lesions. Passive hyperemia by means of a bandage likewise had no salutary effect upon artificially produced lesions, the suppuration of joints and of the medulla of bones being made more active by the application. The author concludes that in animal experiments hyperemia has no bacteriological effect, and all the suppurative affections of the soft part, of the joints, and of the bones behave badly under such treatment.

Deutsche medizinische Wochenschrift, June 11, 1908.

The Treatment of Nasal Conditions in Gynecology.—Koblanck says that in addition to the tubercle of the septum and the anterior part of the inferior turbinate bone which were designated by Fliess as the parts to be treated in gynecological practice, the whole septum and the whole of the inferior turbinate may have to be treated in other cases. Indeed, often enough the condition depends upon the affection of the accessory cavities, and these must also be treated. Two results of treatment are especially noticeable, one serving to arouse uterine pains, the other diminishing pain. The latter is obtained by applying to the nasal mucosa a gauze sponge wet with 20 per cent. solution of cocaine; uterine contractions, on the other hand, are called forth by a more energetic rubbing of the mucosa with a sponge dipped into some preparation of the adrenal gland. Not over five to ten drops of the cocaine solution is to be used. While such treatment seems to affect favorably the pain caused by the uterine contractions the pain due to the pressure of the child upon the soft parts in its advance through the genital canal is not affected. The technique of using the adrenalin for the purpose of increasing the pains is to be carefully followed; no bleeding is to be produced even by the energetic rubbing of the mucosa. Especially valuable is this treatment in the period from the birth of the child to the birth of the placenta, which in such cases is expelled very forcibly. Still wider field for this treatment is found in gynecological practice, the general indication being the existence of any consequences of a morbid sexual life or of abnormal sexual excitement. Hysterical phenomena, anomalies of menstruation, neuralgic pains, catarrhal inflammation of the cervix are some of the special indications. "False appendicitis," abnormal decrease of the sexual instinct as well as increase of it are favorable fields for nasal therapy. In addition, the treatment of certain portions of the nasal mucosa is very useful in controlling many disturbances of the heart's function, especially arrhythmias of nervous origin.

The Distribution of the Paratyphoid Bacilli Outside of the Human Body.—Hübener says that investigation carried on by the Royal Health Department of Germany have shown that the bacillus of swine plague which can in no way be differentiated from the paratyphoid B-bacillus is a normal inhabitant of the gastrointestinal canal of healthy pigs. Hübener has succeeded in isolating a like organism from six out of one hundred samples of sausage examined by him. The use of the food in question had not seemed to have produced any ill effects in human beings. It is probable, therefore, that such bacilli may be excreted by the healthy human being after partaking of such food. Moreover, the finding of such bacilli in the excreta of patients suffering from a symptom-complex resembling paratyphoid infection is not sufficient ground for assuming that an etiological relation exists between the bacilli found and the symptoms, unless specific reactions on the part of the patient's blood toward strains of the bacillus can be demonstrated at the same time. From the standpoint of sanitary medicine the findings are of importance showing that the demonstration of such organisms in the food of persons attacked by suspicious disease after partaking of that food is not enough reason for considering that food as the cause of the disease. Rimpau in a second article dealing with the same subject says that in the course of nine months he has discovered twenty-six individuals who excreted paratyphoid B-bacilli, ten of the persons examined having been sick with typhoid fever, five chronic bacilli carriers, and fifteen apparently healthy. The findings were especially frequent in the urine of these individuals, fifteen of them showing this bacillus in the urine. The occurrence of the bacilli in these persons Rimpau explains just as Hübener by the frequent presence of the bacilli in the foodstuffs. As no standard of virulence for the human beings can be applied to these bacilli, Rimpau thinks that all possible measures are in order to protect the food and drink of communities from any possible infection with such bacilli.

Comparative Values of Test Meals.—Würz has examined thirty patients after the administration of the various test meals, and comes to the following conclusions: Riegel's test meal consisting of one plate of soup, 200 g. meat weighed raw, well roasted, 300 g. mashed potatoes, and one glass water, is best adapted to testing the secreting functions of the stomach and could well be accepted as the standard test. Next in usefulness stands Sahli's soup, prepared of 25 g. flour, 15 g. butter, 250 g. water, and one pinch of salt, the flour being browned and then cooked for five minutes. The test breakfast of Ewald forms the least powerful stimulus to secretion. It consists of 5 g. tea, prepared in one-half liter of water, and one roll; the ease with which it may be prepared and the fact that it can be digested by the most delicate patients is enough to justify its use in the diagnosis.

French and Italian Journals.

Examination for Indoxyluria in Mental Patients.—Georgio Pardo describes urine that contains indoxyl as being markedly alkaline, turbid, with a sediment of phosphates and carbonates, increased in reducing power, containing urobilin, having modifications of pigments, and microorganisms in marked numbers such as to render the urine turbid. From his researches he concludes that in the urine of some patients subject to mental disease during periods of prolonged excitement, psychical and motor, the indoxyl is transformed into indirubin. Indirubinuria follows severe disturbances of digestion, as is shown by the alkaline reaction of the urine, the turbidity, presence of the sediment of carbonates and phosphates, and other phenomena that have been mentioned. These are due to the action of bacteria which have emigrated in large numbers into the urinary passages. The clinical significance of indirubinuria is the occurrence of intestinal putrefaction. It signifies an insufficient defense of the organism against infective agents, and especially an insufficient action of the intestine and liver.—*Rivista Sperimentale di Freniatria*, Vol. XXXIII, Part IV.

Diagnostic Value of Enlarged Spleen in Typhoid Fever.—Silvestri has studied 147 cases of typhoid, among which the tumor of the spleen was found in 130 recognizable by palpation. In seventeen it was not demonstrable at any period of the disease. In these cases there were conditions which masked the swelling such as muscular tension and obesity. In all the cases in which the tumor was demonstrable, the symptoms, recurrences, complications, duration of the disease and post-mortem findings were in inverse proportion to the development of the swelling. The author believes that the swelling of the spleen in typhoid is not only an index of the degree of infection, but also of the defensive reaction of the organism.—*La Riforma Medica*, January 20, 1908.

Lumbar Puncture in Meningeal Forms of Typhoid Fever in the Child, and Its Therapeutic Value.—Ch. Reca and Firmin Carles describe the different forms in which meningeal infection in the course of typhoid is found in children. The examination of the cerebrospinal liquid after removal by lumbar puncture is of value in diagnosis and prognosis. The fluid may be found to contain pus mixed with typhoid and other bacilli. It may be clear and still contain these germs. In these two cases there is a direct infection of the meninges by the bacilli of Eberth. Again there may be removed a clear fluid containing an abnormal number of lymphocytes. Here the toxins of the bacilli are irritating the meninges. Lastly, the fluid may be of normal composition and underhypertension. Here the same condition increases the tension. The value of the procedure consists in the abstraction of toxins and bacilli when they are present by repeated punctures, and the relief of tension and of pressure on the nerve centers.—*Gazette Hebdomadaire des Sciences Médicales*, January 26, 1908.

Puerperal Psoitis.—P. E. Launois describes a rare form of puerperal infection which generally comes on at a period some time after labor. It consists of an abscess in the sheath of the psoas muscle, accompanied by all the symptoms of a general septic condition. The symptoms are characteristic; they are pain and swelling in the iliac region, inability to extend the leg, flexion of the leg on the pelvis without abduction or adduction of the member, and the classical picture of septicemia. Acute infection of the hip and sacroiliac joints, coxalgia, perinephritis, and periuterine inflammations must be excluded in the diagnosis. Opening the abscess brings about relief of the symptoms, but a phlebitis may ensue. The author describes an interesting case of this trouble in which the psoas abscess came three months after labor.—*Journal de Médecine de Paris*, January 20, 1908.

Book Reviews.

Hypnotic Therapeutics in Theory and Practice. With numerous illustrations of treatment by suggestion. By John Duncan Quackenbos, A.M., M.D., author of "Hypnotism in Mental and Moral Culture," "Practical Physics," etc. New York and London: Harper and Brothers, 1908.

In the introductory chapter the author enumerates the diseases, cases of which have been "substantially relieved and many of them radically cured by accredited hypnophysicists." This list runs from migraine and intermittent heart to dementia præcox and incipient insanity, from hysteria and epilepsy to diabetes mellitus. The next chapter makes plain the principle of this treatment; it is founded upon the evocation of the control that the "transliminal self" exercises over the organs and functions of the body. The rest of the book treats of the practical use to which this control may be put in treating various pathological states; neurasthenia, delusions, alcoholism, "pathological diffidence," etc., receive a chapter each. In an appendix to the book the author proclaims his belief in clairvoyance, "*x*-ray vision," and other transliminal faculties, and gives "authentic" cases of such powers.

This brief summary of the contents of the book indicate its character and the valuation that may be put upon it by the medical reader. A quotation may serve further in this direction: "In a number of cases moribund patients have been recalled from death by shouting in the ear at the moment of dissolution, a command to return." As an illustration a patient with pneumonia is named, "beyond the pale of hope from a medical point of view," whom the transliminal therapeutist saves, however, by the following command: "Assume immediate control of your physical functions and get well!" directions which "were immediately accepted and implicitly followed!"

The following, addressed to the hypnotized patient, is a part of the author's treatment for diabetes mellitus: "And if your pancreas be crippled in its production of the natural ferment, which is given off to blood and lymph, and which conditions the normal consumption of sugar in the body or restrains the output of sugar from the liver and tissues, you will see that it forthwith pours into your blood or lymph a sufficient quantity of sugar oxidizing ferments!"

In the hands of laymen, this book may be productive of much real harm by exciting false hopes or causing the postponement of medical treatment until too late; its chief interest to the physician consists in the revelation it makes of how far autosuggestion may carry one in the direction of a belief in the unbelievable.

Maladies des Os. Par P. Mauclaire, Professeur agrégé a la Faculté de Médecine de Paris, Chirurgien de la Maison Municipale de Santé. Avec 161 figures intercalées dans le texte. Paris: J. B. Baillière et Fils, 1908.

Muscles, Aponévroses, Tendons, Tissus Péritendineux, Bourses Séreuses. Par Louis Ombrédanne, Chirurgien des Hôpitaux de Paris. Avec 45 figures intercalées dans le texte. Paris: J. B. Baillière et Fils, 1908.

These two books represent the fifth and the ninth fascicles of the "Nouveau Traité de Chirurgie" edited by A. le Dentu and Pierre Delbet. Dr. Mauclaire considers the diseases of bones under five headings: Infections, Parasitic Diseases, Chemical Intoxications (phosphorus necrosis, mercurialism, etc.), Trophic Osteopathies and Neoplasms. The infections are given most attention, osteomyelitis, tuberculosis, and syphilis being exhaustively presented and well illustrated by pictures of gross and microscopical lesions. Rickets is considered under the trophic disorders and the etiological factors in this disease are given due prominence. Sufficient space is alloted to the rarer forms of disease, such as acromegaly, osteomalacia, and leontiasis. The book is especially strong in the description and illustration of the pathology of bone lesions.

Dr. Ombrédanne's is a smaller volume treating of the diseases of muscles, tendons, bursæ and related structures. The author has sought to correct old errors in the classification of the affections in the light of the latest researches. Thus contusions of muscles are classed with lesions involving the solution of continuity of muscular fibers, "pseudo-hernias" are considered logically among the ruptures of muscles, and the various types of myositis are classed with reference to surgical considerations. Treatment is given especial prominence, seven pages, for instance, being given to the technique of tendon suture.

Both books keep up the high standard of the encyclopedic treatise of which they form a part. But one serious fault found in these as in many other books published on the Continent may be pointed out. They lack an index, and the table of contents is not sufficiently exhaustive to make up for the deficiency.

Mount Sinai Hospital Reports, Vol. V, for 1905 and 1906. Edited for the Medical Board by N. E. Brill, A.M., M.D. New York, 1907.

This volume of the Mount Sinai Hospital reports contains much valuable scientific material. In addition to the reports and statistics of the various divisions of the institution, the book contains a number of excellent articles. Among these may be mentioned the article on tumors of the bladder by Dr. F. S. Mandlebaum, and that on Hypernephroma by Dr. A. A. Berg, and a series of special articles on laboratory methods by Drs. Julius Rudisch, E. P. Bernstein, E. Libman, and others.

Woman. A Treatise on the Normal and Pathological Emotions of Feminine Love. By Bernard S. Talmey, M.D., Gynecologist to the Yorkville Hospital and Dispensary; former Pathologist to the Mothers' and Babies' Hospital, etc., New York. For Physicians and Students of Medicine and Jurisprudence. With twenty-three drawings in the text. Second Enlarged and Improved Edition. New York: Practitioners' Publishing Company, 1908.

The fact that this work has reached a second edition is proof of its popularity and the demand for it. The book is evidently written with the object of supplying in a single volume information of occasional value for the physician which could otherwise be obtained only by a long and tedious search through the literature, and it amply fulfils this purpose. It is questionable, however, whether many of the facts given will be of use even to the physician, and if the book should fall into the hands of lay people, especially of the young, it might do more harm than its strictly professional use would do good.

Rabies: Its Place Among Germ Diseases and Its Origin in the Animal Kingdom. By David Sime, M.D. Cambridge: The University Press, 1903.

Before Pasteur began his investigations into the cause of rabies, it was not known that there was a microbe producing a virus that caused rabies. And for a long time afterwards it was thought that the disease had its origin in the canine species. Dr. Sime gives pretty conclusive proofs, however, that the rabbit and not the dog is the animal in which rabies arises. He classifies animals as the hunting and hunted and also with respect to their behavior toward the rabific virus, whether they intensify or attenuate the disease. The intensifiers are the hunted class, and the attenuators the hunting class. Considerable space is taken up in proving that rabies does affect the rabbit first, and that the central nervous system bears the brunt and is in fact the seat of the disease. The most affected parts are the medulla oblongata and the lumbar enlargement of the spinal cord. The treatment is not considered.

The book is not a text-book, but a treatise based on the wide researches that have been made in regard to rabies, and theories and deductions drawn therefrom. As the author says: "It is a study of rabies in a threefold direction, its causation in the individual organism; its place among germ diseases with the end of bacterial agency in the animal economy; and lastly its origin in the animal kingdom."

Prostatic Enlargement. By Cuthbert S. Wallace, M.B., B.S. (Lond.), F.R.C.S. (Eng.), Surgeon to the East London Hospital for Children, etc. Bacteriology by Leonard S. Dudgeon, M.R.C.P. (Lond.), Bacteriologist to the St. Thomas Hospital, etc. London: (Henry Frowde, Oxford), Hodder and Stoughton (Oxford Medical Publications), 1907.

This monograph contains the results of researches on the pathology, bacteriology, and operative treatment of prostatic enlargement. The volume opens with a consideration of the surgical anatomy of the gland; the physiology of the prostate and the morbid histology of prostatic hypertrophy are next dealt with. Most hypertrophied prostates were found to have distinct fibrous capsules. The nonencapsulated forms were rare. The enlargement was found to be neoplastic in character, and the chronic inflammation found in the affected glands is probably secondary and due to infection. The latter is dealt with in the bacteriological section. The most frequent germ found in hypertrophied prostates was the *Staphylococcus albus*, next the *Bacillus coli*. The urine did not always show the character of the infection in the gland. Freyer is credited with the introduction of the suprapubic operation of prostatectomy. No mention is made of the work of Fuller, Guiteras, and others in this country, save Hugh Young, who is quoted briefly. The enucleation of the prostate from within its capsule is to be regarded as the essential step in "complete" prostatectomy.

Gout, Its Pathology, Forms, Diagnosis and Treatment. By Arthur P. Luff, M.D., B.Sc., F.R.C.P. (London), Physician to St. Mary's Hospital. Third edition New York: William Wood & Company, 1907.

Luff's monograph on gout needs no introduction to the progressive physician. It is said that no nation knows more about gout than the English, and certainly the present volume is one of the most satisfactory treatises on this disease of metabolism that have been offered to the profession within recent years. Beginning in Part I with the theoretical consideration as to the causation of gout, the formation of uric acid, the relation of the blood to gout, and the formation of gouty deposits, the author passes on in the next section to the clinical features of gout in its various forms, and to the important subject of differential diagnosis. In the third section are presented certain investigations on the treatment of gout, chiefly as regards the solubility of sodium biurate and the process of solution of gouty deposits. The last part is devoted to the treatment of gout and gouty conditions. Here will be found directions as to the treatment of acute, subacute, chronic and irregular gout; details as to diet, local treatment, electric light, superheated air and other physical methods, as well as a discussion of the influence of alcohol and of mineral waters, baths, and climate upon the gouty processes.

In the present edition the new views as to the pathology and causation of gout are given full discussion. Many of the chapters have been rewritten, especially those on treatment and diet, on hydrotherapy and mineral waters. The book is an exceedingly practical, up-to-date treatise on a puzzling disease, by one who has thoroughly mastered his subject, as far as it is possible to do so in the light of present-day knowledge, and who knows how to impart his knowledge to his readers.

Vorlesungen uber Diätbehandlung Innerer Krankheiten vor Reiferen Studierenden und Aerzten. Von Professor Dr. H. Strauss in Berlin. Mit einem Anhang, "Winke für die diätetische Küche" von Elsie Hannemann, Vorsteherin des Haushaltungs-Lehrerinnen-Seminars und der Kochshule des Lette-Vereins in Berlin. Berlin: Verlag von S. Karger, 1908.

Dr. Strauss's book consists of fifteen lectures on the principles of diet in the internal diseases. Among others, the following lesions, functional and organic, are taken up; acute and chronic gastritis, disturbances of gastric secretion, gastric ulcer, diarrhea, constipation, intestinal parasites, renal diseases, gout, diabetes mellitus and obesity. In the treatment of gastric ulcer Dr. Strauss inclines to the low diet of Leube in preference to the high proteid diet of Lenhartz. He enters with sufficient fullness into the use of a salt-free diet in nephritis, into the indications for the use of rectal feeding, and into the value of artificial foods.

The appendix, written by the lady superintendent of a cooking school, occupies one-third of the book and translates into practical kitchen "recipes" the recommendations of the author. The quantities of foodstuffs used are translated into their equivalents in the term of proteids, carbohydrates, and fats, so that the physician is enabled to make up a menu answering theoretical food requirements with the least amount of difficulty. The book may be safely recommended to physicians and to those in charge of diet kitchens in institutions.

Mortmain. By Arthur Train. New York: D. Appleton and Company, 1907.

As the problem novel has concerned itself with almost every phase of modern life, one need not be surprised to find it seeking material in the field of surgery. The first story in this collection is rather out of the ordinary, and though quite impossible is sufficiently weird to hold one's attention. It is based on the discovery of a famous English surgeon, whose life is thoroughly absorbed in his art, and who finally succeeds in solving the problem of limb grafting. The first patient is a baronet, financially embarrassed and on the eve of ruin. When he is informed over the telephone that the man who holds his notes has been assassinated, he accidentally upsets a piece of bric-a-brac which crushes his hand, making amputation and grafting necessary. While under the anesthetic he dreams that the hand of the criminal that killed his enemy has been fastened to him, making a chain of circumstantial evidence which would convict him of the crime. He is also haunted by the fact that the man from whom the grafted hand was taken died in consequence. In addition to all this he loathes the foreign member, occasionally suffers physical tortures, and finds his own mental and spiritual characteristics changing so that at times he is dominated by criminal impulses. The other stories in the volume are readable, but possess no special medical interest.

Lectures on Diseases of the Nervous System. Third Series. The Border-Land of Epilepsy: Faints, Vagal Attacks, Vertigo, Migraine, Sleep Symptoms and their Treatment. By Sir William R. Gowers, M.D., F.R.C.P., F.R.S.; Hon. Fellow R. Coll. Phys. Ireland; Member of the Soc. de Médecins Russes of St. Petersburg and of the Royal Soc. de Science of Upsala, etc. Philadelphia: P. Blakiston's Son & Co., 1907.

The well-known powers of accurate observation and wide experience of this eminent writer lead us to accept as authoritative his prolific writings which are justly very popular in this country. There is no more valuable book on epilepsy than that of Gowers, and the present little volume, on conditions "near to, but not of epilepsy," will be found of assistance in understanding and treating cases belonging to this, to most of us, very unfamiliar field. Illustrative cases of the various borderland conditions are reported; and the evidence, from which the facts and conclusions are deduced, that the affections under discussion are related to epilepsy, is briefly, yet clearly described, and throws much needed light on the nature of these affections. The term "vagal attacks" is a useful designation, by the author, and the chapter on this topic, together with some other portions of the book, constitutes a distinct contribution to the Hughlings Jackson hypothesis of the existence of lower level (medullary) fits.

A Text-Book of Surgical Anatomy. By William Francis Campbell, M.D., Brooklyn, New York. Professor of Anatomy, Long Island College Hospital; Attending Surgeon to the Methodist Episcopal, Swedish, and Bushwick Hospitals; Consulting Surgeon to the Jamaica Hospital. With 319 Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

The author of this volume has wisely started out from the following premises: (1) He has made no attempt to present all the anatomical data that could be gleaned from any and every source; (2) he has only selected those anatomical facts which have a practical bearing; and (3) due emphasis is laid on those structures and regions which have a peculiar interest for the surgeon. The result is that the volume before us is one which is eminently practical and satisfactory. In a general way the whole field of anatomy is covered, so far as is conformable with the above rules. Each section begins with a few pages dealing with the surface anatomy of the part. The various regions are then taken up in some detail, and almost every possible point that the surgeon can want information on is considered. Until quite recently the available works on surgical anatomy were few; but of late one publishing house alone has presented us with three new works on the subject, the volume under consideration being the latest, and in many respects the most useful of the three. Regional and Surgical Anatomy are not only the most valuable, but also the most interesting parts of the study of Anatomy, and are far removed from the dry details of ordinary first-year work. Students and practitioners alike will find this work entirely suited to their needs.

Alimentation et Hygiene des Enfants. Par J. Comby, Médecin de l'Hôpital des Enfants Malades. Troisième Edition. Avec 23 Figures. Paris: J. Rueff, 1908.

The author of the present volume is a well-known French pediatrist who has written a great deal on the subjects of infant feeding and hygiene. This particular book while not altogether popular in character is intended to serve as a work of reference to the laity, and for the most part the text is of a nature to be easily understood by the nonmedical reader. The range of subjects discussed is much wider than is customary in similar books and it should prove suggestive to physicians as well as instructive to the mothers whose children are under their care. While in many respects, especially in regard to the comprehensive question of milk modification, its teaching is quite different from that of the authorities in this country, the book represents very satisfactorily the views of continental pediatrists and is well worthy of the notice of all those interested in the hygiene of infancy.

Department of Neurology, Harvard Medical School. Contributions from the Massachusetts General Hospital, the Boston City Hospital, the Long Island Hospital, and the Neurological Laboratory. Vol. III. Boston, Mass., 1908.

Of the ten neurological contributions appearing in this volume, six are by Dr. E. W. Taylor. The others are by Drs. Putnam, Knapp, and R. M. Smith. Rare cases are reported and interesting topics are discussed such as: heredity in epilepsy, medical expert testimony, the psychotherapeutic movement, the plantar reflex, psychasthenia, etc.

MEDICAL SOCIETY OF NEW JERSEY.

Annual Meeting, Held at Cape May, N. J., June 18, 19 and 20, 1908.

(Special Report to the MEDICAL RECORD.)

THE PRESIDENT, DR. EDWARD J. ILL OF NEWARK, IN THE CHAIR.

Thursday, June 18—First Day.

THE morning was devoted to the reading of the reports of committees and the transaction of the business of the House of Delegates.

It was recommended that the Medical Society of New Jersey express its disapproval of the provisions of the Act of 1908 reorganizing the State Board of Health, because said act was retrogressive rather than progressive and because of the failure of the act to require that the administration of sanitary measures should be supervised mainly by persons having had medical training and experience in sanitation.

The afternoon session was opened by an invocation by the Rev. James McLeod of the First Presbyterian Church.

Addresses of Welcome.—FREDERICK J. MELVIN, Mayor of Cape May, and Dr. J. MORGAN DIX welcomed the members of the State Society, the former in behalf of the city, the latter in behalf of the county medical society.

Oration in Medicine.—Dr. WM. K. NEWTON of Paterson delivered this oration. He chose as his subject joint affections in childhood caused by infectious diseases. The term "Still's disease" accounted only for a very few arthritic affections in children. Although the disease known as rheumatoid arthritis in adults did occur in children, its clinical aspects and morbid anatomy differed. The term "rheumatism" should be eliminated from the nomenclature of joint affections. A large number of diseases should be included in the infectious arthritides. He confined his remarks to these latter. The cause of the trouble was a specific infection of one or another form, and might be simple or mixed. The onset might be with chilliness or pronounced chills. The large proportion were caused by an invasion by the diplococcus of Fraenkel. Many cases with exudate on the tonsils might result in a pure pneumococcus arthritis. Many cases seen by him were caused by a mixed infection, the pneumococcus and streptococcus. He related in detail such a case. The arthritis following scarlet fever was similar to that following erysipelas and acute rheumatism. He reported the case of a man with gonorrheal arthritis of both knee and ankle joints. Scurvy in children was always accompanied by arthritis. Many cases of infectious arthritis were due to intestinal intoxication. Other more common causes were considered.

Endothelioma of the Pleura.—Dr. HENRY S. PATTERSON of New York reported a personal case with autopsy, and a review of eighty-five other cases found in the literature. There were fifty-three males and thirty-two females. In twenty-four cases the whole pleura was affected. The nodular type more often than the diffuse type was met with when the whole pleura was not involved. In nineteen cases the opposite pleura was the seat of metastasis. The origin and source of this tumor was the subject of much controversy and he reviewed the various opinions published. The character of the fluid in the chest was hemorrhagic in sixty-five, clear in two, purulent in two, while in nine no fluid was found in the chest. In one case there was a change from sanguinolent to a purulent fluid. The trouble began with a sticking pain, cough, scarcity of expectoration and dyspnea. A striking feature was the absence of fever. The average duration of the disease was from six months to one year. The disease always terminated fatally. Tuberculosis and aneurysm must be excluded. The only way of making a diagnosis was by means of a microscopical examination of any tissues brought to the surface, either directly or by metastasis. The treatment of this incurable disease was palliative. Dr. Patterson said that he had been enabled to make a diagnosis because of reading Dr. Delafield's article on this subject which appeared in the MEDICAL RECORD in 1902.

Diagnostic Importance of Vomiting in Childhood.—Dr. ARTHUR STERN of Elizabeth read this paper. He divided the forms of vomiting as follows: (1) Cerebral vomiting; (2) prodromal and initial vomiting in acute infections; (3) gastroenteric and peritoneal vomiting; (4) vomiting in intoxications; (5) after excitement; (6) in cardiac insufficiency; (7) in cases of general neuropathy; (8) from miscellaneous causes. If they could throw aside that old superstition that vomiting was caused by teething, many lives would be saved. He reported two cases of erysipelas in infants, aged three and five months respectively, with fatal termination, and in both the prodromal vomiting was marked. The symptoms in connection with the vomiting make diagnoses of diseases possible and also enable one to distinguish the variety of vomiting.

Dr. HENRY L. COIT of Newark congratulated Dr. Stern in bringing before this Society in an interesting way such a trite subject as vomiting. There were certain classes of diseases in which vomiting was a prominent symptom. First, psychic or recurrent vomiting, which was practically a new disease. Again many cases of persistent vomiting have been attributed to a congenital pyloric stenosis. He emphasized a point of importance, the so-called "boric acid indigestion," caused by the free use of boric acid in the new-born and especially nurslings. He called attention to the projectile vomiting in cerebral disease.

Dr. P. DuB. BUNTING of Elizabeth said that vomiting should be considered as a symptom only, and not an entity.

Dr. JOHN P. REILLY of Elizabeth asked that a more careful study of vomiting be made.

Dr. NORTON L. WILSON of Elizabeth spoke of a form of vomiting occurring in connection with adenoids and hypertrophied tonsils and believed that in most cases it was due to a vitiated and increased secretion going down back of the pharynx rather than to the adenoids or hypertrophied tonsils.

Present Status of the Milk Problem.—Dr. ALEXANDER MCALISTER of Camden read this paper. He said that viewed from the present status of the milk problem every new step in the progress of substitute feeding of infants during the past fifty years only impelled them to a position closer to whole milk, milk for milk. That was where the circle began and that was its rational, logical and happy ending. Powders of cereal origin, condensed milk, sterilized milk, pasteurized milk, laboratory milk, home modified milk, *milk*, that was the whole round. The purport of his paper was not to favor a wholesale and indiscriminate return to the use of raw market milk. That would be unwise and the teaching unsafe. Nor was it the purpose to plead for the use of none but whole milk in general substitute feeding. That would often entail a needless hardship. But it was his object to urge the use of only ideal whole milk for the very young and delicate. In this practice simple methods of dilution or modification, possible in any home, yielded superior results because of the greater ease with which fresh whole milk could be digested. In every market this ideal milk could be had for the price of the searching. The market that fell short could not be shown up too early or too relentlessly.

Annual Address by the President.—Dr. EDWARD J. ILL of Newark delivered this address at the evening session, taking as his subject "Medical Expert Testimony." A witness, who was convicted of not having spoken the truth, was punished by the law. The expert could not

be prosecuted for having expressed an opinion, though it might be a falsehood, and was commonly contradictory to that of any other expert. The people knew that, as a whole, expert witnesses were honest men, otherwise they would hesitate to trust their lives into their hands. But they also knew that the testimony of the medical expert before a court of law was a purchasable article, bought and sold for dollars and cents. The court and the jury knew this likewise and the fact was bewildering to the people. They knew that the defendant could receive the services of as many doctors as his bank account would permit. Their opinion was the plaything of counsel on either side. He quoted the argument of Judge Cowing suggesting changes along the following lines: "First, paid experts are now partisan. The jury sees them coaching the counsel, who is responsible for their payment, as to questions to ask opposing experts, and the jury concludes that the testimony is not valuable. Second, the quality of the expert is not sufficiently looked into and insisted upon now. Lawyers and some judges think that the greater the number of experts on their side, the stronger ought their case to be. Third, it is too often the custom now to drag in too many experts on both sides. The jury is confused. Fourth, it is not fair to allow medical experts to give opinions based upon purely hypothetical questions." The courts could give no relief because the laws were inadequate. He said the chance of obtaining an early change in the method of securing expert testimony in New Jersey was not great, unless they took the matter in hand as a society. They had nothing to hope for from the courts. They were impotent in the matter. They had nothing to hope for from the bar for it was taking an important prerogative from them, by which they were able in the past to mislead the jury, or at least to weaken the argument of their opponent. They had little to hope for from the Legislature because their influence was almost nil as compared to that which the bar exerted. They must act in self-defense.

Oration in Surgery.—Dr. Maurice H. Richardson of Boston delivered this oration, "When Shall the Physician Distrust His Own Judgment in Surgical Matters?" He believed that a man entering upon practice could do nothing more effective in establishing that practice than to follow strictly the advice of one of his students: "Always consider the patient's welfare first and your own last." All made errors, he freely admitted; but he contended that the errors in surgery in the hands of those qualified to practise surgery were very insignificant compared with the successes. It became one to admit the errors with the greatest possible frankness that one might be able to bring into sharp contrast with them the successes, and that one's words might have as far as possible a judicial effect. In external pathology the errors which he saw most frequently were the result of a too favorable prognosis, based upon a wrong diagnosis. He said he had seen so many mistakes in the diagnosis of tumors which were to him glaringly conspicuous that he could not but speak strongly upon the subject. It was a conservative estimate, he was sure, to place the number of operable new growths allowed to go from a stage that was favorable to operation to one that was unfavorable or hopeless, at at least ten per cent. By far the largest proportion of errors were in the hands of physicians who were not experts in the diagnosis of tumors. Errors in the diagnosis of tumors were common. That his hearers and readers might appreciate the difficulty of accurate prediction, the frequency of errors, and the impossibility of always avoiding them, he referred briefly to a number of mistakes he had made. The older one got, the more charitable one felt toward error. He said he knew of no more intolerant physician than the man who was just beginning his practice, and he knew of no more tolerant and charitable physician than the man who had had many years of intimate contact with disease. Neoplasms affecting the long bones should always excite a suspicion of malignancy, no matter who made the diagnosis of benignancy, and a suspicion so strong as to indicate operation if that suspicion was entertained at an operable stage. While his experience in operative surgery for trivial functional disturbances led him to question with the greatest care the indications for operation and usually to decide against operation, similar experience with neoplasms had led him toward extreme radicalism both in benign and malignant disease. The physician, whether expert or not in the treatment of neoplasms of all kinds and in all places, should always distrust his prognosis except in a prognosis based upon evident inoperability and impending death. Even when the diagnosis of hopelessly inoperable cancer had been made, not a few examples of mistaken diagnosis could be given, mistaken diagnosis on the part of the most experienced followed by non-operative recovery. The interpretation of abdominal pain required great skill and experience. The error he attributed to a functional disturbance, a pain, that was really dependent upon an organic lesion. The physician must distrust his judgment when he called abdominal pain of little or no moment. Probably most of the fatal emergencies of abdominal disease could be successfully resisted if abdominal pain were immediately heeded. All the infections would be at once discovered were the pain that they cause immediately and accurately interpreted. The physician always encountered these emergencies first. It was for him to make his diagnosis and his prognosis. In making them he must never forget that a favorable prognosis, based upon a wrong interpretation of acute abdominal symptoms, chiefly pain, meant a loss of the main chance for recovery. The fatalities in acute abdominal disease then were owing to a non-recognition of early infections, and especially of the significance of pain. The accidents of convalescence seemed to him the hardest to bear with philosophy, especially if they were avoidable accidents. The relations between the general practitioner and the surgeon had always been, and always would be, close. Their interests were the same, and they should work in harmony, real, cordial downright friendship. What concerned the welfare of the one, equally concerned the other. Some of the postoperative accidents came with awful unexpectedness, and he recalled some cases in his experience, one a case of pulmonary embolism, another a case of postoperative phlebitis. The chief thing to guard against in convalescence was hemorrhage. The subject of hemorrhage raised in his mind many spectres of unhappiness and gloom; he said he had passed many an hour fighting against the inevitable; or, worse than all wavering between operative and nonoperative treatment in a case of suspected hemorrhage. Fortunately, most postoperative hemorrhages were easily controlled if they were discovered in time. The common experience in our profession was for the surgeon to shift to the shoulders of the physician the responsibility of most surgical failures. Surgeons owed so much to the general practitioner that they should be generous, particularly in that form of generosity which assumed as far as possible the burdens of failure. Speaking as a surgeon, he had learned to distrust himself in surgical matters; his daily life was a constant endeavor to perfect himself in those branches of the surgical art in which he for one was most open to distrust. Chief among those were diagnosis and indications for treatment, with the greatest emphasis laid upon the contra-indications to surgical operations. Perhaps the most frequent error on the surgeon's part was in the diagnosis of gallstones. He recalled a few cases in which explorations had failed to show them after a pretty positive diagnosis. Perhaps once in fifty operations they found no gallstones. The successes of surgery amazed him. The more intimate and correlative the two great divisions of medicine, the more effective and brilliant will be the results of their interdependence. What was needed was as intimate a re-

lationship between medicine and surgery as could possibly be brought about, a generous and friendly intimacy.

The Influence of Overweight and Underweight on Vitality.—Dr. Brandreth Symonds of New York, Medical Director Mutual Life Insurance Company, read this paper (to be published in a later issue).

Report of a Case of Excision of the Stomach for Carcinoma.—Dr. Edward Staehlin of Newark made this report and presented the specimen. The growth involved the entire pylorus and there was a complete stenosis. The patient was a woman, fifty-three years of age. She suffered from indigestion for three years, and this became more and more distressing. Soon all solid food was gradually eliminated. Six weeks prior to operation she lost weight at the rate of three pounds a week. She became much emaciated. The abdomen was very flabby. In the epigastric region a soft and smooth mass could be felt. It was movable. A diagnosis of carcinoma of the pylorus with stenosis was made. The pylorus and five-eighths of the stomach was removed. She made an uneventful recovery. To-day she was in Europe with normal weight and appearance. Her endurance was good. She ate often but little.

Tetanus, Its Prevention and Treatment.—Dr. J. Harris Underwood of Woodbury read this paper. A clear description of this disease was given in the sixteenth century by Ambroise Paré. Sternberg in 1880 produced experimental tetanus in animals, and threw new light on its etiology. He gave a description of the disease. The bacillus remained at the site of injury and there manufactured its toxin. A thorough disinfection of the wound should be made with bichloride of mercury (1-1,000) or a solution of carbolic acid. The latter should not be used in pure form because it coagulates the albumin and so helped in defeating the object aimed at. The treatment aimed at controlling the spasm, overcoming the effects of the toxins and supporting the patient. He closed his paper by a relation of cases.

Friday, June 19—Second Day.

Annual Address by the Third Vice-President.—Dr. Thomas H. Mackenzie of Trenton made this address, choosing for his topic "A Brief Review of Hernia, as Understood and Treated at Different Epochs by the Past and Present Masters of Surgery." Up to the eighteenth century the treatment of hernia was in the hands of itinerant quacks and it was said that one of these was in the habit of feeding his dogs with the organs removed. It was said that one in five was afflicted with hernia. He gave a brief description of the crude methods practised by ancient surgeons in this country and abroad. He told of the evolution and trend of medical thought from the most remote periods to the present time, and considered the truss as a retaining and curative apparatus. He spoke of the etiology of inguinal hernia as bearing upon the technique in obtaining a radical cure. Among the predisposing causes was the congenital or preformed sac. This occurred in seventy-five per cent. of male subjects; in the other twenty-five per cent. various degrees of patency might be found. Other causes were inordinate size of the normal outlet of the inguinal region, distension of the abdomen by ascites, etc. Exciting causes included lifting, jumping, and whatever caused increased abdominal pressure. Dr. Coley reported 2,032 cases of inguinal hernia operated on with but one death. He also reported 1,185 cases of inguinal hernia operated on by the Bassini method with but nine relapses. Dr. Mackenzie reported 280 cases of hernia operated upon by him; there were ten umbilical, five femoral and 265 inguinal. In forty of these cases the operation was done because of strangulation. A radical cure should be obtained in 99.7 per cent. of the cases. Among the things necessary for success were the following; primary union was a *sine qua non*, and this meant asepsis; the sac must be dissected and completely removed; the funicular process must be removed; the conjoined tendon must be sutured to the under part of Poupart's ligament. The brilliant result obtained by the present-day methods was as true for femoral as it was for inguinal hernia.

Acute Intestinal Obstruction.—Dr. Robert M. Curts of Paterson read this paper. The recognition of the condition within thirty-six hours was the object of the paper. There was no disease which called for such refinement of diagnostic acumen as in this stoppage of the intestinal canal. From an anatomical point of view there were few points where the affection might not occur. He briefly mentioned volvulus or twisting of the intestines, especially the sigmoid; stricture of the bowel resulting from previous lesion or a strangulated hernia; fecal impaction, usually in the large intestine; gallstones; peritonitis with adhesions; bands; hernia and all forms of external hernias; intussusception. As regards the relative frequency he quoted Gibson's figures as follows: strangulated hernia, 354 cases with mortality of 37 per cent.; intussusception, 187 cases with mortality of 50 per cent.; bands, 186 cases, with mortality of 41 per cent.; volvulus, 121 cases, with mortality of 84 per cent.; Meckel's diverticulum, 42 cases, with mortality of 62 per cent.; gallstones, 40 cases with mortality of 57 per cent.; apertures, 34 cases with mortality of 62 per cent.; foreign body, 16 cases, with a mortality of 25 per cent.; diaphragmatic hernia, six cases, with a mortality of 100 per cent. He confined his remaining remarks to a consideration of acute intussusception, with the chief diagnostic points of bloody mucus, constant tenesmus, tumor, etc. So soon as diagnosed immediate operation was called for.

Dr. T. W. Harvey of Orange said that intestinal obstruction should be considered a surgical disease. Early operation for intestinal symptoms had eliminated many cases of intestinal obstruction. In his experience, to be successful, operation must be done within twenty-four hours after obstruction. An important point was in deciding whether or not a complete or incomplete operation should be done.

Clinical Features and Treatment of Acute Perforating Gastric and Duodenal Ulcer.—Dr. Ellsworth Eliot, Jr., of New York read this paper, which was based upon ten cases, eight of duodenal and two of gastric perforating ulcer. Gastric ulcers occurred more frequently in women, and between the ages of 20 and 30 years. Duodenal ulcers occurred more frequently in men, particularly those of alcoholic habits, and between the ages of 30 and 40 years. Always search for a second ulcer on the posterior surface of the stomach, directly opposite the one situated on the anterior surface. The symptoms prior to perforation depends upon the country. In this country 68 per cent. had a prior history; in the balance perforation occurred without history. Abroad the proportion was much less. In five or ten per cent. the perforation occurred without prior history, while in 90 per cent. there was some history. Vomiting occurred in two-thirds of all cases. Dr. Eliot demonstrated his method of making a physical examination of a patient with either form of ulcer. Blood count, the leucocytosis, was of particular value in obviating a needless operation. A patient with leucocyte count of 20,000 or 30,000 when promptly operated on would get well; whereas if the count was 15,000 or under he would probably die when operated upon. The treatment of the perforation required an early laparotomy. A general anesthetic should be given, chloroform by preference. The site of perforation should be freely exposed. The prognosis was very good if the operation was done within twelve hours. The perforation was closed by many ways, such as a mattress suture, or purse string suture reinforced by a Lembert suture. Some surgeons use adjacent viscera in closing the opening. An excision of the ulcer he believed to be a dangerous procedure. The treatment by gastrostomy he condemned. The amount of cleansing of

the peritoneal cavity depended upon the amount of soiling. He preferred using irrigation rather than sponging. The less drainage the better. But with general peritonitis, drainage must be used above and below. He brought up the question whether or not a gastroenterostomy was necessary as an addendum. He believed it was in cases where stenosis existed. It also prevented undue tension upon the sutures, and tended, too, to prevent hemorrhage. A gastroenterostomy was said to aid in the prevention of a secondary perforation. In a review of the literature he could find but two cases in which the time limit was given in relapses after operation; *i. e.*, how long the patient was free of symptoms. In one it was one year, in the other it was four years after operation.

Dr. Gordon K. Dickinson of Jersey City spoke of the constitutional states of the patients in these cases, because of the pouring into the duodenum of noxious or toxic materials. The treatment of these ulcers was largely preventable; if the patient was anemic and had gastric or duodenal symptoms he should be carefully watched.

Dr. James S. Brown of Montclair said his personal experience was with but six cases with a mortality of 70 per cent. The cases were seen too late. The last patient was treated for six days by Christian Science before operation.

Remote Pain Following Abdominal Operation.—Dr. William E. Darnall of Atlantic City read this paper. It was his opinion that abdominal pain was transmitted by the nerves in the parietal peritoneum. It was claimed that a large proportion of the cases of constipation and flatulence was due to adhesions following abdominal operations. The bowels always should be handled as little as possible in order to eliminate the danger of peritoneal adhesions as much as possible. In abdominal surgery the operation should never be attempted unless the abdominal muscles were completely relaxed. No raw surfaces should be left exposed if adhesions were to be prevented.

Dr. Elsmore Stites of Bridgeton said that in estimating the diagnostic value of pain they should remember that pain varied greatly in different individuals. The character and location of the pain should be carefully considered and particularly whether accompanied by fever or not. He believed that too often they were led to attempt to relieve by operative procedures conditions that were entirely due to nerve exhaustion.

Reflex Gastric Symptoms, a Factor in Surgical Disease of the Abdomen.—Dr. John P. Reilly of Elizabeth spoke of the importance of reflex gastric symptoms in the early recognition of pathological lesions. Because of these symptoms mistaken diagnoses were often made; gastric symptoms were present at times when the lesion was not in the stomach. Many times diseases existed in the gall bladder, the duodenum, and appendix with reflex gastric symptoms. One man had reported forty-nine gall bladder cases, and in every one the most prominent symptom was gastric disturbance.

Election of Officers.—*President*, Dr. David St. John of Hackensack; *First Vice-President*, Dr. Benjamin A. Waddington of Salem; *Second Vice-President*, Dr. Thomas H. MacKenzie of Trenton; *Third Vice-President*, Dr. Daniel Strock of Camden; *Corresponding Secretary*, Dr. Harry A. Stout of Wenonah; *Recording Secretary*, Dr. William J. Chandler of South Orange; *Treasurer*, Dr. Archibald Mercer of Newark. The next meeting will be held at Cape May on the fourth Wednesday, Thursday, and Friday of June, 1909.

Institute for Inebriates.—Dr. Alexander Marcy, Jr., offered the following resolution, which was carried unanimously: *Resolved*, That the Medical Society of New Jersey places itself on record as being in favor of the establishment of a State institution for the care and treatment of inebriates.

Acute Anterior Poliomyelitis, with Special Reference to the Recent Epidemic.—Dr. David T. Bowden of Paterson read this paper. He briefly reviewed the recent epidemics and gave a classical description of the disease.

The Importance of Studying the Condition of the Heart Muscle in Various Diseases.—Dr. Hobart A. Hare of Philadelphia read this paper, dealing with the muscle changes which often occurred, so often that in all probability all persons presented them in more or less degree at some time in their lives, usually in advanced years. Not rarely patients presented themselves with symptoms which were not distinctly cardiac, and it was only by careful heart study that they were able to determine that the general impairment of mental and physical energy was dependent upon a poor circulation. The pulse was found to be small and feeble, the tension unduly low, and the heart sounds poorly accentuated. The condition giving rise to this state was usually an excess of nerve-exhausting work or an illness which had sapped the vitality of the patient. Closely associated with this class of patients was that class who suffered from prolonged feebleness of the heart after an attack of true influenzal infection. What the exact changes in the heart were under these circumstances had not been determined, but they saw them clinically. Such patients often suffered from faintness and precordial distress in exertion. They were pallid and relaxed, and really needed rest and hydrotherapeutic measures more than the internal use of drugs. Dr. Hare was often impressed with how little attention was paid to the feeble heart of tuberculosis. He called attention to a sound not described in the textbooks and characterized by a peculiar vibrating, tense sound resembling somewhat the sound "ching" when somewhat muffled, and which seemed to him to be due to imperfect systole with vibration of the chordæ tendineæ due to feeble and weak heart muscle. The condition of the heart as the result of overstrain he divided into three parts: The condition immediately after acute overstrain, the condition after chronic overstrain, and the final condition often met with months or years after these types of strain had passed away. He reported the case of a wealthy merchant who concluded that his loss of vigor depended upon lack of exercise; he took a long race on the road against his son and nearly fell to the ground after alighting. He refused to go home except on his bicycle, and on reaching home went to bed with a dilated, feeble heart, from which he speedily died. His heart needed rest and not exercise. Such hearts often sounded when they listened to them as if they were beating vainly in an endeavor to accomplish something and were well described by calling them "pigeon-wing hearts," hearts that were beating violently as did a pigeon's wings when it first took a hurried flight or was in a cage. It was remarkable how often they met with hearts which were distinctly damaged by prolonged nervous worry. The victims of great mental strain not rarely have developed actual organic and degenerative changes in the heart muscle and blood vessels. The late Dr. Pepper, who died of angina at the age of fifty-five years, and whose coronary arteries were wonderfully sclerotic, while the circle of Willis was wonderfully calcareous, illustrated this very well, yet he never drank to excess, nor was he the subject of gout or rheumatism. Here was a man who, with vast mental responsibilities, lived two lives in less than the years usually given to one, and so produced cardio-vascular changes many years before they might have developed in the course of ordinary natural causes. That these changes were the result of nerve strain more than infection or exposure was shown by the frequency of those states in the officers of great corporations and their infrequency in the men who performed manual labor. There can be no doubt that one cause of this lay in the great increase in heart action required by mental effort, accompanied as it was by nervous waste without the compensation of long periods of

rest, of outdoor exercise and fresh air. The large demands upon the circulatory system for an execess of blood to maintain the excessive activity began to call upon the blood vessels so that they diminished their caliber under the high nervous tension of the individual, and this again made demand upon the heart, with the result that the final period of life, above sixty-five years, according to Benecke, was hurried upon a man who became prematurely aged, for after this age the fibroid changes coincident with advanced years resulted in an arterial rigidity which not only increased arterial tension at all times, but particularly so whenever any exertion was made, thereby throwing a very great strain upon the heart, which was correspondingly unable to meet it, although it attempted to do so by the hypertrophy of old age, which made it equal its size at forty-five years.

Dr. Philip Marvel of Atlantic City said that there had been referred to: (1) The changes arising within the circulation; (2) the changes primarily outside the circulation; (3) the changes that seem to have their origin primarily within the nervous symptoms or faulty disturbances of nutrition. In the second class there was a mixed condition, a primary involvement of, the circulation as well as the nutritive changes taking place simultaneously with the sclerotic changes.

Dr. Martin J. Synnott of Montclair said that myocardial changes respond to the carton dioxide baths as administered at Manheim, Germany. He had six patients treated at the artificial Manheim, Watkins Glen, N. Y., and with good results.

Alexander Marcy, Jr., of Riverton emphasized the importance of rest in the treatment of myocardial cases.

The Psychic Element in Medical Practice.—Dr. Linn Emerson of Orange read this paper. Most of general practitioners were grossly and harmfully ignorant, not only of the subject of psychology, but of all the sciences which at best could be said to be but in their infancy. The science of medicine had but recently emerged from the ignorance and superstition of the dark ages. There had always been associated with the healing art a certain mysticism. The unprincipled quack, by the very emphasis of pretended knowledge and promises of cure often brought about a restoration to health where the more skilled but more conscientious practitioner had failed. If the ignorant irregular could bring about so many cures by these methods, how much more should be accomplished by the scientific, careful, conscientious man. Many physicians refused to avail themselves of these means at their disposal, having no desire to be designated either a quack or a liar. The truth should be spoken at all times, and the successful physician must sometimes be a most skillful prevaricator. A promise to benefit or cure made in all hope and sincerity might eventuate a falsehood but not necessarily a lie. Many practitioners who were taking advantage of mental therapeutics and getting wonderful results thereby, were doing it unconsciously. The results accomplished by electrotherapeutic measures, massage, vibrators, fitting of glasses, gynecological tinkering, or even by some operations, were as much due to psychic as to material methods. The success of Christian Science and mental healing was undeniable, and the neglect of this phase of the healing art on the physician's part was in some measure responsible for their existence. The remedy would seem to be higher educational requirements for admission to the medical ranks and a more careful study of psychic phenomena by all members of the profession.

Dr. W. M. Leszynsky of New York believed that a discussion upon this subject should be more intellectual than emotional. There was an increasing majority of men in the medical profession who deem the present psychotherapeutic agitation worthy of careful consideration and analysis. Psychotherapy should not be characterized as a method confined to certain forms of psychological analysis, persuasion, and hypnotic suggestion to the subconscious mind. Within its sphere one must include isolation, educational measures, physical, moral, and intellectual, healthful occupation, and diversion, encouragement, etc. The man who, without discrimination, thoughtlessly told his patient that there was no hope for him, was not a desirable representative of intelligent psychotherapy. Special methods of psychotherapy, such as the reeducational method of Dubois, Freund's analytical method, and hypnotic suggestion, all had their limited fields of usefulness. But psychotherapy alone could not successfully supplant a rational plan of modern medical treatment adapted to the individual, and based upon regulation of habits, and occupation, hydrotherapy, physical exercise, etc., in conjunction with moral management through suggestion, persuasion, educational and disciplinary measures. Psychotherapy was by no means a panacea in the phychoneuroses, its usefulness being limited.

Saturday, June 20—Third Day.

A Résumé of Modern Methods of Treatment for Posterior Displacements of the Uterus.—Dr. J. Watson Martindale of Camden read this paper. By displacement he meant a permanent departure from the normal position. Among the congenital causes, there was a backward displacement of the axis or curving forward of the axis itself. This was usually accompanied by an imperfect development of the ovaries and tubes, as well as the uterus itself. Among the acquired causes, he mentioned strains, tumor pressure, contracting adhesions, laceration of the pelvic floor, subinvolution after labor, congestions, loss of muscular tone, faulty dress, etc. He did not believe one could have a prolapse of uterus without a downward displacement. One might have a retroverted uterus without symptoms whatever. He quoted some gynecologist, who said that so long as a woman had her uterus in her abdomen she was all right; but as soon as it was in her head, she was all wrong. Drawing down the cervix with a tenaculum usually enabled one to restore a retrodisplaced uterus, if nonadherent to its normal position. If the uterus was bound down by adhesions it had better be left alone, unless one was prepared to do a section. In cases of procidentia it was impossible to effect a cure without repairing the pelvic floor. The subject of his paper was to point out the advantages and disadvantages of each method of treatment. The treatment primarily aimed to repair the pelvic floor; second, to bring the uterus into a position of anteflexion. The technique of the Alexander operation was described and illustrated by colored drawings. He then described the technique of vaginal fixation with an anterior colporrhaphy, an operation which was indicated in cases of cystocele in patients beyond the child-bearing period. In this operation there should be a repair of the pelvic floor. The results in the cases he had seen were excellent. He then described ventral fixation, which was indicated in women with procidentia, and who were beyond the child-bearing period. An anterior colporrhaphy and amputation of the cervix should be done as well. This operation was not so successful as the vaginal fixation. Other operations for shortening the round ligaments were described. Where the round ligaments were made to pierce the fascia, one would think it would invite hernia; but Dr. Martindale had never heard of such a sequela. He closed by describing the retroperitoneal shortening of the round ligaments.

Dr. Edward Staehlin of Newark said that in women in or beyond the menopause with complete procidentia he recommended a vaginal hysterectomy rather than the methods described by Dr. Martindale. From the fact that so many methods are described for the restoration of the pelvic floor showed that the present means were inadequate. An anatomical repair of the perineum should be aimed at. The binders in vogue at the various maternity hospitals were causative factors in the production of re-

troversions of the uterus. The use of the sound was often a pernicious habit.

Dr. Edward J. Ill of Newark had had a larger experience with the Gilliam operation. He had done 500 operations with less than ½ per cent. of failures, a remarkable showing. The fibroperitoneal adhesions were very strong. Mayo had drawn from an inch to an inch and a half of peritoneum in, and Dr. Ill thought that Dr. Mayo must meet with many cases of subfascial hernias. When Dr. Ill saw Dr. Mayo operate, the latter had done this operation on 245 cases.

Dr. Frank D. Gray of Jersey City referred to the good results he had had with the Webster operation for retrodisplacement. In two cases he had met with an imprisoned ovary under a retroflexed uterus. This could not be done without dissection, which should be done more often.

Dr. Thomas W. Harvey of Orange referred to curing retrodisplaced uterus by advising the woman to become pregnant and giving proper subsequent care.

Dr. Edward J. Ill of Newark called attention to an article on this subject by the late Dr. Paul F. Mundé, in which were given statistics showing that but 3 per cent. get well.

The Drink Habit and Its Treatment.—Dr. Charles A. Rosenwasser of Newark read this paper. He said that to the learned men of the day it was apparent that the use of fermented liquors was injurious to the health and morals of the nation, and a vigorous campaign in the cause of temperance had been begun. In attempting to cure a patient the greatest obstacle one met was the nature and make-up of the patient. He could not see himself as others saw him, and should, therefore, be approached very tactfully. The treatment must cover months, and consisted in studying the patient and applying in each case the remedies called for. The underlying cause for the craving of alcohol might be difficult to locate. There was no one remedy that would cure all cases. The drink habit could not be cured against the will of the victim; and, without his cooperation, a cure was an absolute impossibility. In most cases the treatment of the drink habit resolved itself into nothing more nor less than the treatment of an aggravated case of neurasthenia. One could achieve success in a gratifying number of cases if one would go about it in the right way. Dubois said, "The nervous patient was on the path to recovery as soon as he had the conviction that he was going to be cured; he was cured on the day that he believed himself cured." This statement held good in the drink habit more truly than elsewhere. The treatment in the beginning must be purely psychic. Having won the confidence of the patient, the practitioner must make good his promises. This could be done in a surprisingly large number of cases without requiring the detention of the patient. Treatment, to be effective, had to be systematic. The speaker's patients reported three times daily during the first two or three days, then twice a day for the balance of the first week; during the next three weeks they reported once daily. He then saw them once a week for a month; then once every two weeks. Then once a month for as long a time as he could get them to come. He did not tell the patient what medicine he was receiving, and gave every dose himself as far as possible, to be sure that instructions were being carried out and to prevent self-drugging, which was very prone to develop in this class of patients. He always urged the patient to stop drinking entirely at once, and not to "taper off," as that was like cutting off a dog's tail by inches. He secured free purgation at the outset by compound cathartic pills, fortified with podophyllin, and kept the bowels rather loose for the first few days. He gave atropine grain 1/1000, three times daily, for two or three days, then diminished the dose, and discontinued at the end of the first week unless further treatment was indicated. He also gave arsenious acid, 1/20 grain, three times daily for a few days, then twice daily for the balance of the week. Sedatives and hypnotics where conditions called for. For vomiting due to alcoholic gastritis there was nothing to compare with calomel given in ¼-grain doses every half hour for ten doses, and followed five hours after the last dose with a Seidlitz powder. For gnawing in the stomach, he gave quassia or milk of magnesia. During the second and third weeks he gave 15 grains of red extract of cinchona suspended in glycerin and water every night and morning. Beginning with the fourth week, and continuing for several months, his patients received a tonic pill containing phosphorus, strychnine, iron, arsenic, quinine, and cascara. All medication was given by the mouth, except apomorphine, which was given hypodermically. The diet should also receive attention. The patient should be encouraged to eat freely, and at short intervals, large quantities of wholesome, nourishing food. Meat should not be taken more than once daily; the closer these patients adhered to vegetable diet the better. He told the patients to keep their stomachs busy digesting food, and they would not bother them for drink. He advised them to take some slight nourishment on the slightest sensation of fatigue or emptiness.

Dr. Livingston S. Hickley of Newark said that many continued drinking without disastrous results. The effect of the drink habit upon the progeny was debatable. The death rate due to alcohol was worthy of consideration. Why men took alcoholic stimuli was largely a question of individualizations. Forty million of our population had been restrained from drinking because of the popularity of prohibition. He believed the real solution of the drink problem rested in education, beginning with the child. A bill was introduced in 1903 for the purpose of establishing a State hospital for inebriates, passed the Assembly, but failed to reach the Senate. The name of this institution was to be the New Jersey Psychopathic Hospital.

Dr. Alexander Marcy of Riverton believed the paper needed no discussion. One important thing to ask was the duty of the State in this matter. The State owed to these patients and their families something more than the regulation of the sale of intoxicants. Probably the time was not ripe for the prohibition of the sale of any intoxicants in this State, but he hoped the time would soon come. Until such a time the institution of a State hospital for inebriates should be aimed at.

Study of Tropical Diseases.—A report of the Advisory Committee for the Tropical Diseases Research Fund has been issued as a bluebook. The revenue for last year was £3,075 and the expenditure £2,433. The Liverpool school employed its grant for a lectureship in economic entomology and parasitology and has asked for a further grant. The committee has allotted an extra £500 to be applied definitely to work in connection with sleeping sickness, a program to be submitted in advance. In response to a similar application the committee has allotted an extra grant of £1,000 to the London School to establish a post entomology on condition that the entomologist shall make a collection of noxious insects of the colonies, a separate collection for each colony, to be kept in readiness for reference by colonial officials or doctors. In reply to a request of the Secretary of State as to sleeping sickness in Uganda, the committee has advised that the following measures be adopted: (1) Segregation of all persons infected in camps situated in places free from glossina; (2) removal of the apparently healthy from fly-infected areas, and (3) the clearing of such bush as would afford shelter for the fly at all fords, ferries, landing places and sources of water supply, for a limited area, such cleared areas to be kept free of bush and cultivated with low-growing crops which could not afford suitable shelter for the fly. Steps are now being taken to carry these recommendations into effect. In regard to the encouragement and systematization of research the bluebook states that a dispatch has been sent to the Governors of those colonies in which laboratories exist, suggesting the preservation of the results attained by research in those laboratories so as to make them accessible to the successive officers in charge.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

COSMETIC SURGERY (Second Edition). By CHAS. C. MILLER, M.D. 16mo, 134 pages, illustrated; cloth, $1.50. Charles C. Miller, Chicago.

INTERNATIONAL CLINICS. Edited by W. T. LONGCOPE, M.D. 8vo, 309 pages, illustrated: cloth. J. B. Lippincott Company, Philadelphia.

THE COMMON SENSE OF THE MILK QUESTION. By JOHN SPARGO. 12mo, 351 pages, illustrated; cloth. The Macmillan Company, New York.

AMERICAN PRACTICE OF SURGERY. By JOSEPH D. BRYANT, M.D., LL.D., and ALBERT H. BUCK, M.D. 4to, 1,010 pages, illustrated: cloth. William Wood & Company.

AN ABRIDGMENT OF PRACTICAL MEDICINE AND ALLIED SCIENCES. By J. CANDOR MCLAUGHLIN. 48mo, leather, 524 pages. J. Candor McLaughlin, Kansas City.

THE BACTERIOLOGY OF DIPHTHERIA. Edited by G. H. F. NUTTALL, M.D., Ph.D., Dc.D., F.R.S., and G. S. GRAHAM-SMITH, M.A., M.D. 4to, 718 pages, illustrated; cloth, $7.50. G. P. Putnam's Sons, New York.

THE BORDER-LAND OF EPILEPSY. By SIR WILLIAM R. GOWERS, M.D., F.R.C.P., F.R.S. 8vo, cloth, 121 pages; $1.25. P. Blakiston's Son & Company, Philadelphia.

PRACTICAL LIFE INSURANCE EXAMINATIONS. By MURRAY ELLIOTT RAMSEY, M.D. 12mo, 231 pages; cloth. J. B. Lippincott Company, Philadelphia.

NURSING THE INSANE. By CLARA BARRUS, M.D. 8vo, 409 pages; cloth. The Macmillan Company, New York.

GLIMPSES OF MEDICAL EUROPE. By R. L. THOMPSON, M.D. 8vo, 236 pages; cloth. J. B. Lippincott Company, Philadelphia.

THE SPECTROSCOPE; ITS USES IN GENERAL ANALYTICAL CHEMISTRY. By T. THORNE BAKER, F.C.S., F.R.P.S., 8vo, 130 pages, illustrated; cloth, $1.75. William Wood & Company, New York.

HERNIA; ITS ETIOLOGY, SYMPTOMS, AND TREATMENT. By W. MCADAM ECCLES, M.S. (Lond.), F.R.C.S. (Eng.). 8vo, 234 pages, illustrated; cloth, $2.50. William Wood & Company, New York.

MINOR MALADIES AND THEIR TREATMENT. By LEONARD WILLIAMS, M.D., M.R.C.P. 12mo, 404 pages; cloth, $2.50 net. William Wood & Company.

INJURIES OF NERVES AND THEIR TREATMENT. By JAMES SHERREN, F.R.C.S. (Eng.). 12mo, 310 pages, illustrated; $2.00 net. William Wood & Company.

PROTOZOA AND DISEASE. By J. JACKSON CLARKE, M.B. (Lond.), F.R.C.S. 8vo, 138 pages, cloth, illustrated; $2.50 net. William Wood & Company.

KOSMETIK. By Dr. E. SAALFELD. 8vo, 122 pages; cloth, $3.60; illustrated. Julius Springer, Berlin.

ROTUNDA MIDWIFERY FOR NURSES AND MIDWIVES. By G. T. WRENCH, M.D. 12mo, 324 pages; cloth. Oxford University Press, New York.

THE HISTORY OF THE STUDY OF MEDICINE IN THE BRITISH ISLES. By NORMAN MOORE, M.D, Cantab. 8vo. 202 pages, illustrated. Clarendon Press, Oxford.

A MIND THAT FOUND ITSELF. By CLIFFORD WHITTINGHAM BEERS. 8vo. cloth, 363 pages, $1.50 net. Longmans, Green & Co., New York.

LES PSEUDO-BACILLES ACIDO-RESISTANTS. By Le Dr. ANDRE PHILIBERT. Large 8vo, 142 pages; paper. G. Steinheil, Editeur, Paris.

LIFE INSURANCE AND GENERAL PRACTICE. By E. M. BROCKBANK, M.D. (Vict.), F.R.C.P. 12mo, 288 pages, half morocco. Oxford University Press, New York.

THE BLUES: CAUSES AND CURE. By ALBERT ABRAMS A.M., M.D. (Heidelberg), F.R.M.S. 8vo, 286 pages, illustrated; cloth, $1.50. E. B. Treat & Co., New York.

BRADYCARDIA AND TACHYCARDIA. By Prof. EDMUND VON NEUSSER. 8vo, 150 pages; cloth, $1.25. E. B. Treat & Co., New York.

ARTERIAL HYPERTONUS, SCLEROSIS AND BLOOD-PRESSURE. By WILLIAM RUSSELL, M.D., F.R.C.P. (Edin.). 8vo, 101 pages, illustrated; cloth. J. B. Lippincott Co., Philadelphia.

MANUAL OF SURGERY. By ALEXIS THOMSON, F.R.C.S., Ed., and ALEXANDER MILES, F.R.C.S., Ed. (Vol. I., General Surgery). 12mo, 808 pages, illustrated; cloth. J. B. Lippincott Company, Philadelphia.

MANUAL OF SURGERY. By ALEXIS THOMSON, F.R.C.S., Ed., and ALEXANDER MILES, F.R.C.S., Ed. (Vol. II., Regional Surgery). 12mo, 816 pages, illustrated; cloth. J. B. Lippincott Company, Philadelphia.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 4, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	374	150
Diphtheria	243	28
Measles	472	15
Scarlet Fever	244	23
Smallpox	—	—
Varicella	54	—
Typhoid Fever	37	8
Whooping Cough	17	5
Cerebrospinal Meningitis	—	2
Malarial Fever	—	—
Totals	1441	231

Health Report.—The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 3, 1908:

			Cases.	Deaths.
SMALLPOX—UNITED STATES.				
Alabama, Huntsville	June	5–18	85	..
Mobile	June	7–13	1	..
Arkansas, Texarkana	Dec.	1–June 15	..	Present
California, Los Angeles	June	7–30	3	..
Oakland	May	1–31	12	..
San Francisco	June	6–20	11	..
District of Columbia, Washington	June	14–20	7	..
Illinois, General	May	1–31	288	..
Chicago	June	14–20	4	..
Indiana, General	Apr.	1–30	293	..
Kansas, General	Apr.	1–30	432	..
Kansas City	June	8–15	3	..
Topeka	June	8–15	3	..
Kentucky, Covington	June	21–27	3	..
Louisiana, New Orleans	June	14–20	6	..
Missouri, Conway	Apr.	20–June 19	29	..
Kansas City	June	14–20	2	..
St. Louis	June	14–20	1	..
St. Joseph	June	7–20	9	..
Nebraska, Friend	Apr.	13–June 18	13	..
South Omaha	June	7–13	1	..
New York, New York City	June	14–20	1	..
Niagara Falls	June	14–20	1	..
North Carolina, General	Apr.	1–30	161	..
Ohio, Cincinnati	June	20–26	4	..
Dayton	June	14–20	4	..
Tennessee, Nashville	June	14–20	1	..
Texas, Fort Worth	May	1–31	9	..
San Antonio	June	14–20	2	..
Utah, General	May	1–31	33	..
Virginia, Alexandria	June	25–27	13	..
Washington, Spokane	June	7–20	25	..
Tacoma	June	8–14	1	..
Wisconsin, La Crosse	June	16–20	4	..
SMALLPOX—FOREIGN.				
Arabia, Aden	May	28–June 1	..	2
Austria, Galicia	May	24–30	1	..
Brazil, Rio de Janeiro	May	11–24	364	153
Santos	May	3–10	8	1
Canada, Nova Scotia—Halifax	June	14–20	6	..
Ceylon, General	Apr.	1–30	..	2
China, Hongkong	May	10–16	3	1
Shanghai	May	3–24	..	4
Egypt, General	May	14–20	77	10
Cairo	May	30–June 3	6	2
Suez	May	6–20	5	..
Formosa	May	2–9	1	..
France, Paris	May	31–June 6	1	..
Marseilles	May	1–31	..	2
Great Britain, Liverpool	Apr.	30–June 6	1	..
India, Bombay	May	20–26	..	31
Calcutta	May	10–16	..	16
Italy, Catania	May	22 June 11	..	1
Naples	May	31 June 6	2	..
Palermo	May	24–June 6	7	..
Japan, Nagasaki	May	17–24	1	..
Osaka	May	10–16	20	17
Java, Batavia	May	10–16	3	..
Mexico, Aguascalientes	June	8–14	..	3
Mexico City	May	10–16	..	10
Monterey	June	8–14	..	1
Philippine Islands, Manila	May	3–June 9	11	4
Russia, St. Petersburg	May	17–30	49	12
Warsaw	Apr.	25–May 9	..	2
Spain, Barcelona	June	1–10	..	1
Valencia	June	1–6	17	..
Turkey in Europe, Constantinople	June	1–7	..	7
CHOLERA.				
India, Bombay	May	20–26	..	1
Calcutta	May	10–16	..	109
Madras	May	16–22	..	3
Straits Settlements, Singapore	May	10–16	..	1
YELLOW FEVER.				
Brazil, Manaos	May	26–30	2	2
Para	May	31–June 6	4	4
PLAGUE.				
Brazil, Rio de Janeiro	May	11–17	4	..
China, Hongkong	May	10–16	88	65
India, General	May	9–16	6,720	5,708
Bombay	May	19–26	..	148

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Original Articles.

THE STANDARD OF MEDICAL EDUCATION.*

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THERE has arisen in recent years a general demand that some attempt should be made to set a uniform standard of medical education and to pass upon the attainment of the individual who offers himself to the community as a practitioner. There are four agencies which have taken a prominent part in establishing standards for medical education, and it is worth our while to consider briefly each of them together with the part it has played and the part it may be expected to play both in the establishment of a legal standard and in the molding of public opinion. These four agencies are the American Academy of Medicine, the Councils on Medical Education, representing the various national medical associations, the State Boards of Licensure, both individually and collectively in their associations, and our own organization, the Association of American Medical Colleges.

The American Academy of Medicine was founded more than a third of a century ago with the expressed intention of raising the standard of medical education by requiring for membership in the body that the element of liberal culture represented by a college education must precede the professional training. During its history a prominent feature in the meetings of the Academy have been the symposia on medical education in its various phases and stages. The Academy deserves the honor of having first pointed out clearly and definitely that there was no system in the relations between the literary college education and the professional course, and that by virtue of this lack of correlation grave injustice was frequently done to the student having the better preparation.

The Academy, however, necessarily has no official influence; its power is the weight of public opinion, its influence will be measured by its ability to form and control public opinion. That influence will undoubtedly be great because it is working with the leaders and among the leaders of American life, the college graduates; and yet the purely ideal conditions which it sets forth are a necessary limitation to the scope of its influence.

The various medical associations have each appointed a council on medical education. In this movement the American Medical Association led the way, and its Council has achieved publicly the greatest prominence as well as accomplished the most work. By virtue of its organization and financial condition this Association has been able to give its Council opportunities which have never been shared by any body of the type in this country. Under the auspices of the Council there have been held thus far three annual conferences on medical education and there has been published a series of approximately thirty pamphlets setting forth the records of these conferences, the reports of committees organized under its auspices, and the results of inspections it has made as well as of examinations held throughout the country by various official boards. One must recognize the great importance of its work. No other organization could have carried out so extensive an investigation or have brought together and published for the estimation of progress in medical education such comprehensive statistical comparisons as it has given. It is to us a compliment of the highest character that the Council has reprinted so much of the results which have been obtained by our committees and reported to our Association. It is equally a matter of felicitation that various officials of this organization have been so generously welcomed in the conferences of the Council and that the reports by the chairman of our Judicial Council, presenting much that has been deduced from our experience, have received such favorable consideration at the hands of these conferences.

Even though it must remain a purely advisory body and have no legal status, the Council on Medical Education will undoubtedly exercise a strong indirect control over medical schools by its schemes of reports and inspections and by scattering broadcast the results of these inspections. It is sure to be a potent force in the development of medical education, and yet I may be permitted to point out one or two features which as now conducted involve great responsibility and furnish genuine possibility for doing injury in individual instances. The policy of the Council is formulated by a small number of individuals. One could not ask for any modification of this plan. The Association having placed upon the shoulders of a committee the responsibility, that committee would not be justified in shirking it or in failing to formulate and push with vigor such plans for the advancement of medical education as seem to it wise. The annual conference gives opportunity, to be sure, for the presentation of all types of opinion, but there will necessarily be a considerable personal element in issuing invitations to this conference, and, furthermore, even those who are invited to participate naturally feel themselves, as guests, somewhat constrained in the expression of their individual views. It is easy to see, consequently, that the publications of the Council represent very largely an individual trend of opinion, and

*Abstract of the President's Address delivered at a meeting of the Association of American Medical Colleges, held in Cleveland, O., March 16, 1908.

it would be strange if certain aspects of some question did not fail to receive their full representation; it would be remarkable if all points of view were equally well represented; it would be almost inconceivable that a certain line of development in medical education would not be preferred above others. While the process of evolution should be influenced in the right direction, it is questionable whether the limitation of the process should be left in the hands of so small a group of individuals, however broad and impartial these persons themselves may be. More than this, it would be strange, indeed, if in the development of a line of action the committee did not some time or another come in conflict with so strong a force or one so related to themselves or their organization by personal or official ties that their judgment or their action would be modified or restrained thereby. It has been said that in some instances they have failed to meet questions with absolute frankness, to apply the same rules to all institutions and sections, and to safeguard with the same care the interests of all schools. These minor difficulties are in no way chargeable to individual prejudice, inefficiency, or inattention, but rather are inevitably connected with the tremendous task they have undertaken.

Last year on the recommendation of President Kober this Association appointed a committee to confer with the Council and to seek a plan for cooperative action. Such a move cannot be too strongly commended or too vigorously prosecuted. The Association of Colleges should strengthen this committee by adding to its numbers and its powers, and by such expression as will indicate to the public and the profession that we at least are unalterably committed to cooperation with all influences for the advancement of medical standards.

State Boards of licensure under various names and with radically different powers and privileges represent the agencies in the various States which are seeking to enforce legal standards of medical training. They represent a distinctly higher average opinion than that of their own locality, and they differ from each other as widely as the geographical and temperamental differences of the States they represent. In a legal way they embody the results of a series of some forty odd experiments, amended from one to one hundred times under the influence of innumerable factors, political, professional, and social; and the real wonder is that they have been able to get together with as much of uniformity and energy as has been displayed by the American Confederation of Reciprocating, Examining, and Licensing Medical Boards.

It is no injustice to say that individually the State Boards are given the minimum possible requirements and are enforcing them with the maximum energy compatible with the conditions of their particular environment. This is the inevitable result of their political establishment and control. They have uniformly succeeded in accomplishing more than other politial agencies in the same territory. They have ruled with fairness and freedom beyond that which is practised in legislative assemblies generally, and if there are striking exceptions to this rule let it be remembered that those exceptions have been generally discountenanced both within the State and without it, and that State Boards are continually seeking and exercising reasonably strict control of local conditions. Yet since opportunities for local jealousy and for the establishment of limitations which accrue to the advantage of local interests, are constantly present, they are unfortunately sometimes employed. It is evidently difficult for such boards to maintain a membership constant enough to insure maximum efficiency or to act as conditions demand in the face of strong popular pressure.

In spite of local jealousies and legislative limitations State Boards have organized a powerful national association. They have established a mutual basis of qualifications for interstate recognition and indorsement of licenses, and have introduced reciprocity to a considerable extent. Their work has disclosed many often serious difficulties in the way of a uniform system and of cooperative action, but good sense and able leadership are demonstrating the purely temporary character of these obstacles to progress. It is a matter of general commendation that the Confederation has a basis of requirements covering the preliminary education which is practically identical with our own, and has adopted our requirements for graduation and our standard curriculum as its schedule of an approved medical course. Harmony and cooperation in action between the Confederation and this Association have already led to important advances in medical education, and should be encouraged in order to promote uniformity of standards and to relieve medical schools as far as possible of the unjust burdens imposed by "many masters of many minds."

It is not necessary to discuss in detail the relations of our Association to medical education. It has always included in its membership the large majority of the better medical schools in this country. At one time the lax enforcement of standards had raised a temporary doubt as to its position with reference to the better things in medical education; but the vigorous campaign of recent years has left no doubt of its present sincerity and activity in behalf of high standards. Such institutions as have felt that local conditions did not warrant their joining in the general advances of the Association have been considerate enough to retire from membership and to avoid embarrassing inquiries, so that it has been necessary but twice to suspend schools from membership pending an investigation into their actions. From the prompt response made to personal inquiries concerning possible violations of our standards I am individually impressed with the desire of college authorities to live up to present regulations and not only to correct accidental infractions of our rules whenever they occur, but also to prevent if possible any recurrence of such mistakes.

In many ways the Association is proving itself to be a potent factor in advancing standards of medical education and in benefiting thus every school of high ideals. While its membership includes colleges of different grades in many particulars, it is possible to assert that no distinctly low-grade institution is now on its list of members. I confidently maintain that all its colleges are self-respecting and law-abiding, and are seeking the best in professional education. There are still a few high-grade institutions in the United States which are not in membership, and the Association should instruct its Judicial Council to extend a cordial though dignified invitation to these colleges to join with us in the work of

advancing medical education on this continent. While heretofore the membership of the Association has been confined to the United States, yet the high grade of work done by some Canadian medical colleges is ample justification for extending to them a similar invitation in order by joint effort to give greater breadth and strength to the movement.

The position of the Association in the search for standards in medical education is found at neither extreme. It recognizes that an ideal is attainable only by the favored few, and also that no doubt always some colleges will set standards below its own. It is seeking the average standard, available for all institutions, even though some choose to cut under its minimum. It encourages advance above the limits it sets and has always had in membership institutions demanding much more than its minimum standards. In all its discussions it seeks not the optimum of limited attainment, but rather the reasonable minimum, below which standards are possible but not rational at the current stage of evolution in professional education.

Standards Proposed.—It is necessary to establish definite standards and to use these in measuring the position of medical schools. The constants which need to be determined in fixing such standards as are, first, those of the preliminary education, second, those of the professional training, and in both there are three elements to be fixed: the number of years required, the length of each course which is acceptable, and the amount and kind of work which should be demanded. Now these factors are to be considered not from the standpoint of the maximum or of the optimum, but with a view to determining the reasonable minimum. This does not in any way limit an improvement upon the conditions outlined, it does not hold down the stronger schools to the level of the weaker, it merely sets a standard for recognition below which the institution may not be regarded as acceptable. The fixing of such standards will unquestionably serve greatly to clarify the atmosphere and to advance the quality of medical education.

Association Entrance Requirements.—With regard to standard requirements for entrance to medical colleges there is as little agreement as in other matters. In the place of the meaningless expression a "high school course," this Association was the first to advocate the introduction of further regulations specifying the length and character of such a course. In the working out of this problem our present standard owes much to the splendid work done by the New York Board of Regents in systematizing and formulating the general scheme of public school education. Their results are as applicable to any other State as they are to the commonwealth for which they were formulated. We are also greatly indebted to the vigorous work of the education and State board authorities in Michigan. The result of these efforts finds its expression in the standard minimum entrance requirements of this Association. They guard the time element in providing for a full four-year high school course and protect against cheap work and insufficient training by specifying the fundamental portion of that course. As pointed out by Dr. Vaughan of the University of Michigan, Dr. Harison of Detroit, and Dr. Wheelock of Albany, this clearly unequivocal and thoroughly pedagogical standard is far in advance of any yet put into effect by any other agency controlling general medical standards. It is practically in accord with the well-enforced requirements of New York, Michigan, and Ohio which represent the leading influences in regulating medical entrance requirements to-day and also with those of the American Confederation of Reciprocating, Examining, and Licensing Medical Boards. It is certainly far ahead of the actual requirements in force in many sections of this country. There has been reason to think in the past that some of the colleges in the Association have applied these regulations with a mercy that was primarily characterized by its disregard of justice. To-day the matriculation records are open to general inspection, and colleges in membership invite scrutiny of their practices. It is not too much to say that no such clear or well-enforced standard has ever existed in medical education in the United States as the preliminary education requirements of this Association.

Preliminary College Year Proposed.—The new standard proposed in 1906 by the Council on Medical Education of the American Medical Association provides in addition to the four-year high school course a year of college work devoted especially to physics, chemistry, biology, and language. There are now 54 colleges which by the first of January, 1910, will require for entrance one or more years of preliminary college work in addition to the full high school training. It is rather early now to speak definitely regarding this plan, but an examination of the list of these colleges discloses certain interesting features. In the first place the list includes a group of institutions which now require two years or more of preliminary college work and which have evolved a rational adjustment of the general training in the collegiate department and of the professional training in medicine. They are the leaders in medical education, are distinctly bidding for the best students, and have expressed themselves by their general action as well as in their publications as desirous of educating the leaders in the profession.

When we consider the remaining institutions, namely those which have announced that at this future date they intend to require one year of college work to be devoted especially to physics, chemistry, biology, and language, we find a rather peculiar condition. In the first place, some of them do not even yet require the full high school course for entrance, and in at least one of these it is proposed to advance the time standard of preliminary requirements by a total of five years, while this advance is to take effect within three years. We also notice among the institutions which have set this standard that there are some which have dropped from membership in our own organization, avowedly or tacitly, because they were unable or unwilling to abide by the standards which we had set, and to furnish documentary evidence in the form of a detailed certificate by the college authorities covering the entrance requirements of all students matriculated within the year. There are further among the number of those which have announced their intention of requiring this year of preliminary work such institutions as have been openly charged by various authorities with having violated previous standards of entrance requirements. In the face of these facts it is but natural to think that the announcement of their conversion

to the doctrine of advanced entrance requirements is not altogether disinterested.

On the other hand we find that certain most conservative and most stable standard medical schools have refused to consider this new limit of entrance requirements, and some of the reasons which have been adduced for their refusal are thoroughly tenable. The medical institution which is a part of a great university, and which is thus intimately associated with a department of arts and sciences, can set such an entrance requirement and can enforce it; for it has the means ready at hand to provide for the additional training of those who would enter and yet who are deficient either in whole or in part of the required college work. The isolated medical school, however, finds itself necessitated to adopt one of two courses: either it must accept anything in the way of college work which bears that label and have in its classes even a greater hodge-podge than it has at present, or it must itself provide facilities for one full year of college work. The second option is, I believe, most earnestly deprecated by all who have at heart the interests of general education. Conditions in the medical school are not such that the training of the literary institution can be given in any other than purely formal fashion. The distractions of the large amount of professional work and the lack of associated general courses will inevitably tend to dampen the enthusiasm and divert the attention of the student from his elementary studies. Furthermore, adequate provision for such a course is expensive, and unendowed institutions cannot hope to offer it in any other than a perfunctory and superficial manner. In the hands of the isolated medical college the additional year would become an obstacle to real progress, a disadvantage both to the institution and to the student. Most probably the plan would result merely in diluting the present work of the course, and if anything was really added it would be at the clinic end of the curriculum.

The other option presents practically equal difficulties. As I have already indicated there is no possible question that many so-called colleges are not above the level of city high schools, and a year of college work would not really give the prospective medical student any training superior to that which would be indicated by a well-enforced requirement of such a specified high school course as this Association has now established. The most serious difficulty, however, is that the colleges will naturally protest against being made a convenience for giving a limited amount of specified training. Although this effect was distinctly outlined in the report of the committee printed by the Council of the American Medical Association, yet the attitude of the colleges was somewhat obscured and possibly unrecognized through the manner in which the statistical results were presented. The literary institutions at both ends of the scale were alike in their statement that such work could be obtained under their auspices and would be performed to the satisfaction of the medical authorities. The reasons for approval in the two cases were, however, radically different. The stronger institutions offer larger elective courses; in many cases they have their own medical schools, and as these schools in general are turning towards higher requirements they do not hesitate to indicate that they will comply fully with conditions. On the other hand, the weaker literary institutions are exceedingly anxious to attract students, and are often over-sanguine of their ability to give such work as may be asked for.

The careful examination of the report of this committee, however, shows more distinctly that many of the Eastern colleges and also of the strong Western colleges are united in opposing any such plan, holding it to be unfair, and furthermore entirely foreign to the purposes of their foundation and the ideals they are seeking to attain. It is also true that the proposed year's work is almost exclusively in the scientific field, and hence antagonistic to the historic conception of the New England literary college where science studies are largely elective and are introduced later in the course. An additional objection was put by President Hadley of Yale in the following words: "The demand for places in our undergraduate courses is so far in excess of what we can readily meet that we can hardly arrange to take men for one year with a view to letting them leave us at the end of that time. We must, I think, arrange our courses for men who expect to stay longer." President Hadley's attitude is said to be shared by more than a dozen of the most prominent Eastern colleges.

There is no doubt that the influence of all such colleges will be exerted to hold students not merely one or two years but for the full four-year course, and any such proposed standard as this must recognize frankly that such colleges are permanent obstacles in the way of its practical realization.

The actual working out of the problem is indicated by the conditions which prevail with reference to another option that has been tried by institutions at various points. Certain university medical schools have solicited and obtained from a few literary colleges a provision which is publicly announced in their catalogue permitting any student of senior standing to take his senior year *in absentia* at an approved professional school, and on proper certification at the close of that year to receive his diploma with his class as if he had remained in residence. This provision is entirely analogous to that in vogue at several of the strongest Eastern universities where a senior student in arts and sciences is allowed to enroll as a freshman student in a professional school of the same institution and thus qualify for the fourth year of academic standing and the first year of professional training within the same period of time. In these universities the opportunity is embraced by a reasonable percentage of students who are seeking both degrees. Many of the literary colleges in the Central and Western States have most vigorously opposed the granting of such a privilege through the intensity of the opposition is often indirectly proportional to the strength of the institution. At the same time when we come to consider how the plan has worked in actual experience it must be confessed that there have been practically no results. In two widely separated conferences of college presidents representing such institutions in the Central and Western States the privilege was made the subject of discussion this past winter, and at both of them the actual experience as reported was identical. Students who have completed the junior year in a literary institution are not willing to forego the pleasures and privileges of senior standing, and despite pressure will stay in the literary college for their last year's work.

A final rather serious objection to the practical working of the plan appears to be the question of what college work should be accepted. The report of the committee speaks unequivocally in favor of insisting on high-grade work; it even goes so far as to state openly that "the preliminary college year must mean more than a year of actual work in many cases. But we believe the medical schools should stand rigidly for that, and insist on this amount of work whatever time it may take." Such a position naturally commands general approval, and yet the actual enforcement of this provision is open to the same grave abuses which led to the abolition of the time credit granted to college graduates supposably on the basis of work done. The adjudicating body is prejudiced, and there is no absolute standard to be followed.

All of this evidence seems to my mind to indicate clearly that in actual practice the single year of college preparation is not a feasible general standard for entrance to the medical schools, or rather, perhaps, let us say that if adopted it will tend more strongly than ever to emphasize the advantages of the schools possessing genuine university affiliations and to curtail radically the opportunities of the independent medical schools. Such medical faculties as are connected with State institutions or endowed universities will still announce and enforce one year of college work as a preparatory requirement, but this will be merely a preliminary step towards the introduction of two years of college work which is the natural minimum requirement in my opinion for university schools.

State Board Advanced Standards.—The advance in preliminary requirements beyond the four-year high school course has been participated in by certain State Boards. Thus Minnesota and North Dakota have established, to take effect in 1910, a requirement for preliminary education embracing two years of college work above the four-year high school course. Connecticut and South Dakota have set the standard for the same date to include one year of preliminary college work. In his presidential address last year, Dr. Kober pointed out the injustice of the isolated action by Minnesota, but there is another feature which also deserves passing mention. It may be wise for a State which is already well supplied with physicians to raise the standards of professional education beyond those obtaining in less favored commonwealths. But this policy is not so clearly justified in such a State as North or South Dakota where the number of physicians is radically less in proportion to the population than in the average of the country, and where at the same time the inhabitants are scattered over so large an area as to require a relatively greater number of physicians as compared with other States. The emoluments of a physician are naturally less in a sparsely settled community, the hardships of pioneer life add to the difficulties of the situation, and from the theoretical standpoint one would expect in natural evolution to find such new communities establishing relatively easy conditions for medical licensure, whereas in the older, more crowded commonwealths, where the organization of society is more highly perfected, and all opportunities more accessible, the natural tendency would incline towards the establishment of severer standards. This has proved true in the history of the Old World, and in almost all parts of our own country hitherto, and it would be interesting to know precisely what influences have brought about the distinctly abnormal conditions indicated. Personally I cannot see that such a movement is favorable to the elevation of medical standards. Evidently it may easily emphasize the spirit of local antagonism which, as already noted, certainly hinders real advance. For the sake of fairness it is to be hoped that the regulation will be applied to individual graduates and not to institutions. Any effort on the part of a single State to coerce honorable and self-respecting colleges is to be deplored.

Time Credit for College Graduates.—A much discussed question is that time credit in medicine for college graduates which deserves brief attention at this point. It is well known to the Association that I have always been in favor of granting proper credit to proper schools. The contention of the colleges is pedagogically unassailable that, so far as their work is of the required standard and so far as it does prepare a man specifically for the higher work of a medical course, just to that extent it should be accepted in the professional school. It is pedagogically absurd to place the college graduate with thorough training in general science subjects, such as is given even in our standard, old-style New England colleges, on the plane of the mere high school graduate. It is, however, perfectly apparent that the credit should not be a blanket allowance made to any holder of any degree, and careful examination of the possibilities has brought to light some facts which may be of interest to this audience. When discussing in detail the conditions in different States with certain members of our Association who have an unusually wide personal acquaintance with educational institutions, I found we reached practically a unanimous conclusion, namely, that within the entire range of colleges in the United States there were in all not over thirty which give scientific work of a character and with an equipment such as to justify its acceptance by a reputable medical school. These thirty institutions are variable in type in that they include some of the smaller State universities as well as denominational and privately endowed colleges. It appeared reasonably clear that they were not likely to work together on any uniform plan for the achievement of the end sought and that the majority of them were neither seeking for such credit nor apparently interested in the proposition, so that whatever might be done would affect in all probability only ten or a dozen colleges, a very small fraction of the total number in the United States.

Supposing, however, a larger number could really be interested in the proposition, one might expect, on the basis of their past history, that not over 100 to 125 of their graduates would apply each year for entrance to our medical schools. This figure is only 2 per cent. of all graduates from medical colleges last year and less than 15 per cent. of the college graduates granted medical degrees last year, as there were approximately 5,000 graduated in 1907 from the medical colleges of the United States, and among them were 903 holding other degrees.

It is of more than passing interest to note where these 903 college graduates were found. Hopkins, Harvard, and Western Reserve furnished 150, or just one-sixth of the total number, and practically all of the graduates from all of these

schools held an academic degree. Michigan, Chicago, Minnesota, Iowa, Nebraska, and California furnished 155 degree holders out of a total of 300 graduates from those schools, so that in a total of only 9 per cent. of the medical graduates of the United States the institutions named furnished 33 per cent. of the men holding other college degrees. Evidently college men will enter the profession of medicine through those institutions which are working out a pedagogical relation between the college course and the professional training, and such institutions have in the past year furnished nearly three times as many students as could be gathered from literary colleges under any probable system of coordination. This does not, in my opinion, excuse the injustice in refusing reasonable recognition to the work of high-grade literary colleges. It does show that the obstacles of various sorts which have been placed in the way of such institutions by the unthinking and unpedagogical objectors in the ranks of medical teachers are serving to force the solution of the problem along another line. Educational evolution like any other phase follows the line of least resistance or of easiest adaptibility. It is evident also that the further advance in entrance requirements will tend of itself to settle the question with regard to possible time credit for literary colleges. Meantime this Association should follow closely the results obtained in New York where under exceptionally able auspices there is being conducted by State and college authorities a most thorough investigation of the situation. The conclusions reached will assuredly possess a sound pedagogic basis, and should be utilized by this body in formulating rules of procedure for itself. In fact whenever educational authorities of standing arrive at positive findings in considering any phase of medical education, it becomes the duty of this Association to take prompt advantage of such expert opinion in revising if need be its previous policy.

Standards Within the Medical Course.—The earliest movements towards the establishment of standards for the professional training in medicine concerned the time element and found official expression in the constitutional requirements of this Association governing the minimum length of each annual session and of the entire course. Much later the content of the course was brought under discussion, and finally the report of a Committee on the Medical Curriculum led the Association to adopt the general outline of work widely known as Kober's curriculum and subsequently adopted as standard by other organizations also. This plan of medical studies has been shown to possess considerable flexibility and consequently to be adaptable to varied conditions while it serves to limit some of the abuses due to the omission of essentials or overemphasis of single branches which have been so strongly and justly criticised by various writers.

A practical advance of great importance is that which was undertaken a year ago in appointing a committee to prepare a syllabus covering the subjects in the early part of the medical curriculum. The discussion of the apportionment of time to individual subjects and of the order of the work as well as of the period to be devoted to subsidiary sections is sure to yield most valuable results, especially so since the gentlemen who have agreed to lead in the discussion are men of wide experience and unquestioned standing in their respective fields. Any conclusions which they reach will command the support of the educated world and will constitute a most valuable contribution to the subject of medical education.

The plan of dividing the examination for medical licensure, presented so admirably by Dr. Means, affords a basis for more thorough and more practical tests, for eliminating the meaningless work of quiz schools, and measuring properly the results of all medical colleges by introducing a searching inquiry into the fundamental scientific branches. It will also weed out more fairly those students who cannot meet requirements and save them time and expense, which may be profitably employed in some other field of work. The plan has proved successful in other countries under the test of time. This Association, in my opinion, should take positive action looking towards the adoption of such a method, and should seek cooperation from the American Confederation of Reciprocating, Examining, and Licensing Medical Boards in attaining this end.

Pedagogical Defects.—Permit me now to recount briefly some features in the situation which appear to be unpedagogical and unworthy of a place in medical education. Indirect effort has been undoubtedly exerted by persons singly or in organizations to adjust legislation and standards so as to favor one locality above another, or to bolster up a local institution which was inherently too weak to meet standard tests. No fair-minded man will ever support such movements publicly, and fortunately the private instances have been so insignificant as to exert comparatively little influence on the general situation.

Apart from these, however, there has been, I am convinced, in some cases far too great insistence upon minor technical detail. The educational authorities in control of medical standards in one region have introduced requirements and stipulations in detail which are difficult of realization under the educational system of another region, and each one of the agencies noted above as influencing general standards throughout the whole country have with great vigor insisted upon its own construction of certain trivial details which in no wise affect the real basis of the standards set.

A real difficulty of more serious character is the difference in the perfection of educational organization and work in different sections of our country. There is no doubt that the newest States are inferior to the oldest and there is also little question that the educational advantages in the North are more abundant and more highly developed than in many parts of the South. This renders it exceedingly difficult to adopt a plan of action which shall apply to all sections of the country.

Another element in the situation, which personally I deem to be distinctly unfortunate, is the effort to reduce all things to a statistical basis. Not only are so many of the facts stated in statistical tables of doubtful importance, but some of them are entirely incorrect, and yet these very items are cited from one end of the country to the other as evidence of perverse tendencies in medical education. A single instance will suffice to explain what I mean. Some years ago an indefatigable statistician published the

statement that at the University of Nebraska College of Medicine, 780 hours were devoted to Orthopedic Surgery. When I inquired the source of his information since this did not correspond with any at my command, he apologized, explaining that it was a stenographer's error in tabulating college reports. He courteously promised to make prompt and full public explanation of the error. I have also endeavored to run down this statistical freak, but thus far the explanation has never caught up with the original statement, and twice within the present year I have seen his stenographer's error printed in large sized type as a demonstration of the inefficiency of medical education.

But the real fault in the statistical method is of another type. Men prove from the same set of figures the clear superiority of every life insurance company which enters into the consideration. The man who is wedded to mathematics can add, subtract, multiply, and divide until he has adjusted his computations to any conclusion that he desires to reach. The conditions of any institution can be, in truth, only very imperfectly represented in statistical fashion, and the conclusions very generally drawn from such representations are often only partly true or even entirely unwarranted. This was pointed out clearly by Dr. Dodson in comments published a few years ago on the statistical tables printed in the *Journal of the American Medical Association.*

I cannot help feeling also that the statistical data thus far published deal remotely if at all with the real educational side of the question. They show absolutely nothing regarding equipment and facilities, they cannot enumerate or measure educational organizations and methods. They assign clearly overweight to a series of examinations and encourage unpedagogic methods introduced for the sole purpose of obtaining unnatural results in such tests. In one instance described before this Association last year by Dr. A. D. Bevan, they have induced a fake institution to reduce its entire education to a series of memorites exercises in cramming for examinations, and have given foundation to its widely heralded boast of securing results which surpass institutions of high character and educational worth. In another instance, a glib graduate of a cheap school has toured the country taking examinations with great success in many States and imparting to his alma mater a cosmopolitan character in the statistical summary. The advertisement was no doubt well worth the expense, and the incident indicates a new specialty in the medical field which properly cultivated will yield good results—in a statistical way.

To meet this difficulty some change of policy is necessary, and that change should be in the direction of emphasizing the character of work which the better schools are doing. We are led thus naturally to the introduction of practical features into the tests, since by means of these alone is it possible to measure the adequate use of laboratory work in the training of the candidate. I hope that it may be possible for this Association to take some definite action at this meeting recommending the introduction of practical tests into the licensure examinations and instructing its committee on cooperation with State examining boards to urge the early incorporation of such features into State examinations.

The Advertising Tendency.—The defects which have been mentioned are largely outside of the colleges themselves, but there is one to which I would call attention here which is inherent in the present organization of many institutions. It is the advertising tendency that is utterly unworthy a place in the training schools of a profession that places a ban upon the advertiser in its ranks. This tendency is manifested in many ways and was discussed at length by Dr. V. C. Vaughan in his presidential address before this Association in 1902. I fear there has been little if any change since then. The spirit is still plainly marked, and a single instance will suffice to indicate the trend of the current. So far as I know in no other educational institutions are free banquets furnished at the expense of the faculty to all the alumni who will put in an appearance on stated occasions.

The movement which has resulted in the amalgamation of many independent medical schools with universities has been in the direction of progressive evolution, and has resulted in mutual advantages. These have been so evident that other institutions looking for their own advantage only have to secure the same end by mere paper affiliations. Such mergers in name only are abundantly familiar to us all. They are essentially pretenses and will fail at the crucial moment when in the process of advancement the medical school finds real need of the support of a faculty in arts and sciences to meet further increase in entrance requirements. The presence of a University President on Commencement Days to hand over the medical diplomas will not create a University atmosphere or add to the pedagogic power of the professional faculty. Unless the medical school can become really an integral part of an institution which is potentially a university, and can gain the moral and financial support which comes with real university control, it had better retain its independence and self-respect rather than encounter the criticism and danger of a sham union.

Medical Endowment.—The greatest single difficulty in the way of progress in medical education is undoubtedly poverty. Beside it all other difficulties appear trivial. Modern medical training is expensive. Rich gifts have provided for general education and for technical schools of all classes while medicine still awaits its benefactions. The situation is tersely described by President Dabney of Cincinnati as follows: "All medical instruction given here at present is at the expense of the profession. This is no more reasonable than if we were to require the present engineers to educate the future engineers, or the present teachers to educate their successors in the schools. The education of physicians is as much a public duty as the training of teachers or engineers." "It is perfectly apparent that great scientific institutions of this modern type cannot be built and supported without endowments."

This description applies equally to all parts of our country, and President Dabney's words furnish the key to advance in medical education. Whenever and wherever adequate financial support is furnished by public or private munificence, medical institutions will be enabled to make genuine progress. One welcomes many signs of an incoming tide of benefactions in the establishment of research institutes, and in the foundation of splendid hospitals. Money for instructional purposes will come next, and with financial independence other reforms follow quickly. The

recent acquirement by Tulane University of a splendid endowment for its medical department has been promptly followed by a radical advance in standards as well as facilities which places Tulane in the forefront among Southern schools, and assures the participation of the South in the movement for the elevation of standards in medical education.

The value of such endowments is two-fold since they affect other institutions as well as the recipient of the funds; for in the struggle for existence other schools must increase their own efficiency or retire from the field. In these times of progress it will not do for any school to sit idly watching the advance of neighboring institutions. It must find the means to continue the struggle or stop work. The latter fate has come to a few schools recently and is threatening imminently even more. All the evidence at hand indicates a surplus of medical schools in our country, and all agencies join in demanding the elimination of the unfit. No action will add greater strength to the forward movement in medical education than weeding out such as cannot justify their existence.

THE ETIOLOGY OF PARALYSIS OF THE RECURRENT LARYNGEAL NERVES OF PERIPHERAL ORIGIN.*

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NEW YORK.

Reviewing the history of this subject we find that at a period centering about twenty years ago, much interest was shown in its study. Led by Prof. Hermann Krause in Europe and by the late Prof. Franklin H. Hooper in this country, excellent laboratory work was done and some important facts were demonstrated. Of the main questions at issue, however, many were unanswered, in spite of the earnest efforts of a number of well qualified investigators and of controversies which in some instances assumed the proportions of bitter feuds. Of late years not much has been advanced on the subject, and that little has not been illuminating. Possibly the difficulty of the study and the lack of success attending its investigation have discouraged progress. Possibly again, in view of the present popularity of other adjacent fields, the larynx has received less attention recently than it deserves.

The serious nature of recurrent paralysis and the not inconsiderable number of patients affected by it should certainly stimulate us to more earnest effort towards the better understanding and explanation of the causes which bring it about.

In many varieties of the affection the cause is clear. In others it is obscure, as witness the number of cases in which the diagnosis has either not been made or has been clouded by conflicting opinions as to the actual effect of the supposed cause. I shall be able to do little more than call attention to some of the questions which the subject suggests and ask you to interest yourselves in taking up their investigation. Indeed, in spite of all that has been written on the subject, it may be said that the study of this department is in its infancy, for it has not even been determined whether certain toxic paralyses of the recurrents are due to central causes, to changes in the nerve elements themselves, or to neuritis from severe surface irritation.

Recurrent paralysis may be either unilateral or bilateral, and only the posterior fibers of the nerve may be involved, as in abductor paralysis, or, the paralysis may be complete.

Shurly[1] quotes Avellis to the effect that of 150 cases, the cause was discovered in only 85. Of the above 150 cases plus 19 collected by Sendziak[2] 113 were males and 50 were females. In the same series of cases, the paralysis was found 46 times on the right side, 92 times on the left side, and 12 times on both sides. In 41 cases of Sendziak, 5 were right, 15 left, and 21 bilateral. Unfortunately little reliability can be based upon these statistics. Three points become evident from them, however, as has been suggested by Lermoyez, namely,

The preponderance of peripheral paralysis over that caused by central lesions; the excess of cases in which the paralysis has been on the left side, and, finally, the greater liability of recurrent paralysis among men.

As to age, of 19 cases, 15 occurred between the 20th and 60th years. The youngest was a child of two years, the eldest was 59.

Sendziak claims to have collected 1,017 cases, which he has classified according to the form of the paralysis, as follows:

1. Abductor paralysis, 520; 2. Paralysis of recurrent, 491; total, 1,017. 1. (*a*) Unilateral abductor paralysis, 283; (*b*) Bilateral abductor paralysis, 243; total, 526. 2. (*a*) Unilateral recurrent paralysis, 397; (*b*) Bilateral recurrent paralysis, 94; total, 491.

Among the earliest observations noted with regard to them was the fact that if the recurrents were injured, dyspnea was a prompt result. This was made apparent through the effect upon them of wounds of the throat and neck. Later on the possibility of paralysis from pressure was recognized.

Finally, within recent years, a few observers have called attention to the occurrence of paralysis from toxic causes. Many cases have been reported in which the movements of the larynx have been affected by peculiar conditions of the blood due to disease or to the ingestion into the system of certain well-known poisons. Thus gradually it has become apparent that paralysis of the recurrents of peripheral origin may be due to many causes.

The consideration of paralysis due to traumatism and to pressure are very interesting topics. Moreover the subjects are far from having been exhausted. Many things remain to be explained regarding both of them.

Paralysis due to toxic agencies, however, is a subject which has been hitherto little studied. It is replete with problems of many kinds, and these again depend upon questions of surpassing interest. Few fresher or more attractive fields could be offered to the investigator, whether physiologist, pathologist, or chemist.

In studying the reports of cases by various authors, the writer has been impressed with the belief that some of them were probably not cases of actual paralysis, but of ankylosis.[3] This is especially likely to be true in such diseases as typhoid, erysipelas and other conditions attended with severe local inflammation adjacent to the joint, or, as in rheumatism and gout, with inflammation of the joint itself.

The possible myopathic orgin of loss of motion in the larynx must also be remembered. This condition may be present in wasting diseases, muscular atrophy, rheumatism, and carcinoma.

The possibility of error in deductions based upon the statistics of reported cases of paralysis, some

*Read at the thirtieth annual meeting of the American Laryngological Association, Montreal, May 11, 1908.

of which may have been wrongly diagnosed, must therefore be taken into account.

While first asking attention to the better known departments of the subject, it is to the toxic conditions that I shall finally bespeak especial attention and interest, believing that the time has come when light should be thrown upon the obscurities which surround them and hoping that ere long more complete and definite knowledge may be secured.

The causes of recurrent laryngeal paralysis of peripheral origin as far as now known may be divided into three general groups, namely:

1. Cases due to traumatism, or laceration of the nerve trunks. 2. Cases due to mechanical pressure upon the nerve. 3. Cases due to toxic influences, either of the nature of poisons ingested into the body, or of toxemias or infections generated by disease.

As has already been said, careful distinction must be made between actual paralysis and simple loss of motion due to myopathic causes. Also, from loss of motion from ankylosis of the cricoarytenoid articulations.

Of the various causes of paralysis of the recurrents, we will first consider traumatism:

Laceration of the nerve trunk may occur in any part of its course and from a variety of accidents and the injury may be inflicted from without the larynx and trachea or from within them. The list includes incised, gunshot, and punctured wounds of the neck, self-inflicted, or accidental; injuries to the nerve made in the course of surgical operations done upon neighboring parts; foreign bodies in the larynx, trachea, or esophagus, and unsuccessful efforts made at their extraction; injury to the nerve from attempts at strangling and from blows upon the larynx.

Division of the recurrent happens occasionally in cases of cut throat. The possibility of its existence should be recognized before attempting the complete closure of such wounds, as the effects of sudden urgent dyspnea would of course be very serious.

Lefferts[4] has reported a case of paralysis of the right recurrent nerve due to a punctured wound made by the point of the blade of a pair of scissors.

The recurrents are liable to injury in operations for the removal of various tumors, especially of the thyroid gland. This is particularly true of goiter, as a number of recorded instances will attest. In view of the increasing popularity of the operative treatment of goiter this should be carefully remembered.

Operations for the removal of new growths of the neck in which the necessary dissections approach the vicinity of the recurrents may easily be attended with injury to them, as also may attempts at the extirpation of diseased lymph nodes lying near to the larynx or trachea.

The writer has seen cases of paralysis of the right side of the larynx following extensive extirpation of the cervical glands in recurrent carcinoma of the right breast.

The position usually occupied by the left recurrent behind the inferior thyroid artery renders it liable to injury during ligation of the latter.

We will now consider the subject of recurrent paralysis due to mechanical pressure.

The list of known causes includes: Diseases of glands and of lymph nodes; new growths; aneurysms; diseases of the heart; diseases of the pleura and scoliosis. Comparatively few cases of recurrent paralysis have been recorded in any country. At present reliable statistics as to the relative frequency of these causes are not to be obtained. Accuracy of statement, therefore, is impossible.

Clinical experience seems to prove that this division presents by far the largest number of the cases that come under observation. Scientifically speaking they are more interesting than the cases due to traumatism, for while some are relatively common, others are rare, and while some, fortunately as a rule the more common ones, are generally rather easy of diagnosis, there are no small number which are very difficult, so obscure in fact that a positive diagnosis with the means of examination at present available to us seems to be impossible.

Many cases hitherto obscure have of late years been made clear by the aid of the Roentgen ray. Perhaps nowhere among the varied uses of that splendid contribution to science have more brilliant successes been obtained.

We will begin with the diseases of the glands and of the lymph nodes.

That a diseased condition of the thymus gland has ever been the cause of laryngeal paralysis I have not been able to learn.

Disease of the thyroid gland, however, is a common cause, occasionally from malignant involvement but far more often from goiter.

Remembering the anatomical relations of the thyroid with the trachea it is easy to understand how the recurrents might be encroached upon by almost any swelling of that gland.

The size of the thyroid tumor seems to have little effect upon the degree to which it may endanger the recurrents. Thus a very large goiter may cause little or no dyspnea. On the other hand, one of small size may prove fatal.

The most striking instance of this which the writer has ever seen came to his notice when he was Assistant Pathologist to the New York Hospital some years ago.

A middle-aged lady of rather full habit while shopping was suddenly seized with urgent dyspnea. She was hurried to the New York Hospital, which was nearby, and within a few minutes after the onset of the attack a tracheotomy was performed. Before the cannula could be inserted, she died.

At autopsy made by Dr. George L. Peabody, the thyroid appeared to be slightly enlarged. Upon exposing it by dissection, a goitrous tumor parenchymatous in nature was found, the base of which did not measure quite four inches in diameter. It was so situated with regard to the trachea, however, that both recurrents had been pressed upon sufficiently to cause paralysis, or, as is more probable, spasm of the larynx, and asphyxia.

Disease of the tracheobronchial lymph nodes has been the cause of recurrent paralysis in a number of recorded cases. These may have become enlarged from syphilis, tuberculosis, malignant infiltration, or other infections.

In a case seen by the writer at St. Luke's Hospital, New York, a child 2½ years old suffered from urgent dyspnea requiring a prompt tracheotomy which failed to give complete relief. Death followed in a few days. The child was found to have general tuberculosis, and the cause of the dyspnea was a large lymph node pressing upon the middle section of the trachea. Great obscurity must often attend the recognition of these cases. The fact of their possibility, the presence of a condition capable of causing them, the absence of other discoverable cause, and above all the use of the *x*-ray, may all aid in arriving at the truth.

Malignant disease of the thyroid, the esophagus, the neck, and the mediastinum is a common, if not the most frequent cause of recurrent paralysis. In all of these but the esophagus it is generally due to direct pressure upon the nerve trunk. While sometimes due to direct pressure from disease of the esophagus, it may also in the latter case be caused indirectly through the extension of the disease when located in the upper part of the esophagus to the larynx or trachea so that both recurrents are surrounded by cancerous masses and thus totally paralyzed. Or the paralysis of the nerves may be direct from the pressure of degenerated cancerous glands upon them.

Sandby[5] has reported a case which has become famous for two reasons—first because as a result of esophageal carcinoma *ad*ductor paralysis was first observed. Later this disappeared and a condition of purely *ab*ductor paralysis took its place. Finally the cords assumed the cadaveric position, thus proving the complete paralysis of the nerves. A second point of great interest in this oft-quoted case is that it seems to contradict the so-called "law" of Semon as to the supposed vulnerability of the abductor filaments of the recurrent nerve.

In the minds of most practitioners, the discovery of fixation of the left side of the larynx is almost proof positive of the presence of an aortic aneurism. Very often this view is correct: In the experience of the writer with the cases that have come under his observation, aneurysm of the aorta has been the most frequent cause of left recurrent paralysis. The mechanism of this is too familiar to require special exploitation. It must be remembered that bilateral paralysis with its attendant dangers may be developed by the growth of the aneurysmal tumor in its late stages.

The position of the right recurrent with relation to the right subclavian artery is such as to render it vulnerable in case of aneurysm of that vessel. Such cases are very rare in comparison with those of left recurrent paralysis due to aortic tumor. Aneurysm of the innominate has been said to be an occasional cause.

Cases have been reported in which recurrent paralysis has been caused by various diseased conditions of the heart, especially valvular disease in the form of mitral insufficiency and of pericarditis. By the use of the term valvular disease in this connection we are probably meant to understand the effects of it in the morm of dilatation or hypertrophy, the increase in the size of the organ causing it to press upon the recurrents, as would be the case in pericarditis. Apropos of this subject, the case reported by Baumler[6] presents features of extraordinary interest.

A young man suffering from syphilis and an old mitral insufficiency lost his voice synchronously with the appearance of a pericardial exudation. Examination of the larynx showed a bilateral abductor paralysis. With beginning resorption of the exudate the voice gradually returned, at first rough and hoarse. Two weeks later it became entirely normal and remained so until his death.

From its position with regard to the apex of the right lung the right recurrent may be pressed upon under certain morbid conditions of that part.

Thus, in fibrous phthisis, such cases have been found. They have also been caused by thickening of the pleura covering the right lung apex. It is said that the same thing has been seen in the case of the left lung.

Finally, a few cases are reported in which paralysis was attributed to pneumonia, pneumothorax, and pleurisy. That the paralysis was actually due to pressure and not the result of severe peripheral inflammatory conditions, remains to be proved.

By far the most interesting group of cases which come within the scope of this article are those due to toxic influences. They are less frequently observed than those caused by traumatism or by pressure, so that opportunity to study them has not so often been given.

Moreover, the physiological and pathological processes by which they are brought about are far too little discussed and much less well understood. It is proper, therefore, that particular attention should be called to them both by reason of their pathological importance and because they offer one of the most interesting and valuable fields for original research to be found within the range of medicine.

The ingestion of certain drugs and chemicals is found to produce in some cases paralysis of the recurrent laryngeal nerves.

In like manner recurrent paralysis occasionally accompanies certain acute infectious diseases. If it be true that the poison acts directly upon the nerve-elements through some especial affinity of the one for the other, then the variety of toxics capable of so acting is remarkable, and it suggests a vulnerability of the recurrents to toxic effects which is to say the least unusual and peculiar. Other sets of nerves may be similarly acted upon, as in poisoning from lead, alcohol, or diphtheria. The number of different toxins which have been said to affect the recurrents, however, seems unusually extensive.

The list of causes of toxic paralysis of the recurrents should be divided into two groups: First, mineral and vegetable poisons; and secondly, toxins generated by acute infectious diseases. To the former belong lead, arsenic, antimony, copper, iodide of potassium, iodoform, and, it has been alleged, cyanide of potassium and phosphorus.

Recurrent paralysis due to other mineral poisons must be very rare. A few cases have been observed which seem fairly to have been due to the influence of arsenic, iodide of potassium, and iodoform.

Those referred to antimony, copper, cyanide of potassium, and phosphorus are apparently of doubtful nature.

The first case on record in which the influence of lead upon the recurrents was observed by the aid of the laryngoscope was seen by Sir Morell Mackenzie[7] in 1865. He reported a case of complete paralysis of the right side of the larynx in a young man suffering from general lead poisoning. The paralysis disappeared after two months' application of electricity.

Our fellow member Sajous[8] in 1882 reported a case of bilateral paralysis of the larynx due to lead poisoning, and Seifert follows in 1884 with three well observed cases. A few others have appeared in literature up to the present time.

The cases reported in which other minerals have been thought to produce recurrent paralysis have been so few in number as to make deductions impossible. They suggest the possibility of coincidence quite as strongly as they do that of cause and effect.

Paul Heymann[9] collected over 50 cases of mineral poisoning of the larynx. He found lead to be the most common cause. Usually the abductors were affected.

Among the vegetable poisons the following have been alluded to in the literature of the subject: Alcohol, opium, morphine, belladonna, atropine, cannabis indica, cocaine.

Among the vegetable poisons mentioned, alcohol properly heads the list. Hippocrates[10] calls attention to that form of aphonia of the drunkard which comes upon him in his cups and does not disappear when he has become sober. Several good authorities have quoted the coexistence of recurrent paralysis with alcoholism. Cases have also been reported as being due to opium and to belladonna, and it has at least been suggested that similar results may arise from cannabis indica and from cocaine.

The questions raised by the action of the drugs and minerals just described upon that always peculiar pair of nerves the recurrent laryngeals are perplexing. In what manner do they inhibit the action of these most active parts?

1. Is there any truth in the supposition that there is an elective affinity existing in these particular nerves in favor of certain drugs through the influence of which the one exercises an inhibitory effect upon the other?

2. Does the drug produce changes in the nerve tissue itself which result in the loss of its activity?

3. Is the lesion a neuritis, induced by pressure, from congestion of neighboring parts or otherwise?

4. Are the effects upon the recurrent due to central causes, the latter induced by the drug?

Turning now from the mineral and vegetable poisons which may affect the recurrents, we take up the consideration of the alleged results produced by the toxins of some of the acute infections:

These include typhoid fever, acute articular rheumatism, influenza, diphtheria, typhus fever, acute croupous pneumonia, puerperal fever, erysipelas, measles, scarlet fever, gonorrhea, serum therapy.

Of 73 cases collected by Sendziak 26 occurred in typhoid fever, 18 in acute articular rheumatism, 11 in influenza, 9 in diphtheria, 3 in typhus fever, 2 in croupous pneumonia, and 1 each in puerperal fever, erysipelas, measles, scarlet fever, gonorrhea, and the use of serum therapy.

Of the infectious diseases in which recurrent paralysis may be found typhoid fever seems decidedly the most common. The paralysis may be unilateral or bilateral. It may occur early in the course of the disease, but it generally appears towards its close, during the third or fourth week.

Osler,[11] agreeing with the generally received opinion, attributes it to a neuritis of the recurrent and states that the general activity of the toxins in a given case has more influence upon the nervous system in causing the neuritis than has the temperature. In other words, the neuritis is not so apt to be developed in a case where the temperature is running a high course as it is in one in which the typhoid intoxication is profound.

Laryngeal paralysis in a severe case of typhoid is of course an exceedingly grave complication, although in the milder cases of fever if the paralysis is unilateral it is not so dangerous.

Regarding the cause of the paralysis, the question again arises as to whether, after all, the nerve irritation is not brought about by the violent surface inflammation commonly met with in and around the larynx in this disease.

While most writers state that the paralysis of the recurrents in typhoid is generally due to neuritis, certain ones believe that the loss of motion is sometimes myopathic. Degeneration of the laryngeal muscles may take place in like manner with the degeneration of the abdominal muscles in typhoid.

Morris Schmidt[12] says that recurrent paralysis has occurred in typhoid patients suffering from complicating pleuropneumonia, glandular swelling, and muscular degeneration.

May it not be possible that some of the instances reported as being due to typhoid toxemia have after all been caused by such complicating conditions?

In typhus fever as in typhoid, recurrent paralysis may supervene. It is said to be more frequent in typhus than in typhoid; it is likely to occur at an earlier period of the disease and to be of a more serious nature.

In acute articular rheumatism recurrent paralysis has been found in all its phases: unilateral, bilateral, abductor, and complete.

Here again the causes are variously stated, neuritis and rheumatic affection of the laryngeal muscles having the preference.

Clinton Wagner and others have reported cases of gouty inflammation of the cricoarytenoid articulation with perichondritis, necrosis, abscess, and sloughing of the arytenoid cartilage. The possibility of this should also suggest the possibility of rheumatic affection of the laryngeal muscles and admit of the assumption that not every case of loss of motion in the larynx is necessarily neuropathic.

Morris Schmidt[12] says that he has not infrequently seen recurrent paralysis following influenza. Other writers have reported a few such cases. This does not seem improbable in a disease capable of affecting so profoundly the nervous system in general. Morris Schmidt[12] also calls attention to the fact that in diphtheria it is still questionable whether the resulting paralyses are due to central or to peripheral causes. In the opinion of the writer it is not necessary that fixation of the larynx following diphtheria should be due to paralysis at all, since under conditions of inflammation as violent as those often found in laryngeal diphtheria ankylosis of the cricoarytenoid might easily be produced. In several cases seen by the writer of unilateral loss of motion present many years after an attack of diphtheria this has seemed to be the true explanation. The question is rendered still more difficult, however, when we remember that following a genuine paralysis the joint may become ankylosed through disease.

Apparent paralysis of the larynx may also accompany the severe infections of the throat nondiphtheritic in type, as for example the staphylococcus and the streptococcus. It seems more probable that the loss of motion is due rather to the effects of inflammation upon the muscles and joints of the larynx, than to its effects upon the recurrents.

One case each is reported of recurrent paralysis from erysipelas, puerperal fever, scarlet fever, measles, serumtherapy, and gonorrhea. In all but the first the paralysis was unilateral.

The last-named case has been elaborately described in an extensive and scholarly article by Lazarus.[13]

With regard to toxic paralysis, some very interesting questions arise.

1. If it be true that there is such a thing as a "selective affinity" between the recurrents and a given poison, in a case of poisoning we would expect to find both recurrents affected. In point of fact mineral poisons seem almost invariably to affect but one. Again, if the toxins of infection cause paralysis by exciting a recurrent neuritis, we would expect the result to be bilateral, whereas many such cases have been unilateral. Both of these facts seem to contradict the affinity doctrine.

2. Is it possible that toxins, whether inorganic or organic, produce special structural changes in the nerve tissue itself which result in recurrent paralysis? For the answer to this question we must look to the pathologist, although it would seem that simple inflammation of the nerve would be all that was necessary to inhibit its activity.

3. Are the effects of toxics upon the recurrent due to central causes? Here again the fact that bilateral paralysis is rare and unilateral the rule would throw doubt upon the probability of an affirmative answer.

4. Is the lesion a neuritis, induced by pressure from congestion of neighboring parts or otherwise? It seems probable that in many cases it is, since this would explain the presence of recurrent paralysis from so many different varieties of causes, most of which are associated with congestive conditions of the throat, and for its occurrence in so many different forms.

It is easy to suppose that an inflammatory condition severe enough to cause a cricoarytenoid ankylosis might cause a paralysis of nerves lying as near the surface as do the recurrents.

It is impossible to escape the conviction that some of the cases of recurrent paralysis found accompanying violent inflammations of the throat have been due to the effects of superficial irritation.

Nothing is more common than to find a paralysis of the posterior arytenoideus muscle accompanying an acute laryngitis. The position of this muscle near the surface and at a part of the larynx where the inflammatory conditions are apt to be most intense, would render its nerve filaments peculiarly liable to irritation and injury.

Percy Kidd[14] reported a case of bilateral paralysis of the larynx, cadaveric position, following a severe laryngitis, lasting about three weeks and ending in recovery.

Such cases are not unique. If they suggest anything, it is that surface irritation may be the cause of recurrent paralysis. In many of the diseases in which recurrent paralysis is reported to have occurred, inflammation of the throat is a marked symptom.

If it can be caused by the irritation of a simple laryngitis, it is certainly possible that the still more violent inflammation accompanying severe acute infections may produce it. Doubtless among both groups of toxic causes there are some which act in this way.

These are some of the questions that remain to be explained and finally answered. If my presentation of them has been imperfect and my deductions inadequate it must be remembered that they have thus far baffled the efforts of all who have attempted their solution. With the advance of knowledge of the nervous system in general and with the increased accumulation of clinical material it is to be hoped that better progress may ere long be made.

A study of the literature of this subject shows that it leaves much to be desired. Considering the large variety of conditions which may cause it and the vast number of the cases which many of these conditions create, as for instance traumatism, tumors, cardiac diseases, tuberculosis, typhoid, diphtheria, influenza, etc., it is strange that relatively so few recurrent paralyses have been recorded. Doubtless more careful observation aided by laryngoscopic examination would demonstrate many additional ones. Here as is the case in many other departments, many of the histories have been too incompletely recorded to be of any value.

The latest writer, Sendziak,[2] claims to have found 1,017 cases, 201 of which he says are his own. Where he found them he does not state. Unfortunately he does not give the references to them so that his statistics cannot be verified nor can the articles from which he derived his material be studied. His own articles being published in the Polish language and in obscure provincial journals makes them almost impossible of access.

The article of Lermoyez is classic and well worthy of study. Paul Heymann's[9] monograph on recurrent paralysis due to the effect of poisons is excellent. It contains a full and very valuable bibliography.

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THE OPHTHALMO-REACTION TO TUBERCULIN.

TESTS IN 321 CASES, INCLUDING 250 TUBERCULOUS.

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AND

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The tests upon which this article is based were made by us at the U. S. Army General Hospital, Fort Bayard, N. M., with the permission of the commanding officer, Major G. E. Bushnell, Medical Corps.

Conditions of the Investigation.—Owing to the large amount of material presented by this sanatorium and hospital for tuberculous soldiers and beneficiaries of the U. S. Soldiers' Home, we are able to report a much larger series of tuberculous cases than anyone has heretofore reported, so far as we have been able to ascertain. We also have had the advantage of not being obliged to rely upon city hospital and dispensary cases who are under observation for short periods or at long intervals, but have had at our disposal minute records beginning at the very first appearance of the disease, including not only monthly physical and microscopical examinations and daily measurements of temperature, but also clinical histories from the first days the patients came to the attention of their medical officers in post or in the field. After a soldier who is sent here for treatment has been here for six months, he is either returned to duty, retained for further treatment with a view to subsequent return to duty, or discharged and readmitted as a beneficiary of the Soldiers' Home. Persons in the last category are permitted to come and go at will, except that if they leave they must stay away at least three months. The result is we have clinical histories of many cases who have become

well enough to work and have gone away in the summer and come back in the winter for years.

The sputum of cases of pulmonary tuberculosis is examined as soon as possible after the arrival of the patient, and the examination is repeated every day until a positive result has been obtained or until ten examinations have been made. Sputum examinations are made ten times every month in negative cases. When a positive result has been obtained the examination is thereafter repeated only every three months.

The nontuberculous cases also are soldiers, mostly members of the Hospital Corps, and all of them have been under the observation of medical officers ever since enlistment.

Only one of the cases we report had ever received tuberculin in any form. His case is noted later.

We began this work in December, and finished it in March, but we have been carfeul to register the condition of the patients at the time of the test. We have not retouched our statistics to fit theories.

Our test solution was prepared from tuberculin furnished by the Bureau of Animal Industry of the U. S. Department of Agriculture for hypodermic tests in cattle and for experimental purposes. This tuberculin differs from Koch's old tuberculin principally in that it is not concentrated to one-tenth of its volume. It is made as follows: To bouillon prepared in the classical way, except that one-half per cent. acid potassium phosphate is used in place of salt, and neutralized with sodium hydrate to acid plus one, seven per cent. of glycerin is added. A six weeks old culture of tubercle bacilli from human sources in this medium is boiled for an hour and a half, filtered through paper, evaporated to three-tenths of its volume, and refiltered. Two-tenths of glycerin and five-tenths of a one and one-half per cent. carbolic acid solution are then added, and bring the liquid up to its original volume.

The test solution for use in the eye was prepared by precipitating the tuberculin with a large excess of ninety-five per cent. alcohol, washing the precipitate with absolute alcohol, then with ether, and drying over a spirit lamp. A one per cent. and a one-half per cent. solution by weight of the dry precipitate in sterile normal salt solution were then made, put into sterile bottles each holding from 2 to 10 c.c., and the whole put into an Arnold steam sterilizer for one hour.

We are indebted to Dr. C. A. Treuholtz, Contract Surgeon, U. S. A., in charge of the Pathological Laboratory, for the preparation of the precipitate and the solutions.

Strict precautions were taken to prevent bacterial contamination of the test solution on opening the bottles and on introducing the dropper. The solution was kept in a refrigerator and the particular bottle of solution in use was resterilized at intervals of from three to seven days, according to the frequency with which it was opened. One bottle of solution was in use for a month, and was sterilized several times without any apparent alteration in its properties.

A pipette prepared by the mercury method to give a measured drop proved so fragile and inconvenient that it was discarded. We then tried the medicine dropper with the inner tube described by Baldwin, but found that also inconvenient. So we drew out the tips of various tubes to varying calibers, put rubbers from medicine droppers on them, and used the tube which gave 200 drops in filling a graduated tube to the 5 c.c. mark. Each drop was then taken to be 25 milligrams. The drop given by the average medicine dropper is about 60 milligrams, but there is wide variation between droppers. Most observers have failed to report the size of the drops they used, even though they state the strength of their test solutions, and consequently their results are hardly susceptible of comparison. If too large a drop is used varying amounts of test solution are forced out on the cheek, even if the lids are held open, and consequently the amounts utilized are less uniform.

As it seemed probable that different tuberculins vary in strength, and we wished to avoid severe reactions, we first used one-fourth of the dose which had been employed in France. Thus, instead of one half milligram of precipitate in solution, we used one-eighth of a milligram, or twenty-five milligrams of a one-half per cent. solution. Out of fourteen slightly active, arrested, apparently cured, suspected and nonsuspected cases tested with this dose we got no conclusive reactions, though we had several doubtful ones. These fourteen tests with one-eighth of a milligram are not included in our summaries. We then increased the dose to one-fourth of a milligram by using the same sized drop with a one per cent. solution, one-half the dose which had been employed in France, and as we got on the very first day with this dose in a suspected case a fairly severe reaction, we did not further increase the dose. A twenty-five-milligram drop of a one per cent. solution of precipitated tuberculin was employed in all the cases we report.

The patient's head was thrown back, the lids held open, the test liquid dropped on the eyeball and permitted to distribute itself over the conjunctival sac before the lids were allowed to close. In order to avoid contamination of the test liquid the tube of the dropper, if it touched anything, was resterilized before being dipped again into the liquid. During the first applications of the test a few cases occurred in which the patient's lids closed immediately and threw the drop out on the cheek, and in a few cases the lids were held open too long and the flow of tears became so rapid as to fill the conjunctival sac and wash the solution out on the cheek when the lids were closed. These cases were noted, and if reaction did not occur, were tested in the other eye at a later period. For fear of the dangers of anaphylaxis we did not retest the same eye in any case. We tested no case of pronounced conjunctivitis, but did test many with mild conjunctival congestion. If one eye alone was congested we put the test solution into the other eye.

The cases tested were examined twice a day, early in the morning and late in the afternoon. We counted no case as having reacted which did not show either swelling or redness.

Results.—Most of the men instilled at 3 P.M. began to notice slight burning and smarting at the inner canthus by bedtime, six hours later, slept well, noticed some gumming of the lids on the morning of the second day, eighteen hours after the instillation, and showed redness and slight swelling of the conjunctiva, most noticeable at and in some cases limited to the semilunar fold and caruncle, with increased secretion.

Symptoms and signs increased during that day, and a few more cases showed reaction that evening. By the morning of the third day, forty-

two hours after the instillation, the reaction in many cases was beginning to disappear. Most reactions had disappeared by the morning of the fourth, but a few of the patients with the more severe reactions still had much injection and watery secretion, but were improving. About half the cases were tested in the morning, and watched throughout the day to detect early fleeting reactions. No reaction appeared later than thirty-six hours after the instillation. No undoubted reaction disappeared within twenty-four hours after the instillation. Some disappeared between thirty-six and forty-eight hours; most had practically disappeared within fifty-six hours after the instillation, or forty-eight hours after the beginning of the reaction: a few lasted three days, and no reaction lasted longer than four days. Subjective symptoms were never severe, but were sometimes absent. Most constant were a gummy feeling, a feeling as of a foreign body, slight burning and soreness. The most constant objective signs were, in the order of their frequency, gumming, increased secretion, swelling of the semilunar fold of the conjunctiva, and redness. Redness was not invariable.

The time of appearance of the reaction did not show any relation to the severity, and neither the time of appearance nor the severity of the reaction showed any obvious relation to the severity of the pulmonary symptoms or to the physical signs. The stronger reactions were distributed throughout all groups, including the nontuberculous as well as the tuberculous, the third stage as well as the second and first, and cases with fever as well as those without. The duration of the reaction was roughly proportionate to its severity. Cases with pale, waxy conjunctivæ less frequently showed strong reactions, while cases with preexisting conjunctival congestion or with conjunctivæ liable to congestion upon slight irritation, when they reacted, seemed to show more general suffusion, though not necessarily any greater subjective symptoms or longer duration. The secretion was watery and mucous, in some cases probably serous, but in no case purulent. In two cases there was slight edema of the lids; in one case a single minute conjunctival ecchymosis, which disappeared within thirty-six hours; and in one case slight fugitive circumcorneal congestion.

We treated only enough cases to show that the phenomena of reaction can be modified and even aborted by treatment.

We have seen no bad after effects, though nearly all of our cases are still under observation. In no case could we detect any general effect.

Our detailed table of individual cases is too long to be published here, but the following summaries of our numerical results give the essential facts:

We report tests in 321 cases, of whom 250 were cases of pulmonary tuberculosis. No case has been classed as tuberculous which has not been shown unquestionably to be such by both history and physical signs. In all but twelve of them tubercle bacilli have at some time been demonstrated.

Our classification is based upon a modification of Turban's scheme adopted by the National Association for the Study and Prevention of Tuberculosis.

One hundred and ninety-one cases are classed as active. This number is larger than it would be if our cases were not subject to such close observation. Many of the cases which we have classed as active would in civil life be working, without any medical attention whatever. One hundred and eighty-five of the active cases, or 96.86 per cent., reacted to a single test. If the two cases which gave only subjective symptoms with gumming and increased secretion to the first test, and gave characteristic reactions to a second test in the other eye two months later, are classed as positive, the percentage becomes 97.90, or practically 98 per cent. Among the active cases there was no essential difference between the results in incipient, moderately advanced, and far advanced cases. There were 21 active incipient cases, and all but one of these reacted, 95.24 per cent. Of 92 active moderately advanced cases, 89 reacted to the first test, 96.74 per cent. If the two cases which reacted to the second test are classed as positive, this figure becomes 98.91, or practically 99 per cent. There were 78 active far advanced cases, and of these only 2 failed to react, that is, 97.44 per cent. gave positive reactions. Thirteen active far advanced cases died at periods varying from two to six weeks after the test; all but one of them reacted positively, and in all of them autopsy showed far advanced tuberculosis. Of 145 active unimproved cases 98.62 per cent., or 97.30 per cent. if retests are not counted, gave positive reactions; and of 46 active improved cases the percentage of positive reactions was 97.83 or 95.65.

Under the heading "inactive, but not arrested," we have placed cases in which all constitutional symptoms and the physical signs of progressive disease, including fine or localized râles, had disappeared, but had not remained absent for two months. There were 20 of these cases and 75 per cent. reacted.

The term "arrested" implies "absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months." There were 10 arrested cases, and 40 per cent. of them reacted.

The term "apparently cured" applies to cases in which all constitutional symptoms, and expectoration with bacilli, had been absent for a period of three months, and the physical signs were those of a healed lesion. Of these there were 30, of which 23 per cent. reacted. One of the negative reactions was in a man who had reacted to the hypodermic tuberculin test about six months before. Tubercle bacilli were formerly present in his sputum.

The class of "suspects" includes cases which were probably tuberculous but in which there was some doubt, as well as cases which were probably nontuberculous but had at some time given grounds for a suspicion of tuberculosis. There were 10 suspects, and 60 per cent. of them reacted. This figure, of course, demonstrates nothing as to the value of the test. Of suspects and nonsuspects together there were 71, of which 17 per cent. reacted.

Of nonsuspects—cases in which there was no reason from the history or condition to suspect tuberculosis—6 out of 61, or 9.84 per cent., gave positive reactions. Only two nonsuspects who were sick showed reaction; both had gonorrheal buboes. A case of gonorrheal urethritis failed to react. A man who had recovered from typhoid fever, complicated by pneumonia, probably due to the typhoid bacillus, two months before, reacted strongly, but he had persistent cough with spu-

tum, pain in the chest, and later spit up a small amount of bloody sputum and was classed as a suspect.

Negative Tests in Active Cases.—Out of 191 active cases 6 failed to give undoubted reactions at the first test with one-fourth of a milligram, and of the 6, 2 reacted characteristically to retests with the same dose in the other eye two months later.

Case No. 43. Moderately advanced. Maximum temperature usually 100 degrees. Sputum positive at time of test. No reaction to second test. Three months after first test is still active, but slightly improved.

Case No. 66. Incipient. Temperature normal. Sputum invariably negative for tubercle bacilli. Diagnosis based on loss of weight, blood in sputum, and signs of activity at one apex. Became inactive the following month, then arrested. Negative to retest.

Case No. 108. Far advanced. Sputum positive at time of test. Maximum temperature usually 99.2°. Left hospital. Not retested. Two months after test was known to be still living.

Case No. 109. Moderately advanced. Maximum temperature usually 99.5°. Sputum positive at time of test. Subjective symptoms of reaction with gumming and increased secretion at first test, characteristic reaction to retest. Still active three months after first test.

Case No. 204. Moderately advanced. Temperature normal. Tubercle bacilli in sputum at time of test. Became inactive the following month. Subjective symptoms with increased secretion to first test. Retest positive.

Case No. 317. Far advanced. Aged 66. Temperature 101°. Tubercle bacilli in sputum. Not retested. Died six weeks after test.

Retests.—In addition to Cases 43, 66, 109, and 204, described above, the following case failed to give a characteristic reaction to one-fourth milligram, and was retested in the other eye with the same dose two months later.

Case No. 272. Probably not tuberculous. Sputum negative. Suspect on account of slight cough, persistent temperature with daily maximum from 99° to 101°, and loss of weight. Most pronounced symptom is myalgia. Retest negative.

The following cases, negative to one-eighth of a milligram, were retested with one-fourth of a milligram in the other eye after two months.

Cases No. 169, 268, 280, 284, and 285. Nonsuspects. Negative to both tests.

Case No. 197. Nonsuspect. No symptoms of reaction to one-eighth of a milligram, positive to one-fourth.

Cases No. 199 and 247. Nonsuspects. Subjective symptoms with gumming and increased secretion after test with one-eighth of a milligram. Characteristic reaction to test with one-fourth.

Cases No. 187 and 267. Apparently cured. Negative to both tests.

Tests with Filtered Tuberculin.—Five active cases, four of them moderately advanced, and one far advanced, were tested with a test solution which had been passed through the porcelain tube of a Chamberland filter, and, in order to avoid the possible error of changing strength by filtration, had been reprecipitated and redissolved. All of these cases reacted, and in precisely the same way as cases tested with the unfiltered solution. No severe and no slight reactions occurred in any of these cases.

Discussion and Conclusions.—In view of the satisfactory nature of the results we have obtained, we must conclude that our tuberculin, our dosage, our precautions to prevent bacterial infection, and our method of administration were satisfactory.

When used with the same dosage and with the same precautions which we have described, the test is without danger to sound eyes. The bad results reported by others are very rare, considering the great number of tests which are being made all over the world, and are usually, if not always, referable to failure to observe one or more of the precautions which we have noted in speaking of the conditions of our investigation.

Mackay,[1] for example, has just reported a case of conjunctivitis lasting ten weeks after the instillation of an unmeasured drop of Calmette's 1 per cent. solution of tuberculin. This dose is about twice as large as our measured drop. What precautions were taken to prevent infection during or after the installation are not stated. No treatment other than boric acid appears to have been applied until six weeks after the test.

Our retests in the other eye after a lapse of two months make Roseneau's[2] fear that anaphylaxis would occur in the other eye appear groundless. And quite to the contrary they show the importance of retesting in the other eye cases which have given doubtful reactions to the first test. They also seem to indicate that subjective symptoms with gumming or increased secretion are evidence of reaction. If anaphylaxis to tuberculin occurs only in tuberculous cases, reactions to second tests should be counted in our summaries.

The discrepancies between our numerical results and those of some other observers are to a certain extent only apparent, since we have not lumped all our tuberculous cases into one group or at most classified them into first, second, and third stage cases, but have further distinguished between active cases, cases inactive but not yet arrested, arrested cases, and cases apparently cured.

In general our results in the three stages agree more closely with the results obtained by Calmette[3] and his followers than with those obtained by Wolff-Eisner.[4] The latter got only 70 per cent. of positive reactions in the first stage, 57 per cent. in the second, and 28 per cent. in the third stage. We attribute this discrepancy between our numerical results and those of Wolff-Eisner not only to his small number of tuberculous cases (64), and his failure to distinguish between active and inactive cases, but also very largely to the fact that he used a simple 1 to 100 dilution of old tuberculin instead of a 1 per cent. solution of precipitate. It is obvious that his test solution must be invariably weaker than ours. Eisen[5] and others have shown that many tuberculous cases which do not react to a 1 per cent. solution of old tuberculin do to a 2, 3, or 4 per cent. solution. Further, as different brews of tuberculin are of slightly different strengths, solutions of precipitated tuberculin give results which are more uniform and more susceptible of comparison than do simple dilutions of tuberculin. It is not unlikely that test solutions filtered through porcelain, reprecipitated and redissolved, as was the one we used in five of our cases, would be still more uniform in action. We consider the use of a measured drop essential to the securing of uniform results.

Negative reactions in tuberculous cases cannot be attributed to fever. Wolff-Eisner, who got only 5 reactions in his 18 third-stage cases, believes that reaction depends upon resistance and that lack of reaction is an ominous sign. While all of his 13 cases which died within six weeks after the test failed to react, all but one of our 13 cases which died within the same period reacted. It is true that our patients here live under conditions which greatly favor resistance, but such a great difference as this must be due to difference in the test solutions.

Our percentage of positive reactions in nonsuspects is smaller than it would have been if we had relied upon dispensary and city hospital cases who are not as well nourished and are not subject to such close observation during such long periods as are soldiers. Closer scrutiny of the cases classed as healthy by most observers would undoubtedly throw many into the tuberculous and suspect classes.

In connection with the cases of gonorrheal bubo it is interesting that Serafini[6] has noted the occurrence of the reaction in patients with gonorrheal joints. It is to be expected, judging from our results in nonsuspects, that at least 10 per cent. of persons with gonorrheal joints would react to tuberculin, but we have no reason to believe that the reaction would be due to gonorrhea and not to latent tuberculosis.

Specificity of the Reaction.—Our 17 per cent. of reactions in suspects and nonsuspects, together with our 10 per cent. in nonsuspects alone, agrees fairly closely with the 15 per cent. of positive reactions to the hypodermic injection of 10 milligram doses of tuberculin in 20 apparently nontuberculous cases in hospital and dispensary practice reported by one of us[7] ten years ago; and the explanation given in that report to account for reactions in healthy persons applies equally well to ophthalmo-reactions in nonsuspects. "That 15 per cent.* of patients in whom tuberculosis is not supposed to exist react to tuberculin is not an argument of much weight against the accuracy of the test, as it is well known that healed or quiescent tubercular foci are found in an enormous proportion of autopsies. Many have tuberculosis without suspecting its existence, and many get over it without having had any symptoms from it."

It is generally conceded that the Widal test for typhoid fever is specific, though it is positive in a considerable percentage of healthy people and in only about 92 per cent. of typhoid cases, and these percentages vary with the dilutions used. Whether the occurrence of reaction in healthy people with the dilution generally used is dependent upon the persistence of typhoid bacilli in the gall-bladder or elsewhere in the body, or whether it depends upon acquired resistance which outlasts the bacilli, is still undecided. And likewise with the ophthalmo-tuberculin test it is conceivable that the occurrence of reaction in healthy people is dependent either upon the existence of tubercle bacilli in old and quiescent foci or upon resistance acquired through previous tuberculosis.

The fact that we got 98 per cent. of reactions in active cases, only 23 per cent. in apparently cured cases, and 10 per cent. in nonsuspects, seems to indicate that reaction is dependent upon the existence of tubercle poison (under natural conditions bacilli) in the body. Failure to find gross or even microscopic lesions at autopsy does not rule out the possibility of the existence of a small lesion unless the autopsy is more thorough than is usually practicable. The more experience we have with the ophthalmo-reaction the more we are inclined to believe that under the conditions of our test the reaction does not occur without the existence of active or clinically inactive tuberculosis.

Nature and Prognostic Value of the Reaction.—The nature of the tubercle poison, of its action, and of the processes involved in immunity and hypersusceptibility to it are so little understood that no theory yet advanced to explain the phenomena of the ophthalmo-reaction is quite satisfactory.

Wassermann considers the tuberculin reactions to be due to the combination of soluble toxin contained in the test solution with an antitoxin.

Wolff-Eisner has elaborated the theory that they are due to the action on the body of an endotoxin which is set free by lysis of bacilli existing in the test solution by a lytic material present in tuberculous cases, and that the action of this poison set free by bacteriolysis varies according to the patient's condition as to hypersusceptibility or resistance induced by repeated doses of the tubercle poison. In order to explain reactions with tuberculin which has been filtered through porcelain he further assumes the existence of ultramicroscopic fragments or spores of bacilli in the filtrate.

He concludes from the results of his tests that the local reactions to tuberculin are a measure of the ability of the body to resist, but his results differ markedly from ours and from those of the French, and we attribute his low percentage of reactions in tuberculous cases to his use of a 1 per cent. dilution of tuberculin instead of a 1 per cent. solution of tuberculin precipitate.

It is quite probable that the reaction is dependent to a certain extent upon the presence of some degree of actual resistance, and if we used a much weaker test solution it is not inconceivable that we might detect the prognostic value which Wolff-Eisner attributes to his test; but our results with a stronger test solution make it inconceivable that the reaction to our test is a measure of the *extent of ability* to resist, unless we assume that the 12 of our patients who reacted out of the 13 who died of tuberculosis within from two to six weeks, *i.e.* 93 per cent., were better able to resist than were those patients, only 23 per cent. of whom reacted, who had shown their ability to resist by becoming apparently cured.

Let us put our numerical results in the form of a table of summaries.

Tuberculous cases.	Active	97 to 98 per cent.
	Inactive, but not arrested	75 "
	Arrested	40 "
	Apparently cured	23 "
Suspects and nonsuspects		17 "
Nonsuspects		10 "

It becomes obvious that, with the dosage we employ, the occurrence of reaction depends upon the amount of poison the patient is receiving from his lesion, rather than upon the extent of his ability to resist.

For the purpose of explaining the unusual as well as the usual cases, we assume that there is some ability to resist in practically all persons, until perhaps a few hours before death, and sug-

*The sentence quoted says 18 per cent., but reference to the rest of the article shows that to be a misprint for 15 per cent. Of 20 healthy cases 3 reacted.

gest the hypothesis that reaction—at least to our dosage—occurs only when in addition to resistance, natural or acquired, there is absorption of tubercle poison, either from a tuberculous lesion or by artificial introduction into the body. Our experience seems to indicate that variations from the usual course of reaction depend upon local conditions in the conjunctiva, such as the condition of the absorptive channels and the amount of secretion diluting the test solution, rather than upon variations in resistance of the body to the bacterial poison; that the severity of reactions also is largely controlled by these local conditions; but that in some measure the severity of the reactions, and as a general rule the occurrence or nonoccurrence of reaction, are not dependent upon local conditions. Excepting negative reactions due to faults in technique, and variations in severity due either to faults in technique or to local conditions in the conjunctiva, negative or slight reaction to our test dose would indicate, according to our hypothesis, either slight poisoning or slight resistance, and strong reaction would indicate either strong poisoning or strong resistance. We attribute no prognostic value to the test, except that with minute lesions which can be expected to give off but little poison, our hypothesis would interpret strong reactions as indicating strong resistance, and that in patients who have shown their ability to resist by becoming apparently cured, absence of reaction would indicate little or no absorption of poison. Our hypothesis explains lack of reaction in active cases, when not due to faults in technique, on the same ground as it explains weak reactions in these cases, not as meaning necessarily lack of poison or lack of resistance, but only slight poisoning or slight resistance, since with a stronger test solution many of these cases would react.

Diagnostic Value.—As the dosage which can be safely employed is limited by the severity of the reactions obtained it is not advisable as a general rule to increase the dose beyond one-fourth of a milligram of precipitated tuberculin in solution, and consequently we cannot expect to get more than 97 or 98 per cent. of positive reactions in a series of cases of active tuberculosis. And until the conditions under which anaphylaxis occur are better understood it is just as well not to retest with a larger dose active tuberculous cases which have failed to react to one-fourth of a milligram.

In general, we should say that the diagnostic value of the ophthalmo-reaction is as great as that of the Widal test for typhoid fever. The reaction to one-fourth of a milligram is more certain to be obtained in active cases of tuberculosis than are bacilli; but in every patient in whom reaction is present the conclusion must not necessarily be drawn that the symptoms of the disease from which he is suffering are due to tuberculosis.

The greatest practical value of the test is of course in assisting in the diagnosis of the tuberculous basis of slight signs at one apex when bacilli are not present in the sputum, and in the diagnosis of tuberculosis localized outside of the lungs.

If no reaction is obtained to a properly given dose of one-fourth of a milligram in an individual the chances are ninety-seven out of a hundred that he has no active tuberculosis.

If reaction to this dose occurs in an apparently healthy person the probabilities are that he has a small focus of tuberculosis, either active or clinically inactive, together with strong resistance; but as this has not been unequivocally demonstrated, and as the lesion, even if it does exist, may never give symptoms, it is not wise in practice to assume that the occurrence of reaction invariably denotes the existence of tuberculosis. The occurrence of reaction in an apparently healthy person should, however, put the physician on the watch to detect the earliest symptoms of tuberculosis in case any should appear.

The test would be of value as a rough test in large numbers of people, as in recruits, but the presence of reaction should only lead to more careful examination and not in itself be taken as certainly indicating clinically active tuberculosis.

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NOTE ON DEUTSCHMANN'S SERUM AGAINST INFECTIOUS DISEASES.

By EUGENE CARAVIA, M.D.,

NEW YORK.

Professor R. Deutschmann of Göttingen (now of Hamburg) in his endeavors to evolve a preparation against infectious conditions of the eye, noticed that if horses were fed with increasing doses of sterile yeast for a definite length of time, they acquired a greater power of resistance against microbic infections. With the object of utilizing this fact in the treatment of infectious diseases, Dr. Deutschmann was led to draw from the blood of animals thus treated a serum, according to the usual technique.

Thus far the results obtained have encouraged him and others, who have been using the serum for the last year or so, in the belief that a valuable weapon has been added to the armamentarium of physicians and surgeons in their combat against local or constitutional infectious diseases.

Deutschmann's serum is not a bactericide or an antitoxin; it is a polyvalent serum neutralizing germs of all kinds; not germs of one kind only. Its action is due to the introduction into the circulation of yeast-fed animals of an as yet unknown substance, which seems to be an ultimate result of a series of chemical reactions set up in their digestive apparatus. As long as the animal's health is normal, this unknown substance remains in the circulation unchanged and unutilized. If, however, the animal is exposed to a bacterial infection, the cells of the yeast-fed animals will take up this unknown chemical substance, which, by imparting new energy, increases their resistance to the bacterial invasion of the organism. The same action takes place if a serum from yeast-fed animals is injected into a patient suffering from microbic infection. The strengthening of the cells and their increased resistance put the infected body on the same plane as that of a healthy one, able to defend itself against invading microorganisms.

Deutschmann first employed his serum in a large number of traumatic or postoperative infections of the eye. But soon other German practitioners used his serum in cases of infection with staphylococci, streptococci, pneumococci, or their toxins, and it not

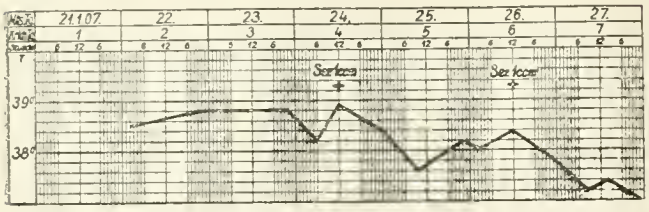

Chart 1.—Pneumonia of the left lower lobe in a woman 67 years old with diabetes; recovery.

only exerted a very favorable influence upon the patient's general condition, but also shortened the progress of the disease itself.

In apyretic conditions, the injection of 1.5 to 2 c.c. of serum has no influence on the temperature. In acute infectious febrile affections the temperature falls gradually but continuously, and in six to twelve hours reaches the lowest point. At other times, in the first two or three hours after the injection the temperature rises somewhat, to fall two or three hours later. In some instances there is a less decided drop in the temperature; it rises again the day following the injection, to fall the third day without another injection; and this fall remains, when the case is to terminate favorably. The frequency of the pulse is moderated, becoming regular, fuller, and stronger. Veterinary surgeons (Dr. Wolf of Cleve, Germany) have noticed in animals an increased secretion of urine and a manifestation of well being.

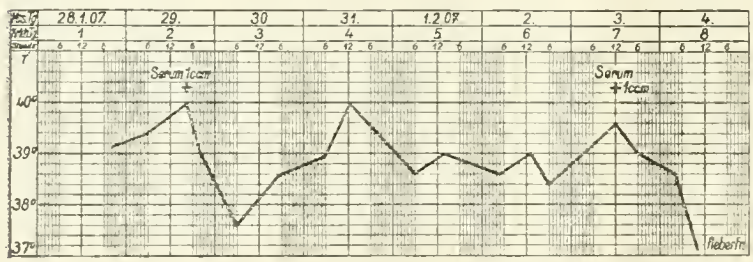

Chart 2.—Pneumonia of the left upper and lower lobes in a man, 27 years old; recovery. A fall in the temperature, with sweating, occurred after the first injection; the return of fever occurred with the invasion of the upper lobe.

The serum is well borne, not causing any harmful symptoms other than itching, erythema, or urticaria, similar to what is observed whenever a serum is employed for some time. This so-called serum affection is, however, not so frequent in the use of the Deutschmann serum.

The dose varies, according to the age of the patient and severity of the infection, from 0.75 to 1 c.c. in young people, to from 2 to 4 c.c. in adults. The initial dose should be the larger one. One, or at the maximum, two days later, the injection in smaller doses must be repeated if there is not a critical fall in temperature.

In chronic cases one injection of 0.5 to 4 c.c. is given, and if necessary repeated, according to the results obtained, two or three times a week, provided no special idiosyncrasy against the serum exists. In such cases treatment must be stopped, to be started again a few days later. The injection is usually given into the cellular tissue. When injected into the muscular tissues preference should be given to the pectoral or abdominal muscles. The serum may be given per rectum instead of subcutaneously. As the small amount of liquid used may be retained in ordinary syringes, Prof. Deutschmann advises the attachment to a Pravaz syringe of an olive-pointed capillary catheter, for the rectal injection; in such cases the dose must be doubled.

In acute and chronic purulent inflammations of the eye of microbic origin, Deutschmann's serum renders much valuable service. I cite herewith a few cases to demonstrate its value. For more

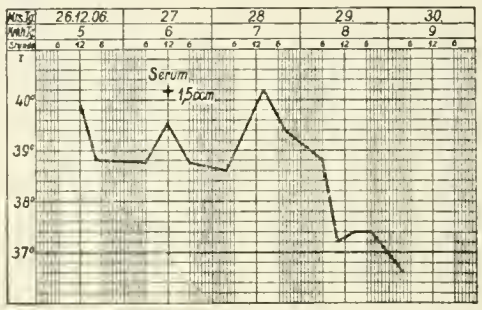

Chart 3.—Pneumonia of the right upper lobe in a patient, 34 years old; recovery.

detailed history I would refer to Deutschmann's article in *Beiträge zur Angenheilkunde* for August, 1907.

Case I.—Thos. L., 7 years of age. On August 26, 1906, received a pen wound in the right eye with corneal perforation and prolapse of the iris. Lens and vitreous affected. Clear vision five-eighths; next day severe infection. Eyeball enlarged and inflamed. Anterior chamber full of pus which also covered the iris. The prolapsed iris was removed. As tentative treatment on the second day I injected 1 c.c. of serum for preservation of the eye of which we had contemplated the enucleation. The inflammation receded gradually, and two months later the eye appeared opaque but without irritation. After iridectomy patient was able to count fingers at five feet and improvement still continued. No other treatment than the injection of the special serum was given, the eye being kept under a light bandage.

A series of difficult cases of so-called hypopyon-keratitis healed rapidly with very slight corneal opacity. Deutschmann cauterizes without exception all ulcers with the Paquelin or the galvanocautery,

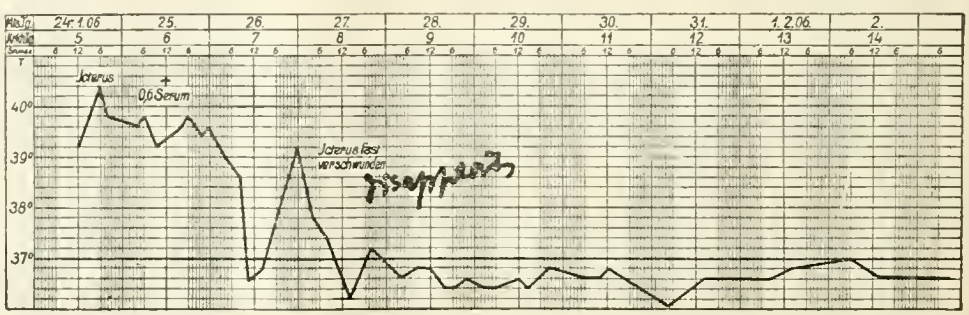

Chart 4.—Pneumonia of the right upper lobe in a 6-year-old boy; recovery.

and if on the next day no improvement follows, he applies his serum.

Case II.—Mr. H., 54 years old. Severe repeated alternating iritis of unknown cause, probably of arthritico-rheumatic origin. For years he was treated with inunctions, iodides, and salicylates at periods of several months at a time. The last attack was in the spring, and it was not until fall, after uninterrupted treatment, that there was some improvement; and then only for a short time. Then inflammation began anew with violent injection, pain, diffused aqueous humor, and opacity of vitreous body. He was now treated only with Deutschmann's serum, warm poultices when pain was severe, and a few drops of weak atropine solution. All symptoms receded and in nine weeks the patient was free from any trouble and could use the eye. Three months later there was renewed infection with pain. After two injections 1 c.c. each, the attack ceased; the eye was pale and the patient was able to resume his work.

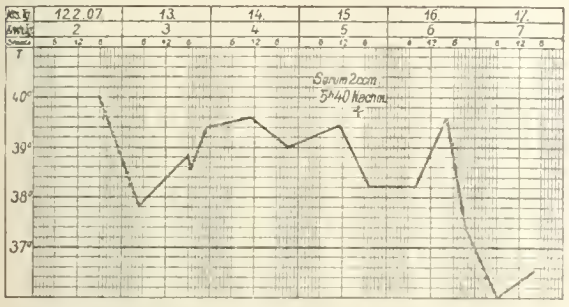

Chart 5.—Pneumonia of the right lower lobe in a patient 29 years old; recovery.

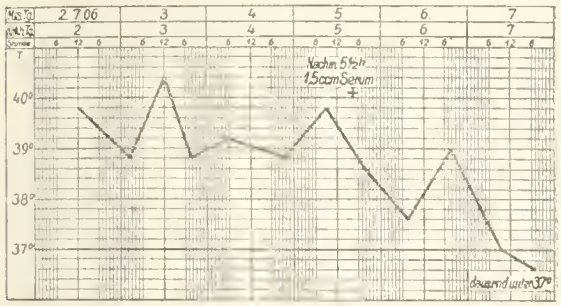

Chart 7.—Pneumonia of the middle lobe of the right lung in a patient 33 years old; recovery.

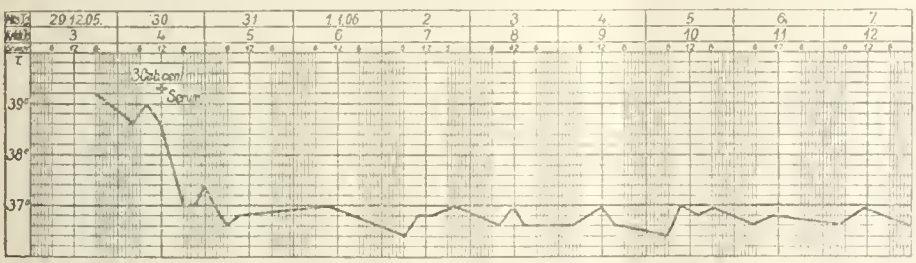

Chart 6.—Pneumonia of the left lower lobe in a woman, 22 years old; recovery.

Case III.—Mr. M., aged 42 years. Severe acute purulent iridocyclitis, thickening of the cornea, diffuse yellowish infiltration of the vitreous bodies. This was the only useful eye, the other having very weak vision. Aphakia of the now diseased eye, which had been operated upon years ago. Treatment by Deutchmann's serum, one injection of 1.5 c.c. every second day. Improvement followed the first injection, the vitreous body became clearer. Three weeks later the eye was healthy with full power of vision, as before.

Case IV.—Miss H., 25 years old. Burns from hot grease in left eye. Usual treatment brings no relief. The eye was greatly inflamed and painful, there were three small foci of central corneal infiltration, and a spot in the ciliary body lightly blue as in episcleritis. Cauterization, instillation of cocaine with novocaine and adrenalin. No improvement. A second cauterization was also without success, and was followed by increased inflammation. An injection of 0.75 c.c. brought a decided change. With the second injection the pain disappeared. The serum injections were continued every second or third day, and healing with comparatively slight corneal opacity took place in three weeks.

Case V.—Miss K., aged 16. Left eye old corneal opacities with fresh pannus, marginal phlyctenula and infiltration; ptosis. Treated for several months by other physicians without the slightest benefit. The patient was scrofulous and had an eruption under the arms and on the breast which was very refractory to treatment by ointments. An injection of 1 c.c. serum was given two or three times weekly. A remarkable improvement followed with healing of both eye and skin affections and improved general condition.

Case VI.—Miss U., 64 years old. Diabetic. Mature cataract. Extraction without iridectomy. Progress was good the first three days, but on the fourth day the patient was restless and the wound was reopened. The anterior chamber was turbid, some deposit on iris. An injection was given of 1 c.c. of serum. Next day the anterior chamber was clearer, and the iris was free from deposits. Another injection was followed by complete clearing and irreproachable healing.

At the Allegemeine Krankenhaus of St. George, Hamburg, Drs. Deneke and Zeckendorf have employed the serum in twenty-four cases of croupous pneumonia. Three of the patients who were in a critical condition when the injections were employed, died. In some cases the action of the serum was shown by the falling of the temperature and improvement in general condition. On the fourth day, and once on the second day, it was noticed, there was a sudden critical fall in the temperature with

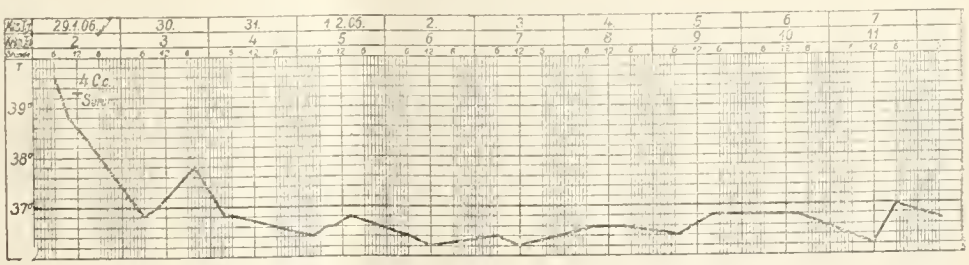

Chart 8.—Pneumonia of the left lower lobe in a lad 20 years old; recovery.

rapid recovery after the injection. In the other cases the temperature fell on the day the injections were given or on the second day, after a slight rise.

A glance on the temperature chart here appended will show that if Deutschmann's serum is not a "specific" against pneumonia, it acts like one. It takes good care of the patients without cold baths, alcohol, expectorants, or heart stimulants. There is no doubt in the minds of those who have seen the action of this serum that a timely use will greatly reduce the mortality from lobar pneumonia.

In case of acute infectious tonsillitis with strongly inflamed tonsils, painful deglutition, swollen and sensitive submaxillary glands, an injection of one c.c. of the serum brought the temperature down to normal the following day. The patient, a boy 10 years of age, was up three days after the beginning of the attack. Only a salt water gargle was employed beside the injection. Formerly, similar attacks kept the patient in bed eight days.

The writer has employed Deutschmann's serum in two cases of measles. One injection of 1.5 c.c. in each case, brought down the temperature in twelve hours and favorably influenced all other symptoms. One of the cases was in full eruption when treatment was begun. The patients felt well and hungry. Recovery was uneventful.

In a case of scarlet fever with severe initial symptoms of fever, vomiting, diarrhea, and backache, one injection of 1 c.c. serum was given. The patient, unable to be attended at home, was taken to the Willard Parker Hospital. The patient's relatives told the writer that all the annoying symptoms were stopped the very next day after the injection. Dr. Escoyez of Boussu Les Mons, Belgium, informs me in a recent letter of the success he has had in a case of scarlet fever treated with Deutschmann's serum, though without intention to draw general conclusions based on that case alone.

A case of swollen tonsils with difficulty of swallowing, pain, and a white suspicious exudation was injected with 1 c.c. Deutschmann's serum, pending the bacteriological examination of the culture taken immediately before the injection. The Board of Health reported the presence of the Klebs-Loeffler bacillus and diagnosed the case as one of diphtheria. On the strength of the report, I advised the patient to have the diphtheria antitoxin employed. I found him the third day after the injection with one tonsil perfectly normal in appearance and the other with only a very slight white patch. The temperature was normal. The patient said he felt as well as possible and wanted the antitoxin injection postponed. Nothing was heard of him for twenty-four hours, and I thought it my duty to notify the Health Department. When a physician from the department went to visit the patient (five days after the injection) he found that he had gone to work. After locating him and taking a fresh culture the Board of Health reported that no more diphtheria bacilli were to be found. (Health Department Laboratory, No. 16,705. Reports of December 31, 1907, and January 8, 1908.) No other treatment was employed. A similar case of diphtheria was reported to Professor Deutschmann by a German physician.

A case of acute swelling in the gluteal region with pain, redness, T. 102.5° F., which did not yield to various local applications, antipyretics, and incision, receded promptly after an injection of 1 c.c. serum.

Mr. D., 42, had repeated chills on Saturday, June 6, 1908. Temperature Sunday, 105° F. Pains front and back on right side of chest. First seen by writer on Monday, T. 104° F. Pulse 110. Intense pain. Very little dry coughing. No expectoration. Dullness below crest of right omoplate. Obscure breathing. No murmur or râles. Diagnosis, pneumonia. First injection of 3 c.c. of Deutschmann's serum. Delirious during following night. Next day, Tuesday, pains disappear. Patient coughs more. Characteristic brick color expectoration. T. 104° F. Pulse 100; good, full, regular. Soft murmur extending all over right lung. Crepitant râles, but very few. Second injection of 1 c.c. Wednesday patient feels better though temperature was still 104° F. in the afternoon. Local signs same. No injection. Temperature begins to fall at 8 P. M. and continues to gradually drop all day Thursday until it reaches 101° F. at 5 P. M. Third injection of 1 c.c. Friday; temperature normal. Appetite improves. Good night's rest. Little coughing. Scanty expectoration, rose color. Saturday percussion and vesicular murmur almost normal at upper three-quarters of the lung. Few crepitant râles at the lower fourth. Patient was up and out Monday, June 15.

This serum has also been used with excellent effect in a case of peritonitis, and has given good results in chronic cases of infectious skin diseases.

In conclusion, judging from the results already obtained, it can be said that in Deutschmann's serum we have a valuable therapeutic agent which is destined in the course of time to take a prominent place in the every day practice of those who object to the depressing effects of other agents.

104 West Forty-ninth Street.

A NEW AND EFFICIENT METHOD OF ROOM DISINFECTION.

PRELIMINARY ANNOUNCEMENT.

By W. B. McLAUGHLIN, M.D.,

NEW YORK.

In order to make clear the advantages of the method of disinfection, which I am going to describe, it is necessary to define the exact status of the art as applied to dwellings. The methods most prominently before the profession to-day are:

1. What is known as the "Maine Method," *i.e.* obtaining formaldehyde gas by mixing 300 c.c. of 40 per cent. solution of formaldehyde and 150 grams of potassium permanganate for each 1,000 cubic feet to be disinfected. The most prominent exponent of this method is the United States Public Health and Marine-Hospital Service.

2. The "Walker Method," which consists in dissolving 20 to 25 pounds of commercial aluminum sulphate in five gallons of water, adding to this mixture 15 gallons of 40 per cent. solution of formaldehyde, and liberating formaldehyde gas by mixing 8 ounces of this mixture and one pound of unslaked lime for each 1,000 cubic feet to be disinfected. The most prominent exponent of this method is the New York Health Department.

3. The "Stewart Method," which consists in thoroughly spraying the walls, furniture, and floor of the room with a 20 per cent. solution of formaldehyde gas, and then spraying the mattresses, laying one on top of the other, and then the pillows, bedding, etc. The most prominent exponent of this method is the Philadalphia Health Department.

In the first two methods (the Maine and the Walker Methods), penetration to any extent is not claimed, and it is the custom both of the Marine-Hospital Service and of the New York Health Department to disinfect articles such as bedding, clothing, etc., in the steam autoclave. But in the Stewart

Method it is claimed that the disinfection is sufficiently perfect to render steam sterilization in the autoclave unnecessary. As authority for this procedure, I was referred to an article by Dr. A. H. Stewart in *American Medicine*, Vol. X., No. 22. A careful perusal of this article, to my mind, failed to disclose evidence of penetration sufficient to warrant the abandonment of steam sterilization for those articles requiring deep penetration. The author says: "Our success with this machine in room disinfection led us at once to test the value of spraying bedclothing in the same way instead of hauling the clothing to the Municipal Hospital and running it through an autoclave. A series of tests was made in the every-day work of the disinfectors. The floor being sprayed, the mattress was then thoroughly sprayed and placed upon the floor, and the quilts, sheets, etc., were placed one on top of the other and sprayed. Our test objects, small, oblong tin boxes with lids, inclosing strips of cloth soaked in bouillon cultures of *B. coli communis, B. pyocyaneus*, and *B. subtilis*, were placed in the mass of clothing. When the lids of the boxes containing the infected test objects were opened, 500 tests showed 99.4 per cent. killed. All test objects not killed were sporulating *B. subtilis*. These results induced us to stop the autoclave disinfection of bedclothing, except in cases of smallpox. This has been done, and as a result there has been a saving of nearly $400 per month."

According to this statement, the mattresses and each article of bedding was sprayed. If this were the case, it is evident that the killing of test objects placed as described would be of no value as evidence of penetration, no assurance being given that these test objects would have been killed had penetration been required through even one thickness of blanket. If each separate article of bedding was not sprayed no data are given by which the operator would know how often to sandwich in a sprayed article. In order to determine these points, I undertook a series of experiments, but when in the midst of them was considerably disappointed to find that this work had been covered by Dr. Rosenau, and published in a bulletin of the Hygienic Laboratory of the United States Marine Hospital and Public Health Service, entitled, "Formalin in Disinfection of Baggage without Apparatus."

As my work, so far as it went, is merely confirmative of Dr. Rosenau's, I will give his conclusions. Page 33 of the above-mentioned Bulletin says: "Large quantities of formalin poured on absorbent material in the corners of, or suspended in a box, have practically no disinfecting power between layers of blankets or sheets, even after five days' exposure. The formalin neither evaporates nor liberates its formaldehyde in a closed container at ordinary temperature (18 to 25° C.) in twenty-four hours. In two to five days the fluid will evaporate, but the formaldehyde is deposited as paraform on the spot where it was poured. This method of pouring the formalin on absorbent material is, therefore, totally inapplicable in the disinfection of baggage, in a closed container. Sprinkling formalin on baggage in a trunk or box may be depended upon to kill non-spore-bearing organisms, such as typhoid and diphtheria, through three layers of blankets. The method, however, is not a reliable one unless a sufficient quantity of formalin is sprinkled in small drops uniformly over the surface and between many layers. It cannot be depended upon to kill anthrax spores through one layer of blanket. Formaldehyde is given off from its aqueous solution in very small amounts at ordinary temperatures. The evaporation of the solution in a closed container is slow and uncertain. In using this method, therefore, great care must be exercised to sprinkle the formalin uniformly, and in small drops. It is best to keep the container in a warm place to facilitate the evolution of the gas. Use not less than 4 c.c. of formalin, containing 40 per cent. formaldehyde, over every square foot of surface between every third layer of blankets or their equivalent. Somewhat less will suffice for linen and cotton goods. This means the use of from 50 to 100 c.c. per cubic foot. Increasing the amount from 2.5 c.c. to 4 c.c. per square foot does not correspondingly increase its power of penetration, but gives constant results. Increasing the time of exposure over twenty-four hours does not increase the penetrating power of the disinfectant. Pouring the liquid in one place, and splashing the liquid on with brushes will not suffice. The formalin must be carefully sprinkled in small drops and distributed uniformly over the surface, between many layers."

It is evident that in the Stewart Method penetration can only be expected where the formaldehyde has been carefully sprinkled in layers and confined in piles of bedding, baggage, etc., and even under these conditions only to the equivalent of three layers of blankets.

One would expect that, when a body pervious to gas was immersed in a gas, that in obedience to the law of diffusion the gas would diffuse through the body, always providing that the time element be sufficient. That formaldehyde does not do this we know, and the reason advanced is that the gas formaldehyde coming in contact with the fabric is converted into its solid polymeride trioxymethelene, and deposited on the surface of the fabric.

I have discovered that if the gas formaldehyde be mixed with vapor of carbolic acid, this tendency to polymerization does not seem to exist, and that the formaldehyde penetrates as one would expect, *i.e.* obeys the ordinary law of diffusion of gases.

The mixture which I have used is 75 per cent. of a 40 per cent. solution of formaldehyde and 25 per cent. of carbolic acid. I use 8 ounces of this mixture to 1,000 cubic feet of air space, and allow the room to remain closed twelve hours. I have used a retort to volatilize the mixture, but, as a matter of convenience, usually saturated a sheet and hung it up in the room to be disinfected (an ordinary sheet will hold about 6 ounces of the mixture).

The test objects used were those of the New York Health Department, consisting of a small thread of silk infected with a resistant strain of *B. pyocyaneus*. My exposures were always at night, from 7 P. M. until 7 A. M. I did not keep a detailed record of these tests, and, therefore, cannot give one, but I killed the bacteria on these test objects, when placed under the carpet; in the pocket of a winter coat and the coat tightly rolled and corded; through twelve layers of blankets; wrapped tightly in a handkerchief, and placed in a pasteboard box, the lid being placed tightly on the box; and in many other tests of this character. In no case did I get a growth in a test object exposed.

My results were so remarkable that I was inclined to question the accuracy of my own work. I asked Dr. F. M. Jeffries, Director of the Pathological Laboratory of the New York Polyclinic, to make tests for me. He tells me that he has not as yet tested the penetrative powers of these mixed gases farther than through seven layers of ordinary hospital blankets, but in all of his tests up through seven layers of blankets the bacteria have been killed.

1451 Boston Road.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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OXYGEN IN SURGERY.

THIRIAR and his assistants were the first to employ oxygen extensively in phlegmons, furuncles, purulent joints, and in tuberculous peritonitis. They insufflated it locally, and claimed that it prevented an extension of the inflammation, diminished the virulence of the bacteria, neutralized toxins, stimulated the formation of granulation tissue, and caused an increased phagocytosis and leucocytosis. In spite, however, of individual good results obtained with oxygen, it never received an extensive trial. In an attempt to verify all that has been claimed for this method, Burkhardt (*Deutsche Zeitschrift für Chirurgie*, Vol. XCIII., No. 2) carried on a series of experiments in rabbits and dogs. Uninfected wounds were treated in the ordinary way, and with oxygen, the latter having been kept in constant contact with the wound. The oxygen caused a marked hyperemia and stimulated the formation of granulation tissue, but a wound so treated did not heal any quicker than one treated with a dry dressing. As regards its action on bacteria, he experimented only with staphylococci and streptococci. Agar plates were inoculated and kept in daylight at room temperature; some were kept in ordinary air, others under a jar containing concentrated oxygen. The latter showed only a few colonies at the end of four days, while the former were studded with them. The same experiment was carried out in a dark room with similar results, demonstrating that the oxygen, and not the sunlight, retarded the growth of the bacteria. When the same tests were made in the incubator, both plates showed considerable growth, and while the colonies on the plate which was kept in concentrated oxygen were a little less numerous, the difference was far less than when the experiments were carried out at room temperature. When animals were injected with bacteria grown in ordinary air and in oxygen, abscesses appeared in both cases, showing that the oxygen did not influence the virulence of the bacteria. Giving the animal a prophylactic intravenous or subcutaneous injection of oxygen did not change the result: abscesses formed or sepsis set in just the same. When the toxins of the bacteria grown in oxygen were injected into animals the resulting abscesses appeared later, and were smaller than those caused by toxins from bacteria grown in ordinary atmosphere. Hence toxins from bacteria grown in oxygen would seem to be a little less active. The toxin itself is not affected by oxygen; for after being exposed to concentrated oxygen for a few days it causes abscesses, when injected into animals, just as do toxins not so exposed.

Burkhardt injected oxygen into the peritoneal cavity, and found that it caused a hyperemia and diminished the absorptive power of the peritoneum. Twenty out of forty animals with general purulent peritonitis were treated with oxygen, the remaining twenty received no treatment. The death rate among those treated with oxygen was 45 per cent., among the others it was 65 per cent. He also treated five guinea pigs having tuberculous peritonitis with oxygen insufflations. While only one survived, the peritoneum showed fewer tubercles and less ascites than in the guinea pigs dying of tuberculous peritonitis, that were not treated with oxygen insufflations, although all originally received the same injection of tubercle bacilli. Remembering that oxygen treated by *x*-rays produces ozone, and that the latter is a bactericide, he insufflated the peritoneal cavity of rabbits having a general purulent staphylococcus peritonitis with oxygen, and immediately afterward exposed them to the *x*-rays for forty-five minutes. These animals all survived, while those not treated in this way, but injected with the same amount of a bouillon culture of staphylococci, died.

We may conclude from Burkhardt's experiments that oxygen therapy is probably of little avail in surgical conditions, excepting, possibly, in peritonitis. It retards the growth of bacteria slightly, but does not kill them. In the peritoneum it causes a hyperemia and diminishes absorption, and is, therefore, worth trying in both suppurative and tuberculous peritonitis. Other forms of treatment are frequently useless, and oxygen insufflations can do no harm. The use of ozone, on the other hand, either in concentrated form or produced by the action of the *x*-rays upon oxygen, seems worthy of trial in all septic infections, especially in those of the peritoneal cavity.

BIER'S HYPEREMIA IN GONORRHEAL ARTHRITIS.

ARTIFICIAL hyperemic treatment is now frequently employed in acute bacterial surgical infections which are located superficially. The treatment of infectious inflammation of joints involves greater responsibility, and though Bier reported good results in gonorrheal arthritis with artificial hyperemia as early as 1894, large statistics concerning this form of infection treated by Bier's method are rarely found in medical literature. In von Bergmann's clinic previous to 1904 gonorrheal joints were treated by immobilization; from that time on they were treated with artificial hyperemia produced by an elastic bandage. Forty patients were treated in this way and a complete history of each was published by Baetzner in the *Deutsche Zeitschrift für Chirurgie*, Volume 93, No. 1. In the acute stage of the disease he recommends leaving the bandage on from twenty to twenty-two hours. He warns against stopping the treatment too soon; in his cases it was employed for from five to ninety days, on an average twenty-six days for each case. Disappearance of pain was usually the first result of the treatment. As a rule the inflammatory symptoms disappear early, permitting painless active and

passive movements, as a result of which there is little atrophy of the muscles and early good function of the joint. Thirteen joints, in all but five of which the inflammation was of the severe phlegmonous type, were treated within the first week of the disease, the treatment lasting from eight days to six weeks. All were cured and none showed any disturbance of function. In the remaining twenty-seven patients treatment was begun from ten days to twenty-one weeks after the onset of symptoms; they had either received no previous treatment, or the latter had done no good. Of these twenty-seven the best results were obtained in those cases in which acute symptoms were still present, but even some of those without acute symptoms were improved, the treatment causing a softening of the chronically inflamed tissues, thus making them more amenable to massage. Twelve of the twenty-seven were discharged with no disturbance of function, nine had slight disturbances, while in six the range of motion was only half that of the normal joint. In no patient did a joint become ankylosed.

Baetzner believes that cases not improved by the Bier treatment are those in which the technique was not properly carried out. Too great stress cannot be laid on proper technique, for often the bandage is put on too tightly or we see the treatment combined with an ice bag on the diseased joint, the one causing a hyperemia the other an anemia. The histories of these cases also show that the result as regards function and duration of disease is best when the treatment is begun early. With the older method of treatment, *i.e.* immobilization, more cases of ankylosis were seen; one never knew when to remove the fixation bandages; if they were removed too early and motion permitted an acute exacerbation was liable to set in, if left on too long there was a greater tendency to ankylosis. The hyperemic treatment on the other hand diminishes pain and thus renders possible gentle active and passive motion with less chance of any functional disturbance. Hyperemic treatment makes greater demands on the physician's time than immobilization, but the result amply rewards him for his trouble. The rapid abatement of pain in Baetzner's cases must convince even the most skeptical of the great truth underlying Bier's teachings, namely, that by artificially increasing the symptoms of inflammation we hasten cure.

ALIMENTARY LEVULOSURIA.

The methods of testing the functional activity of various organs have not reached perfection, except, possibly, with respect to the stomach. Investigations as to whether the liver functionates properly are not of recent date. Many methods of testing its functional activity have been suggested, but nearly all of them soon fell into disrepute. Animal experiments have demonstrated that levulose is changed to dextrose only in the liver. This led H. Sachs to suggest feeding levulose in order to test the functional activity of this organ, and when it was partly excreted by the kidneys as levulose, he concluded that the liver was not functionating properly. Numerous investigators have since proven that there exists a parenchymatous degeneration of the liver when levulose is excreted by the kidneys.

Sabatowski tried the test in seventy-eight patients suffering from various diseases, and published his results in the *Wiener klinische Wochenschrift* of May 28, 1908. He administered 100 grams of levulose in lemonade after the patient had been on a diet free from carbohydrates for twenty-four hours. The urine was tested by Seliwanow's method. In twenty patients with cirrhosis he found it negative only twice. In only one out of eight catarrhal jaundice patients did he find no levulose in the urine. Levulose was found in all patients suffering from infectious diseases. In patients suffering from uncompensated heart lesions with enlarged liver no levulose was found in the urine. His experiments show that levulose is excreted by the kidneys in patients in whom there is parenchymatous degeneration of the liver. The amount of levulose in the urine is, however, no criterion of the extent of the degeneration, for there is no way of telling how much levulose was decomposed in the stomach or intestine before it reached the liver. As it is found in the urine in most infectious diseases, the test is but rarely of value as a differential diagnostic measure. It might, however, be used to differentiate ascites due to cirrhosis from ascites due to tuberculous peritonitis. Other than that, the routine application of the levulose test can be of little value clinically.

Chondrotomy in Apex Tuberculosis.

Many attempts have been made to explain the frequency with which the apices of the lungs are attacked by tuberculous disease, the most satisfactory theories being founded upon the little ventilation of the apices in comparison with other parts of the pulmonary tissue, and the upward course of the bronchial division favoring the deposition of infectious material that has been inspired. Freund and Hart's researches have shown that maldevelopment of the first rib, consisting of shortening and early ossification of its cartilage predispose very markedly to infection of the apices, both the size of the upper aperture of the thorax and the movements of the apices in respiration being seriously diminished by these conditions. Both authors have found that in many cases of healed tuberculous disease of the apices false joints have formed at the cartilages of the first rib, such joints making up for the mechanical interference with respiration due to the maldevelopment of the rib, and Freund has proposed to imitate this conservative process of the organism by the artificial production of a false joint. In the *Münchener medizinische Wochenschrift* for June 23, 1908, Dr. Hans Seidel tells of his experience in the application of Freund's principle. In two patients suffering from apical tuberculosis the mechanical interference with the ventilation of the apices was quite marked; resection of portions of the first and escond ribs was carried out, and the patients showed rapid and progressive amelioration of symptoms and the disappearance of physical signs of apical tuberculosis, gained in weight, and were discharged cured, the usual measures of treating tuberculosis proving quite effective in their cases after the operations. Dr. Seidel thinks that Freund's operation is indicated in all young individuals showing stenosis of the upper aperture of the thorax and tuberculous disease of the apices, and in older persons showing

ossification of the first rib cartilage and diminished movement of the first rib, especially if the usual treatment for tuberculosis has proved ineffectual, while the lesions seem to be confined to the upper portions of the lungs. Of course, the procedure recommended by Freund and Seidel is at present only in its experimental stage, and in any case is to be used in the presence of special indications in no way taking the place of the usual measures of treatment of tuberculous lesions. Further experience with it, however, may entitle it to consideration as one of the very few surgical procedures open to us in the treatment of localized tuberculosis.

Acute Dilatation of the Heart.

It is the general opinion of physicians that great physical exertion often results in acute dilatation of the heart, and almost every practitioner believes he has seen such cases as proved by the position of the apex beat and the percussion of the heart borders. Schott of Nauheim thinks indeed that such dilatation is a physiological phenomenon that may be observed in healthy persons after exertion not exceeding the usual limits of their daily occupations, and has used *x*-ray pictures as evidence of such a phenomenon. Writing in the *Münchener medizinische Wochenschrift* for June 23, 1908, Dr. Moritz seriously questions the correctness of the usual view held by the profession, as well as the value of the proofs used by Schott and his followers to justify the assumption that dilatation is a frequent event. The position of the heart previous to the occurrence of "dilatation" is not always known to the physician who imagines he has observed it after some unusual exertion, while *x*-ray pictures are, of course, only shadows, and may quite mislead the observer as to the position of the landmarks. Dr. Moritz had a good opportunity to study the hearts of several wrestlers after the severe exertion which their occupation demands. In no case was there any dilatation of the heart to be shown, and like results were noted in several bicycle riders after some very fast riding. Later, he repeated his observations, using the orthodiagrammatic methods of determining the size of the heart before and after the exertion of a bicycle race. Indeed, Moritz claimed to have noted even a diminution in the size of the heart following moderate or severe exertion. The possibility of an acute dilatation is not denied by the author, but such a phenomenon, according to him, is a sign that the heart is not free from some pathological defects.

Subaqueous Examination and Treatment in Gynecology and Obstetrics.

The reflex spasm of abdominal muscles or their voluntary rigidity in nervous or apprehensive patients may interfere very much both with the correct diagnosis of many abdominal and pelvic diseases as well as with the treatment of them by manipulation. This is especially noticeable in the various mechanical procedures used in the correction of malpositions of the uterus in gynecology. In a recent article (*Berliner klinische Wochenschrift*, June 22, 1908), Dr. O. Tuszkai warmly defends the examination and the treatment of many obstetrical and gynecological patients under the water of a warm bath. With this method pregnancy may be diagnosed much earlier than usually, such physical signs as the great difference between the soft lower uterine segment and the resistant fundus containing the young ovum, that form the bases of Hegar's sign of pregnancy, being well appreciated as early as the sixth week. The fetal parts are very easily mapped out in the later months if the examination is made under water, and accordingly the diagnosis of malpositions may be made early. But especially useful such immersion proved to be in the diagnosis of gynecological diseases, ovarian cysts and fibroids of the uterus, in the reposition of the misplaced uterus. In addition, several inflammatory lesions of the pelvis which usually would have required the use of an anesthetic for a satisfactory examination could be painlessly and thoroughly examined under warm water. Of course, regular use of this method of examination in the office practice of a gynecologist would require special arrangements of rooms, water supply, etc. According to Dr. Tuszkai, however, the advantages are such as well to repay the extra trouble and expense involved in carrying out examinations and treatment under warm water; indeed, he gives full directions in his article in reference to the mechanical arrangements required by the technique of examinations made by him.

Mr. Bok, Hygienist.

The *Ladies' Home Journal* of Philadelphia, if it were taken seriously by its readers, would be a power for evil in the land. Fortunately, it is known to be given to foolish utterances, so the ladies read it and smile and forget when it tells them to avoid the drug doctors who poison them by prescribing quack remedies. Sometimes, however, it displays such outrageous ignorance and gives pernicious advice with such an air of scientific cocksureness that a word of caution to those whom it would mislead is perhaps necessary. In the June issue the literary editor, to whom, for some unknown reason, questions of hygiene seem to be referred, says, in answer to the query of an anxious reader, that boiled water is unsafe to drink because a temperature of 212° does not always kill all the bacteria which it may under exceptional circumstances contain. He admits, on the authority of an anonymous French experimenter, that most germs are killed in a few minutes by such a temperature, but, evidently preferring no bread to nine-tenths of a loaf, he condemns the use of boiled water because an occasional spore may escape destruction in the process. He omits to say, probably because he doesn't know, that the typhoid bacillus and the germs of dysentery, the presence of which constitutes the chief danger in the drinking of unboiled water from doubtful sources, are absolutely killed by a temperature of 212°, and that the microorganisms which escape find no congenial soil for their development in the alimentary canal. This negative condemnation of boiled water would be bad enough, if his readers took the hygienic oracle's words seriously, but he descends to absolute imbecility in his closing paragraph: "Ordinary boiled water is liable to cause numerous severe and often dangerous stomach and intestinal maladies." It is disheartening to find a journal with pretensions to sanity giving publicity to such medieval drivel.

Charitable Bequests.—Under the will of the late Mrs. Eugenia Shumway of Polo, Ill., the Deaconess' Home and Training School of the Wesley Hospital of Chicago, and the Old People's Home at Edgewater receive each $1,000.

News of the Week.

The Democratic Health Plank.—The Democratic Convention, in session at Denver during the past week, inserted the following plank in its platform: "We advocate the organization of all existing national public health agencies into a National Bureau of Public Health, with such power over sanitary conditions connected with factories, mines, tenements, child labor, and other such subjects as are properly within the jurisdiction of the Federal Government and do not interfere with the power of the States controlling public health agencies."

International Classification of Causes of Death.—The Department of Commerce and Labor, Bureau of the Census, announces the second decennial revision next year of the International Classification of Causes of Death, which is intended for the purposes of morbidity and hospital returns as well as for mortality statistics. This system, which was formerly known as the "Bertillon system," was recommended by a committee of the International Statistical Institute in 1893, by the American Public Health Association in 1898, and at the recent meeting in Chicago of the American Medical Association. It is employed by the United States Bureau of the Census, by all registration States, and by nearly all registration cities in the United States. It is used by a number of European countries, by all countries in North and South America, and by Japan. The preliminary announcement just issued by Dr. Bertillon, at the request of the Ministry of Foreign Affairs of the French Government, indicates that the year 1909 has been chosen for the revision largely to facilitate the use of the revised classification in connection with the mortality statistics of the census year 1910 in the United States, and it is hoped that the profession generally will show appreciation of this action by hearty cooperation. Many suggestions from American physicians were incorporated in the first revision, but the progress of medical science and the test of practical use will indicate desirable changes. The Director of the Census will send a pamphlet on "Relation of Physicians to Mortality Statistics," containing an outline of the classification, upon request.

Danger from Flies.—The Chicago Health Department, in its weekly bulletin, speaks of the danger from the common house fly, and urges that flies be kept out of homes and away from food, thus avoiding the diarrheal disturbances and typhoid fever, which may follow as the result of having so many of these pests in houses. The bulletin points out that flies may be the conveyers of scarlet fever, diphtheria, tuberculosis, and other infectious diseases.

Mosquitos and Flies Must Go.—The doom of house flies and mosquitos has been sounded in the announcement of the beginning of a national campaign against these pests by the Government Bureau of Insects, which will cover the entire country. The extermination of the house fly is a simple matter, as it is strictly local and never goes far from the place where it is hatched. Practically all house flies are bred in stables. For the mosquito, a general control by the State is deemed advisable because of the fact that certain species are migratory and are liable to appear in multitudinous swarms in places far from their breeding areas, causing profound discouragement to local efforts toward extermination.

The Samuel D. Gross Prize.—The Philadelphia Academy of Surgery announces that essays in competition for the Samuel D. Gross Prize of fifteen hundred dollars will be received until January 1, 1910. This prize is awarded every five years to the writer of the best original essay, not exceeding in length one hundred and fifty printed octavo pages, and illustrating some subject in surgical pathology or surgical practice, founded upon original investigation, the candidates for the prizes to be American citizens. Essays submitted for the competition must be typewritten, in English, and by a single author, and should be sent to the "Trustees of the Samuel D. Gross Prize of Philadelphia Academy of Surgery, care of the College of Physicians, 219 South Thirteenth street, Philadelphia." Essays should be distinguished by a motto and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

Tuberculosis Warfare. — The fight against tuberculosis is being carried on as energetically in the West as in the East. In San Francisco a Society for the Study and Prevention of Tuberculosis has recently been formed, many laymen and women uniting with the physicians. In St. Louis, outdoor meetings are being held in the parks under the auspices of the St. Louis Society for the Relief and Prevention of Tuberculosis. The program usually begins with a phonograph and moving picture entertainment, and the lecture is illustrated with lantern slides. During 1907, thirteen of such meetings were held, with an estimated attendance of 50,000. "Hopewell," the sanatorium for the treatment of tuberculosis which is being erected by the Board of Charities of Minneapolis, will be ready on August 1. The building is being erected on the plan of a model which won first prize at an international tuberculosis congress, and is of simple and inexpensive construction. In Lansing, Mich., the Board of Health is sending large posters to the owners of factories and shops, with the request that they be prominently displayed. Rules and suggestions for the prevention of the disease and for its cure are clearly set forth. These are but four examples of a campaign of education and relief which is sweeping over the entire country.

Safe Street Car Fenders.—During the next three months the Public Service Commission of New York will make a series of tests of fenders and wheel guards for surface cars. Manufacturers and inventors of safety appliances from all over are to be asked to submit their devices for practical demonstration. The competition is to decide what types are best adapted for use in the city. The street railroads have been killing an average of forty to fifty persons a month, besides crippling many more, and it is apparent that most of these accidents are due to imperfect fenders and wheel guards. In order to obtain practical results, the actual conditions of street traffic will be reproduced in the tests as far as possible, and dummies will be used to represent persons, one weighing 170 pounds, one 120 pounds, and one 50 pounds. Ten different tests with each dummy will be called for, including upright positions facing toward and away from the car, and prone positions in various attitudes.

A Simple Icebox.—Because hundreds of chil-

dren are made ill each summer by drinking milk which has been standing at room temperature, and is consequently swarming with bacteria, the Milk Committee of the Association for Improving the Condition of the Poor is introducing a cheap and novel form of icebox into the districts where they already have established milk depots. Dr. Alfred F. Hess is the inventor of the contrivance, which is made by placing a tin pail into a soap box and packing the intervening space tightly with sawdust or newspapers. A smaller pail is then placed inside the first. This contains a piece of ice and is half filled with water. The whole is covered with a thick layer of newspapers. A bottle of milk placed in the inner pail will remain at a temperature of 40° for twenty-four hours, and the milk will keep sweet. While it was hoped that the milk depots thus far established might be made self-supporting, but few of the users have as yet been able to pay even the small cost price, and the depots are thus almost entirely dependent upon public subscriptions. It is estimated that twenty-five cents a week will provide one baby with properly modified milk and also the advisory services of a doctor and nurse.

Baby Foods.—Announcement is made in Washington that Dr. H. W. Wiley, the head of the Bureau of Food and Drug Inspection of the Department of Agriculture, will shortly begin a comprehensive investigation into the composition of the various prepared foods for infants on the market. The reason for the investigation is said to lie in the number of complaints received by the Bureau from mothers whose children have failed to thrive on some of the much-advertised preparations. Prepared foods for cattle and for poultry are also to be investigated.

Day Nursery Incorporated.—The New York State Board of Charities, on July 8, approved the incorporation of the Washington Heights Day Nursery of New York City, and of the Home for Jewish Children of Brooklyn. The Board also received a report of the special committee named to investigate the private hospitals in New York City which are receiving public moneys from the Department of Public Charities. The report showed that the charges made by the Superintendent of Mount Sinai Hospital that his institution had been discriminated against were not sustained.

Doctors Honored.—At its recent commencement, the University of Michigan conferred the degree of M.A. on Dr. Walter Courtney of Brainerd, Minn.; of D.Sc. on Dr. Franklin P. Mall of Johns Hopkins University, and of D.Sc. on Dr. William J. Mayo of Rochester, Minn. All were members of the medical class of 1883.

Dr. Wm. A. Evans, Health Commissioner of Chicago, has been added to the faculty of the Northwestern University Medical School, and henceforth will hold the Chair of Sanitary Science. Dr. Evans' practical work as Health Commissioner of Chicago has well fitted him to teach with authority municipal sanitation and all the problems that arise in that connection. Dr. Evans has been Professor of Pathology in the Medical Department of the University of Illinois for seventeen years.

Dr. Jacques Loeb of the University of California and Dr. Charles Sedgwick Minot of the Harvard Medical School have been appointed corresponding members of the Physico-Medical Society of Vienna.

Liquor Prescriptions.—North Carolina having joined the ranks of Prohibition States by passing an act making the sale of intoxicating liquors illegal except on a physician's prescription, the State Medical Society at a recent meeting at Winston, N. C., passed a resolution condemning as unprofessional and grossly immoral any lax or unfaithful conduct of its members in exercising the privileges conferred by the law, and urging upon the State Board of Medical Examiners the duty of revoking the license to practise of any physician proved guilty of abusing the privilege accorded to him in the prescribing of intoxicants.

New York Public Baths.—The opening of the river baths on July 6, during a period of very severe heat, proved a boon to hundreds who were able to make use of them. Nine of the river baths were ready and two others will shortly be opened. Besides these, there are eight public baths in the city which are open from 5 in the morning until 9 at night, the first part of the day for men, the latter part for women. These were opened on July 5. The University Settlement, at Eldridge and Rivington streets, having been able through the generosity of Mr. James Speyer to add sixteen new baths to the existing twenty-seven, is now giving baths to over 1,000 persons a day. For these baths a charge of five cents is made, to cover the cost of soap and towel.

Cocaine Peddlers Arrested.—Two prisoners charged with peddling cocaine by an inspector of foods and drugs of the Department of Health were recently arraigned in New York and held in $1,000 bail each for trial. It was stated that the inspectors were on the trail of a Brooklyn man whose business it was to supply cocaine to agents who peddled it in the vicinity of the Pennsylvania tunnel excavations. In Pennsylvania, during June, a man and a woman, both colored, charged with being ring leaders in the cocaine traffic in Harrisburg, were arrested, convicted, and sentenced to six months in jail.

Horseflesh as Food.—Vienna will shortly open new municipal slaughter houses for the killing of horses. There has been a steady increase in the consumption of horseflesh in the city, over 20,000 horses having been slaughtered for food during the last year. Most of the flesh is made into sausages of various kinds. The new buildings cover an area of 3,300 square yards and provide stabling for 200 horses and stalls for killing fifty-nine, each fitted with hoisting apparatus.

London Approves Pasteurization.—The public health committee of the London County Council has presented a complimentary report on the demonstrations given at the temporary laboratory established by Mr. Nathan Straus, for pasteurizing milk. The question of furthering the use of pasteurized milk was discussed, and it was the sense of the members that comprehensive plans for carrying out the Straus system should be formulated.

Erection of a New Dispensary.—The Northwestern University Medical School of Chicago will soon build a dispensary on Calumet avenue, north of Mercy Hospital, the property having been acquired by Dr. John B. Murphy for the institution, and conveyed by him to the university for $7,801, June 26.

The University of Madrid will celebrate the four hundredth anniversary of its foundation on October 18, and extensive preparations are being made for the event.

The Sea Breeze Home for mothers and children at Coney Island closed, on July 11, the biggest week in its history. On one day 405, the highest number, were cared for, which made it necessary for the older boys to camp out on the beach. Lack of funds prevents the enlargement of the home, which is desirable. The home accommodates both those who go for the day and those who go to stay for one or two weeks.

Charitable Bequests.—St. Rose's Free Home for Incurable Cancer at 420 Cherry street, New York, receives $5,000 under the will of the late John G. Hecksher.

The Physician's Automobile Association of the Oranges has recently been formed in Orange, N. J., with a charter membership of forty physicians who are advocates of the automobile. The officers are: *President*, Dr. Edgar C. Siebert; *Vice-President*, Dr. Palmer A. Potter; *Secretary*, Dr. Stephen G. Lee; *Treasurer*, Dr. Arthur W. Bingham. The Board of Governors is composed of Drs. Thomas W. Harvey, Mefford Runyon, and Richard D. Freeman.

Association of Military Surgeons.—The date of the annual meeting of the Association of Military Surgeons of the United States has been changed to October 13, 14, 15, and 16, 1908. The meeting will be held at Atlanta, Ga., as first announced.

The New Hampshire Homeopathic Medical Society, at its annual meeting on June 24, elected the following officers for the ensuing year: *President*, J. E. Willis of Somersworth; *Vice-President*, C. A. Sturtevant, Manchester; *Secretary*, R. V. Sweet, Rochester; *Treasurer*, Herman Christophe, Manchester.

The Medical Society of the State of North Carolina at its fifty-fifth annual meeting, elected the following officers: *President*, Dr. Jacob F. Highsmith, Fayetteville; *Vice-Presidents*, Drs. C. M. Poole, Salisbury, and Daniel A. Dees, Bayboro.

The National Institute of Homeopathy held its sixty-fourth annual meeting in Kansas City during June. The following officers were elected: *President*, Dr. William Davis Foster, Kansas City; *Vice-Presidents*, Drs. T. H. Carmichael, Germantown, Pa., and Joseph Hensley, Oklahoma City; *Secretary*, Dr. Frank Kraft, Cleveland; *Treasurer*, Dr. T. Franklin Smith, New York; *Registrar*, Dr. Joseph H. Ball, Bay City, Mich.

Christian Science Death.—An eleven-months-old child died on July 11 in New Jersey from convulsions, after medical attendance had been refused and the services of a Christian Science "healer" secured.

A New State Journal.—The first number of the *Journal of the Oklahoma State Medical Association* appeared this month. The contents include, besides the original articles, case reports, etc., an account of the meeting of the State Association and the President's address. The journal is of convenient size and is a credit to the association.

Baltimore Medical College.—A laboratory and library building is shortly to be erected on the ground purchased by the Baltimore Medical College some months ago. Provision is to be made for three lecture halls with a seating capacity of 200 each, and for pathological, physiological, chemical, and physical laboratories. The building, which will be of brick, and four stories high, will cost about $50,000.

Obituary Notes.—Dr. Lewis Barnes of Oxford, Conn., died at his home on July 5, at the age of eighty-four years. Dr. Barnes was graduated from the Yale Medical School in 1847, and practised for nearly sixty years. For twenty-three years he was Judge of Probate, and at one time was President of the medical society of his county.

Dr. Allan Clarke Hutton of New Brunswick, N. J., died on July 7, at the age of sixty-seven years. Dr. Hutton was a graduate of the College of Physicians and Surgeons, New York, and was for many years Treasurer of the New Jersey Microscopical Society.

Dr. George Jenkins Preston of Baltimore, Md., died at his home on June 17, after a long illness, aged forty-nine years. Dr. Preston was graduated from the medical department of the University of Pennsylvania in 1883, and since 1890 had been Professor of Physiology and Nervous Diseases in the College of Physicians and Surgeons of Baltimore, and since 1898 Secretary of the Maryland Lunacy Commission. He was a widely known alienist and neurologist to several hospitals.

Dr. Maximilian F. C. Drescher of Brooklyn, N. Y., died at his home on July 7, aged forty-eight years. He was graduated from the Long Island College Hospital in 1891, and was a member of the Kings County Medical Society.

Dr. James Hoffman, a well-known homeopathic physician of Jersey City, died suddenly on July 8, aged about fifty-five years. He was graduated from the Hahnemann College of Philadelphia in 1885.

Dr. Felix H. Coyle of New York died suddenly on June 11. Dr. Coyle was graduated from the College of Physicians and Surgeons of Baltimore in 1886, and had recently given up practice owing to severe attacks of rheumatism.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

DEFENSE OF RESEARCH—HOSPITAL FUNDS—LEAGUE OF MERCY—KING'S BIRTHDAY HONORS—PROVIDENT DISPENSARIES—ST. BARTHOLOMEW'S HOSPITAL—OBITUARY.

London, June 29, 1908.

The Research Defense Society, about which I have previously written, may now be regarded as firmly established. It has already enrolled 1,290 members, and an inaugural meeting was held on Friday last. Lord Cromer, president, after the report had been adopted, delivered an address in which he maintained that experiments on living animals could be defended on two grounds. In the first place it had to be shown that they had produced valuable results; in the second that they were conducted in a manner so as to minimize or to obviate entirely suffering. Both propositions had been proved up to the hilt, and with extremists who said it was never right to destroy animal life they must differ, for the full application of such a theory would lead to impossible conclusions. Great misapprehension existed as to the extent of experimentation. In 1907 there were 73,000 so-called experiments, but 96.5 per cent. were inoculations, almost entirely painless, and not operations at all. Broadly speaking, he declared that the small amount of suffering was a price that might justifiably be paid for the enormous amount of suffering which was relieved.

Sir Thomas Barlow said that while the British people could give their confidence to the rank and file of the medical profession he wished to testify that they had received their strength and power from their experimenting brethren. The society had come right down into the open, would put everything on the table and let the people know what was done, what care was taken, the kind of experiments made, and their bearings on medicine and surgery. One of the best things

that Mr. Chamberlain did at the Colonial Office was what he did for the study of tropical diseases.

Lord Robert Cecil, M. P., said if it was held that pain must never be inflicted on animals the consequences would be unexpected perhaps by those who held that view. Riding and driving horses and beating disobedient dogs must be forbidden. How could animals be imprisoned for life in the zoological gardens? A reasonable probability of saving human life and diminishing human pain was a valid justification of experimentation.

Mr. Walter Long, M. P., referred to the stamping out of rabies when he was at the head of the Local Government Board, and declared they would not have dared to attempt it but for the precise knowledge of the experts, on whose advice they relied. It was no use making discoveries if the years of anxious labor were to be undone by one foolish act.

Dr. C. J. Martin, F.R.S., made an impression on the audience when he told them that in the return of vivisections above 40,000 were inoculations of mice in the study of cancer, a disease from which one in eleven men over thirty-five might expect to die and one in eight of women. It might be many years, he said, before the cancer problem was solved, but experimentation had led to a clearer conception of it than was ever possessed before.

Mr. Butlin repudiated the slander that experimentation made men callous and referred to Lord Lister, Sir J. Paget and others, the mention of whose names sufficed to disprove the calumny. He congratulated the society on having so eminent a president.

The hospital funds are just now meeting with criticism which may perhaps be to some extent beneficial, but a number of objections to their proceedings arise from misunderstandings. The managers of the King Edward Fund have just issued an important circular to the hospitals, reminding them of the resolution sanctioned by the General Council in 1903, which requested them, before reconstructing or enlarging, to submit their intentions to the Fund.

The new circular sets forth the full purport of the resolution and among other points states that the information requested includes: (1) Reasons and considerations leading to the proposed changes; (2) nature of proposals, with any outline sketch—not detailed architects' plans: (3) accommodation to be provided compared with present work; (4) rent and tenure; (5) estimated cost; (6) resources to meet cost; (7) prospect of providing any increased cost of maintenance: (8) approximate date of beginning and finishing the proposed work.

Similar information is requested from the promoters of new hospitals who may contemplate applying to the Fund in future, but it is distinctly pointed out that the Fund does not assist the foundation of new institutions nor receive applications from any that have not been carried on properly for three years or more.

Such, briefly stated, are the conditions of help imposed by the managers of the Fund, and I can scarcely look on them as unreasonable. There are, however, many who are saying that the managers are assuming a position to which they are not entitled and that there is a growing disposition to override the institutions to which they contribute. It is, of course, to be expected that institutions which have obtained no grant or a less amount than they expected should feel some dissatisfaction. Some, too, resent recommendations which they regard as interference, and cite policy of promoting amalgamation of small institutions favored by the Fund. But I believe this policy meets with general approval, although some think it has been pushed rather far. These critics, however, are for the most part connected with the smaller, similar, not to say competitive, hospitals, of which we certainly have too many, and it would be a great pity to encourage them all to struggle on in the fight for subscriptions.

The League of Mercy may be regarded as an offshoot of the King's Fund. It was founded in 1899. Since then it has gathered nearly £100,000 for the hospitals of London and the Home Counties, and this money it passes on to the King's Fund for distribution. On Wednesday the Prince and Princess of Wales gave a garden party in the grounds of Marlborough House for the members of the League, and the Prince conferred on about fifty the decoration of the Order of Mercy, the awards having been sanctioned by the King.

Lists of honors and promotions in connection with the King's birthday were issued last night. Many people are smiling to find four new peerages added by the Government, which promised to abolish the House of Peers, but which had previously added a greater number than any previous Government in a similar period. That, however, does not concern medical news. But it is well to hear that the profession is not quite forgotten. Lauder Brunton (already a Knight) becomes a Baronet; so does Watson Cheyne. Among the new Knights are Col. D. Bruce and Dr. Burnet. The claims of all are well known.

A return of the new civil list pensions granted in the year ending 31st March appears this morning. It includes Ray Lankester and J. Hall-Edwards (the victim of *x*-rays).

Thrift and providence are at a discount with our present Government. Their old-age pension scheme is considered by their opponents to tend rather to encourage improvidence. As to medical aid for the less well-to-do, the provident system has always had many supporters, both within and without our ranks. The first association established to promote provident medical institutions appears to have been started in 1827. Since then about forty provident dispensaries have been established in London. The majority of these have, I think, been due to the work of the Metropolitan Provident Medical Association, which dates from about twenty years ago. A meeting was held in its support on Tuesday and was well attended. Viscount Milner spoke in its favor, urging that some system of insurance forms the best provision against a time of sickness for all those whose means are so limited that such a time is likely to be overwhelming. Such provision secures efficient medical help for the poor and thrifty. These provident dispensaries, his Lordship maintained, were therefore doing valuable work and deserved the support of all interested in hospitals. They were able to take charge of cases which crowded too many outpatient departments and so to set the hospitals free to do their proper work.

Lord Ludlow (treasurer) and five "almoners" of St. Bartholomew's Hospital have resigned their posts in consequence of a unanimous recommendation they made not being adopted by the Court of Governors. The Court, in accepting Lord Ludlow's resignation, recorded its deep appreciation of his services and its grateful acknowledgment of the advantages that have accrued to the institution as the result of the reforms instituted by him in the management of the estates and in the internal administration of its affairs, which "cannot be overestimated."

The foregoing significant communication appeared in the papers nearly a fortnight ago, but no further light has been shed on it.

Last week I recorded the death of a centenarian following nonogenarians of the week before. Now I have to report the loss, at the early age of 38, of Dr. Bertram Abrahams, assistant physician and lecturer on physiology at the Westminster Hospital. His career as a student at University College, and since, has been a brilliant one. He took the B.Sc., in 1890, M.B. in 1895, with first-class honors. He won the Liston prize essay on the "Surgery of the Gall-Bladder" and contributed several articles to Allchin's Manual, the Clinical and the Pathological Transactions, etc. He had appeared to be in delicate health for some time.

Dr. Edwin Rickands, J.P., consulting physician to the Birmingham General Hospital, and president of the Medical Institute, died on the 11th inst., aged 66. He was an Oxford graduate, M. A. 1865, M.B. 1872, took also F.R.C.S., Eng., 1870, the M.R.C.P., 1874, and was elected Fellow in 1886.

OUR LETTER FROM THE PHILIPPINES.

From Our Special Correspondent.

PERIODICITY OF PLAGUE RECRUDESCENCES—INCREASE OF THE DISEASE IN CHINESE PORTS—CHOLERA IN THE PHILIPPINES—SMALLPOX—PERSONAL.

MANILA, P. I., May 29, 1908.

OWING to the reappearance of plague in Amoy, Canton, and other Chinese ports, which takes place with clocklike regularity each year during the month of May, the Philippine Islands have again quarantined against those Chinese ports at which no regular officers of the United States Public Health and Marine Hospital Service are stationed and at which no adequate facilities exist for disinfection of vessels prior to departure. The period of detention is fixed at seven days after disinfection in the Philippine Islands is completed.

So far as is known, no satisfactory explanation has yet been offered as to why the disease should make its appearance so regularly at this time of the year, and again completely disappear, apparently, without any

measures having been taken to suppress it during the months of October and November. It would seem that this is a matter that merits attention and that some light could be thrown upon the subject if it could be definitely ascertained whether rats or fleas are more likely to breed in larger numbers or more capable of transmitting plague bacillus during the month referred to.

In Canton much more plague is said to be present than is ordinarily the case. An estimate of this kind, however, must be a mere conjecture, because the municipal conditions in Canton are such that it is impossible to know just how many cases take place in a given time.

In the port of Hongkong for the two weeks ending May 22, 1908, 200 cases and 141 deaths have been reported. During a corresponding period last year there were only 24 cases and 14 deaths reported.

Cholera has again made its appearance in rather severe form in the Philippine Islands in the provinces of Capiz and Pangasinan. In the former province there have been during the past few weeks a total of 236 cases and 191 deaths, while in the latter province there have been 531 cases and 354 deaths. In view of the continuous demand which is constantly made for greater autonomy in the Philippines, it has been the policy of the Insular Bureau of Health to permit the municipalities in which the disease appears to combat it with their own officials, and only to take charge when the disease threatens to spread from one province to another. While this policy has not been as successful as could be desired in eradicating the disease, it has, however, placed the Insular Bureau of Health in a much more favorable attitude than it has appeared for some years. Instead of a popular outcry being raised against the measures which have been necessary in suppressing the cholera, it now finds itself in the position of having appeals come in from the municipalities to send its officials there in order to combat the outbreaks. It is believed that the poorer results obtained at the outset will be more than offset by the more hearty aid which will be given later on by the municipal officials in whose district this disease makes its appearance.

The smallpox outbreak which has existed for a number of weeks in Manila has apparently about come to a close. The enormous amount of vaccination which was done and the onset of the rainy season have, no doubt, contributed to this result.

A review of the outbreaks of smallpox which have occurred here during the last fifty years shows almost conclusively that the disease disappears as a rule within a few weeks after the onset of the rainy season, which is strong, presumptive evidence that the disease is probably aerially conveyed. This also coincides with the experience which has been had with the hospital ships which are anchored in the Thames near London, where it has been noticed for many years that cases of smallpox seem to occur more frequently along the lee shore from where these smallpox hospital ships are anchored.

Assistant Surgeon H. M. Manning, of the Public Health and Marine Hospital Service, who has been on duty in the Philippines as Quarantine Officer at the port of Cebu for the past few years, has been relieved from further duty in the Philippine Islands and sailed May 14 on the United States transport Sherman for San Francisco.

Dr. Aron of Berlin, Germany, the physiologist, has accepted the position of Professor of Physiology in the Philippine Medical School, and is due to arrive here early in July.

OUR CANADIAN LETTER.

(From Our Special Correspondent.)

MEDICAL ASSOCIATIONS IN CANADA—AGITATION FOR THE PREVENTION OF CANCER—McGILL MEDICAL JOURNAL CLUB—MEETING OF ASSOCIATION OF FRENCH PHYSICIANS—REGULATIONS TO LICENSE PURE MILK SUPPLY IN CANADA—VITAL STATISTICS.

TORONTO, June 27, 1908.

THE meetings of the principal medical associations in Canada have been held at earlier dates than usual this year, and the meetings have been of more than ordinary interest. The Ontario Association at Hamilton was more largely attended than any previous meeting in the twenty-eight years of its history. This association has held only four of its meetings outside of Toronto, the capital of the province, it being considered that meetings of such an organization would always be more successful when convened at the principal city. The large attendance this year disproves that idea, and in future the place of meeting will probably alternate between Toronto and other cities of Ontario. A large measure of credit for the success of this year's meeting is due to the energy of the president, Dr. Ingersoll Olmsted of Hamilton, and the local committees. The program presented was not only excellent in character, but the sections were so arranged as to present discussions that were of more than usual interest. The meeting was extended this year to fully take up three days, and a large field of work was covered. The 1908 meeting of the Ontario Medical was certainly one of the best. The president for the coming year is Dr. Herbert J. Hamilton of Toronto.

The Canadian Medical Association meeting at Ottawa was not as largely attended this year as usual, although large representations were present from Montreal, Toronto and Ottawa. It was perhaps unfortunate that the date of the meeting was fixed in such proximity to that of the Ontario Medical Association, which had been so largely attended. This will probably never occur again, for by the new constitution just adopted it has been arranged that whenever the Canadian Medical Association meets the Provincial Association shall for that year not convene except in connection with the meeting of the parent organization. This change will probably prove of great advantage. The meeting at Ottawa last week, while not so largely attended as usual, had a program that was highly appreciated, and the president, Dr. Montizambert, was loyally supported by his confrères in Ottawa in making the arrangements perfect in every respect. The address in medicine, "The Value of the Reflexes in Diagnosis," was given by Dr. Risien Russell of London, England; and that in surgery, "The Surgical Rights of the Public," by Dr. John C. Munro of Boston, Mass. "The Medical and Surgical Treatment of Gallstones, Their Scope and Relations," was the title of an instructive paper by Dr. John B. Deaver of Philadelphia. The interest in all the different meetings of sections was well maintained. The meeting next year is to be held at Winnipeg, where the newly elected president, Dr. Blanchard, resides.

The prevention of cancer in Canada is a question towards which considerable attention is now being directed, and it is proposed that an organized effort should be made to ascertain the number of patients suffering from cancer in each province. It is suggested that a struggle against cancer should be made in this country as in Germany, and that similar precautions should be taken to ascertain the extent to which the disease prevails as are now taken in regard to tuberculosis. There is no cancer hospital in Canada, but statistics indicate that there is room for at least one central institution for the special treatment of malignant diseases. From the manner in which some newspapers are openly advocating the necessity for more attention being paid to cope with the disease, public philanthropy is likely to be sufficiently stirred to provide better facilities for care of patients so afflicted.

The McGill Medical Journal Club of Montreal, which has for its object to aid the medical library of McGill University, has had a most successful year. The newly elected officers are: *President*, Dr. E. A. Archibald; *Vice-President*, Dr. A. A. Robertson; *Secretary*, Dr. A. G. Nicholls; *Treasurer*, Dr. Campbell Howard; *Executive Committee*, Drs. Morrow, Klotz and Chipman.

The fourth meeting of the Association of Physicians of the French Language for North America will meet in Quebec July 20 to 22. An excellent program has been prepared and a large attendance of French-speaking physicians and surgeons from all parts of this continent is expected. The meeting will be held a few days before the celebration of the tercentenary at Quebec, which will probably be the greatest military assembly ever held in Canada.

The necessity of having in each city regulations likely to secure a model milk supply has been dicussed at each of the medical associations in Canada this year. Several energetic and influential medical men in different sections have devoted considerable attention to this subject. The result of the present agitation is likely to result in a regulation making it necessary for any one selling milk to take out a license, and before this will be issued a certificate of the local medical inspector will be necessary showing not only that the premises are sanitary in every respect, but also that thorough cleanliness is observed at every dairy. The water supply to each dairy is to be regulated. Numerous instances have been cited where the extension of contagious diseases through the milk supply might have been prevented. Tuberculosis among cows has always to be guarded

against, but it is argued that a better plan is to have all dairies kept in a sanitary condition and to feed the cattle on food adapted to their physiological as opposed to the commercial necessities. Inspection under strict regulations will, it is urged, secure for dairy cattle unlimited supply of pure air, instead of having them shut up in ill-ventilated byres, and will prohibit feeding with brewery grains from which the wholesome elements have been removed. Pure milk requires proper feeding. The interest shown in this question in Canada at present is certain to produce results that will be of permanent and lasting benefit to the whole country.

The Vital Statistics Act of Ontario has just been amended with a view to facilitating the collection of reliable information in regard to the deaths, births, and marriages in the province. The collection of vital statistics in Ontario has hitherto been carefully supervised, but there has been a tendency in some localities to laxity in enforcing the law. In future the local registrars are to be remunerated for their work sufficiently to justify the expectation that full returns will be made. Strict regulations are now made to compel registration of every birth and death. An important amendment in the recent act states that "the removal for burial or the embalming of any body shall not take place, and an undertaker, clergyman, sexton, householder, or other person shall not engage in the burial of a body unless a certificate of registration has been previously obtained from the local registrar." The importance of this is quite evident to the medical profession.

IS THE INCREASE AND DISSEMINATION OF CANCER RELATED TO OUR MODERN WATER SUPPLY?

To the Editor of the Medical Record:

Sir:—That cancer is rapidly on the increase, comparatively speaking, at least; that this increase is more noticeable among urban people and in the rural districts immediately surrounding cities, and that this increase is alarming especially in the older cities which derive their water supply from rivers near their outlet and in those cities receiving this water supply from lakes, reservoirs, etc., where undetected contamination is constantly operative from sewerage disposal, cannot be successfully disputed. A careful investigation of mortuary statistics for the past fifty years will clearly and forcibly demonstrate the above statement. If this is true then there must be some definite cause. Careful post-mortem statistics show that one person in every ten or twelve has cancer in some form.

Cancer is probably a germ disease or originates from undeveloped cells which will begin to develop and proliferate when suitable lodgment is found. If the germs of typhoid fever, cholera, dysentery, etc., can be conveyed long distances by water and then work their destructive effects, why not those of cancer? Unlike these diseases, the cancer germ probably does not multiply outside the body. If it did and was conveyed by water then all would soon perish from the disease; but, retaining its vitality until taken into the system in drinking water, it finds lodgment and in many cases conditions suitable for development.

The washings and waste of all diseases are poured into the sewers, which discharge their contents into rivers, lakes, etc. Thus we have the avenue of pollution.

Cancer may be due to a germ that retains its vitality in water under all natural conditions. We know that fishes have cancer closely allied to if not identical with that of man. The subject is worthy of earnest consideration and careful investigation.

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Terre Haute, Ind.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 2, 1908.

The Menace of the Swimming Tank.—C. M. Cobb looks upon the modern swimming tank as a menace to the integrity of the ethmoidal region and of the ear, and supports his contention by reference to several cases of ethmoiditis and acute otitis media which followed diving in the tank. It is not that the water becomes infected by other bathers and so infects a later patron of the bath, but that people insist on putting their heads under water, which is more or less dirty in spite of the attempts made to keep it clean. Mere changing of the water once or twice a day is not enough.

An Unusually Extensive Milk-Borne Outbreak of Typhoid Fever.—C. Harrington refers to an outbreak this past spring in a suburb of Boston. Upwards of 400 cases were reported in six weeks. Of 410 cases 348 primary and 23 secondary cases occurred in families supplied by two milk-route men, referred to as F. and Q. They both secured their supply from the same dairy. Investigation of the latter showed that it was all right and not the origin of the poison. Among the first of the cases reported was that of F. himself, who died of the fever, as proven by autopsy. Considering that F. had been ailing for a period of about two weeks before he took to his bed, but not to such an extent as to prevent him from handling the milk, it is not difficult to surmise in what manner the supply became contaminated with the exciting cause of the disease, for the hands of the average milkman do not receive the same degree of care as those of an operating surgeon, and with more or less frequent occasion for interrupting the work of handling the milk in order to respond to natural calls, specific contamination, first of the fingers and then of the milk, is very likely to occur. With the supply of Q, however, the connection is by no means clear. It was reported that Q received from the dairy which they had in common only those cans which F left for him after tasting all and selecting those which he wished for his own trade. This, however, is denied on apparently good authority, and, instead, it is said that on only two occasions, namely, March 15 and March 18, did F precede Q at the car. It is further stated that although each can was tasted before acceptance, those that were rejected were set aside and were not delivered to Q. However this may be, and whether or not F had an opportunity to infect the milk of Q on either of these two days or on those subsequent days, it is certain that there was the greatest possibility of an interchange of cans between F and Q, for it was the custom of each to return the cans to the car washed, but by no means sterilized; and after they were filled at the dairy and returned Q was as likely as F to receive cans which had been supplied to and handled and returned by F. Certain it is that the first infection did not occur at the place of production and was not due to the fault of the farmer; and equally certain is it that F, during two weeks of ambulant typhoid fever, had ample opportunity to infect his supply and to reinfect it again and again, and to spread the infection to Q's supply through the nonsterilized cans of the contractor which they used in common.

New York Medical Journal, July 4, 1908.

Light in the Treatment of Disease.—J. W. Kime confines his paper to a description of phototherapy as used at Boulder Lodge Sanatorium, Fort Dodge, Ia. Special attention has been paid to developing the use of the sun's rays as a therapeutic agent, particularly the blue rays. The author has constructed a condenser ten feet in diameter, focussing at a point twenty feet in front of it. An object placed in the focal point is, if combustible, immediately ignited if the white light is employed. For therapeutic purposes the rays pass through a blue glass screen before they are allowed to impinge upon the body. Concentrated sunlight penetrates through the entire thorax. As to therapeutic effects, the author does not believe that it is a mere question of killing bacteria. The short, irritating rays will increase the turgescence of an affected area, but later favorable changes are undoubtedly referable to the increased nutriment brought to the parts by the abundant flow of the capillary blood. In deep-lying tissues, capillary engorgement takes place, increased nutrition is brought to the affected areas, fibrosis is formed and reparative processes occur which might not take place under less favorable conditions. In the institution conducted by the author the condensed blue light is used in pulmonary tuberculosis, lupus, and other chronic skin lesions, and in postoperative surgical tuberculosis. In these affections light, and especially the shorter rays, is an agent of great utility. In pulmonary tuberculosis the entire chest of the patient is made bare, and the light, after passing through the blue screen, is thrown directly upon the exposed portions of the body. These rays penetrate the entire thickness of the thorax, having a retarding influence upon the growth of bacteria and engorging the parts with blood. The light is used for twenty minutes each day. Results since installing the large light have been so much better than before that there is no room for doubt as to the beneficial effect of these rays. While by no means a specific, and in the far advanced cases of but little value,

in early cases more rapid improvement is noted than was prior to the use of the light. The psychic effect of the light is an adjuvant of no small consequence in cases of pulmonary tuberculosis. If it had no other result whatever the author would under no circumstances part with its use. [An acknowledgment which greatly limits the value of his preceding conclusions as to the value of phototherapy.—Abstr.]

Another Method of Regulating Pressure in the Bier Treatment.—R. Grace suggests the use in the control of the bandage pressure in the Bier treatment of the Bishop hydrostatic manometer. This is an instrument for measuring blood-pressure by a compression caused by a column of water of varying height. It consists essentially of two rubber bags connected by a tube, one being inside of the cuff and the other arranged for elevating and depressing. In the instrument is placed about twelve ounces of water without air. An illustration shows clearly how the bandage is applied and how the pressure may be regulated by the patient. The cuff is laced to the part of the body that is to be compressed and the pressure regulated by elevating the reservoir bag. The instrument also has many advantages for measuring blood-pressure, which is indicated in millimeters of mercury on the tube and read at the level of the heart at the moment that the pulse disappears.

Treatment of Tuberculosis of the Upper Air Passages.—In a paper presented to the recent International Laryngological Congress at Vienna, J. W. Gleitsmann reports particularly on tuberculosis and lupus of the nose, pharynx, and nasopharynx. The various headings of this interesting paper are as follows: I. Tuberculosis of the nose, (1) local treatment by drugs, (2) hot-air cauterization, (3) tuberculin preparations, (4) ray therapeutics, (5) surgery. II. Tuberculosis of the nasal accessory sinuses. III. Tuberculosis of the postnasal space. IV. Tuberculosis of the pharynx. V. Lupus. VI. Conclusions. Under the final heading the author makes the following observations: Surgical interference, as well as lactic acid and the galvanic cautery, will always preserve their full value, and the latter is especially well recommended. Of the newer remedies there are the hot-air cauterization and the Finsen light, and solar rays with or without fluorescent remedies. We may expect more and better results from continued experiments from the Röntgen ray and radium. The author's best results have followed surgical operations, the galvanic cautery, parachlorphenol in intact infiltrations, lactic acid in ulcerations, and tuberculin preparations in proper cases.

Journal of the American Medical Association, July 4, 1908.

Alternating Personality.—E. E. Gaver gives the history of alternating personality showing itself in spells of wandering of which the patient was entirely amnesic in his normal state. After one of these he found himself in London, without having any idea how he got there, and passing into another, he found himself in a similar plight at the Cape of Good Hope. After that he was free from these attacks for three years, when they again returned, though not of such long duration. In the intervals he complained of more or less headache which seemed to be aggravated when his attacks came on. The details of several attacks which occurred while under observation at the hospital are narrated. The patient was easily hypnotized and then was able to give an account of his doings while in his secondary condition, of which he normally had no recollection, and after coming out from the hypnotic state he had the same tire and exhaustion as he felt after one of his periods of secondary consciousness. While hypnotized, however, he was amenable to suggestion, which was not the case in his secondary consciousness. The marked resemblance, however, of his expression, demeanor, etc., in the two conditions was noticeable, and Gaver is inclined to suspect that the hypnotic state is closely analogous to the conditions of the dissociation of the personality in this patient. The patient attributes the attacks to a sandbagging received in 1902, but is of a neuropathic predisposition and had previously suffered from nervous symptoms ("tender spine," left-sided hyperesthesia) following an attack of typhoid fever in 1898. He is still under observation and has had no disturbances of consciousness since November, 1907, but is regarded as only improved, the abulia and suggestibility remain, and a return of the dissociation of personality is considered possible.

Neurologists and Electrotherapy.—F. R. Fry says that the use of electricity in the therapeutics of neuropathic diseases does not in any instance rest on a scientific basis. The results attributed to it, he says, and the manner in which they are obtained are simply matters of opinion, always an unreliable kind of testimony, and perhaps never more so than in questions of therapeutics. Any one who has carefully used any kind of current in treatment over any considerable period, can say he has seen good and even remarkable results, but if he is any kind of a diagnostician, he must discover that many of these results are psychic in their origin, and if others are not, there is no scientific proof that such is the case. Sometimes electricity, like other suggestive measures, assists us in breaking into certain difficult psychic situations, and in that way it is often a convenience. But it is also sometimes an inconvenience in that with a large class of patients we can not induce the needed reliance on the simple hygienic measures in which they must eventually find their security, until we have entirely overcome their yearnings for therapeutic specialties. Some will doubtless continue to use electricity extensively and find satisfaction in so doing, just as some will write twice as many prescriptions as others. Our therapeutic tastes and trainings differ, but there is a general awakening to the important part played by psychic influences, and we are learning to gauge them more correctly. The present verdict of the majority of neurologists, he says, is based on a thorough trial of the therapeutic value of this agent. In conclusion, Fry mentions the diagnostic uses of electricity which are appreciated only by neurologists, or those actually capable of diagnostic refinements in neuropathic conditions. It is the only practical scientific use that has been made of electricity in medicine proper, and it is to the credit of neurologists alone, and they must also determine ultimately the therapeutic values of electricity in their particular lines of practice. Certain surgical results and some of the results of phototherapy, so called, are admitted by Fry as probable exceptions to his statement as to the generally unscientific character of electrotherapy.

Antimeningococcic Serum.—C. H. Dunn reports results of the use of the Flexner serum in 40 cases of cerebrospinal meningitis in Boston and vicinity, and summarizes his conclusions from the experience as follows: "1. The use of the Flexner antiserum is of great value in epidemic cerebrospinal meningitis. I believe its value to be comparable to that of diphtheria antitoxin in diphtheria. 2. The use of the serum at times aborts the disease, frequently rapidly relieves its symptoms, shortens its course, lessens the liability to sequelæ, and greatly reduces its mortality. 3. The serum should be used as early as possible in all cases, even of suspected epidemic meningitis. 4. It should be frequently repeated as long as there are symptoms or any tendency to relapse. 5. Late chronic cases are unfavorable for the use of the serum, but any case in which the diplococci are present has some hope of relief by its use. 6. Some cases are resistant."

Antimeningococcic Serum.—F. S. Churchill reports eleven cases treated with the Flexner antiserum for cerebrospinal meningitis, with four deaths. Two of the fatal cases, however, were not proved by bacteriologic examination to be of the meningococcic type; of the remaining two, one was a fulminant case and the other patient came under treatment in a moribund condition on the tenth day of the disease. In seven, therefore, of the nine proved cases recovery ensued. As a rule, the patients were more comfortable after an injection of the serum, but this was not always an immediate effect, and Churchill thinks that the use of an anesthetic in giving the injection might be advantageous in certain not very toxic but fairly conscious patients. A clearing up of the mental condition was the first symptom of permanent improvement in at least five cases. The temperature has shown a decided tendency to drop steadily from the beginning of the treatment, as was likewise the case with the leucocytosis and the number of the diplococci in the cerebrospinal fluid. While the number of cases is small, taken with other facts reported by Flexner and his other investigators, they show remarkable results from the use of the antiserum. Enough has already been learned to warrant its use on a large scale, and Churchill thinks it not too strong a statement to say that given a case suspected to be meningitis, it is our duty to make a lumbar puncture, and if we get a cloudy fluid, to inject the serum at once and repeat it if bacteriological examination proves the case to be one of the meningococcic variety.

The Thyroid and the Parathyroids.—H. Tuholske summarizes the accepted views as to the physiology and pathology of the thyroid and parathyroid glands, and describes a new operation for the relief of exophthalmic goiter. Following a suggestion from an experiment of Professor Guthrie of Washington University, St. Louis, who found that ligation of the thyroid veins in dogs was followed by an edematous swelling of the gland for a few days with later slight decrease in size and increased firmness of the organ and increased body-weight, he

reasoned as follows: In exophthalmic goiter we have an enlarged gland, an enormous increase in vascularity and capillary dilatation, a multiplication of the thyroid cells with abnormal activity, the presence of a great number of indifferent or vagrant cells, and a peculiar change in the thyroid gland cells—the whole condition resembling a reactive process without physiological termination. On this basis, he conceived the idea of trying ligation of the thyroid veins for the cure of exophthalmic goiter, and, after trying the experiment on several dogs, one of them goitrous, he operated in this way in a distressing and resistant case, of which he promises a future report with observations during recovery and the final late effect. Objections, he says, may be made to this procedure, which in reality consists in the production of a Bier's passive hyperemia; one of these is the greater difficulty of ligating the veins than the arteries, but this is hardly to be regarded by the experienced operator. In his case he tied both inferior and both superior thyroid veins.

The Lancet, June 27, 1908.

Dermoid Cyst Over the Mastoid.—P. M. Heath's patient, a boy of four years, had suffered from a swelling behind the left ear since birth. It had gradually increased in size and at the time of examination was half an inch in diameter. The swelling was cystic and freely movable under the skin and over the deeper structures. The cyst was removed and was found to be lined by a simple stratified epithelium and to be filled with cheesy material. There was no deficiency in the underlying bone or periosteum. The case is recorded, as dermoid cysts in this situation seem to be somewhat uncommon.

A Case of Suicidal Cut-throat.—A. B. Raffle reports the case of a miner, fifty-four years of age, who, after inflicting serious injuries on members of his own family, cut his throat with a razor and died in eight minutes (roughly) from the time of committing the act. He was a man of violent temper, who indulged intemperately in alcohol, but apparently he was sane. The wound was very severe, extending in a perfectly transverse direction across the neck to the border of the sternomastoid muscle, which was slightly divided on either side, and it divided the thyrohyoid membrane and severed both external carotid arteries just above their origin from the common carotid. The wound on section was bow-shaped, being deepest in the middle part and tapering at each end, extending down to the body of the vertebra at its deepest part. There were no wounds except the one mentioned. The case is of interest, since the wound presented more of the features of a wound that was inflicted by another than a self-inflicted wound. The man's determination was remarkable; on being caught he leveled the edge of the razor both upwards and downwards, attempting also to injure one of his captors.

Migration of the Cecum, Producing Obstruction of the Ascending Colon.—J. Bland-Sutton refers to a case of intestinal obstruction which on abdominal section revealed the following conditions: The cecum and appendix were absent from the right iliac fossa. A tense band of gut extended from the right extremity of the mesentery upwards and to the left, overlapped by mesentery and coils of small intestine; when traced upwards it led to the ileocecal junction in the left kidney pouch. A loop, consisting of the last few inches of the ileum and the ascending colon with the cecum and appendix, had been twisted on its own axis through half a circle and displayed upwards and to the left. The cecum had become adherent in its new situation and when drawn down a large necrotic area with two perforations was seen, through which liquid feces issued. The necrotic area was excised and the edges of the hole thus made in the gut were approximated with sutures. The free fluid in the abdomen was swabbed out, a large rubber tube was introduced into the pelvis, and the incision was closed with silk sutures. The man died sixteen hours after the operation. The author refers to other similar cases on record. He notes that descriptions of the condition referred to are not given in the literature of intestinal obstruction. Its importance is obvious from the fact that the majority of the patients in whom it has occurred have died. Judging from a study of the recorded cases, it would appear that the chief variations in the degree of the displacement depend upon the extent to which the twist or rotation involves the mesentery. For example, the extreme condition occurs in patients in whom the intestines, including the third part of the duodenum, the cecum, and ascending colon are attached to a common mesentery. When such an anatomical condition exists, and it is a recognized anomaly, the whole of the small intestines, the cecum, and ascending colon may be concerned in the volvulus.

Nature and Cause of Taint in Miscured Hams.—According to E. Klein, taint in hams is caused by an organism to which he gives the name of *Bacillus fœdans*. This is described in detail and its culture-figure illustrated in the paper, which also contains pictures of the affected ham tissue. The latter gives off a distinctly putrid odor, and instead of having the usual red tint is of a pale, dirty gray appearance, running on in the parts most deeply affected to a greenish hue. The tissue is swollen and of a jelly-like consistency. Under the microscope small linear clumps of tyrosin crystals are seen in the blood-vessels, in the septa dividing and subdividing the bundles of muscular fibers, and in the scant muscular tissue between the latter. The muscular striæ were wanting. Some of the fiber bundles were fibrillated, others were changed to granular matter and containing gas bubbles. All these changes indicated putrid decomposition of the proteid constituents of muscle. The litmus test gave a distinct alkaline reaction In comparing various hams thus affected, the destructive changes were most pronounced toward the knee, from which point the change evidently started. The microbe was present in the tainted parts as cylindrical rods; in the intermuscular tissue, loose connective and fat tissues, and in the tendons numerous chains and filaments of these rods occurred. In the slimy film covering the inner surfaces of all parts of the articulation the microbe was present as short or long cylindrical rods and as filaments of considerable length. Some of these filaments were merely linear series of cylindrical rods, others showed a subdivision or segmentation only here and there, so that the greater part of the filament appeared uniform and unsegmented.

British Medical Journal, June 27, 1908.

Etiology and Treatment of Eczema.—L. Kesteven regards eczema as a pure neuropathia. It is a common concurrent of many functional and nervous derangements. Even when local irritation is the exciting cause of an attack, it still remains a neurosis. For purposes of treatment cases fall into two classes: (1) Those from within acting through the sympathetic chain of the functional system, the ganglionic form, and (2) those arising from external or local irritation, the peripheral or traumatic form. There is no specific drug. Each case must be considered with reference to the causative factor. Thus, if a gouty attack has preceded, one must use the usual treatment for gout, plus a nerve sedative. Iodide and acetanilid act well here. Colchicum should be avoided, as it dilates the capillaries, tends to increase exudation, and is often irritative to the skin. If the patient is asthenic and anemic, one should give iron, quinine, and strychnine. Alcohol must be cut off. The eczema of pregnancy usually terminates with parturition. Of local applications carbolic acid, iodine, and adrenalin are, in the author's view, the only remedies of assured and permanent benefit. Of the former he says that the pure liquid acid applied to a red, inflamed eczema gives sharp but short punishment and leaves the part practically dead, and this dries rapidly, forming a scab, under which the previously raw surface heals quickly; the scab on falling off leaves the surface clean and sound. This is heroic treatment, and must be applied to only limited areas at one sitting; the pain of the application can be obviated by cocaine if the subject is sensitive, and before the effect of the cocaine has passed off the part will be anesthetized by the carbolic. For small patches, such as appear on the hands, feet, scalp and ears, it is particularly serviceable. For general use in all eczematous eruptions at every stage the 1 in 11 solution should be used, and though it certainly smarts for a time, it gives immediate relief to the symptoms and rapidly checks and arrests the progress of the eruption. Tincture of iodine also smarts somewhat, but gives great relief to the itching and burning and lessens the infiltration. The two together make a happy combination—℥j of tinct. iodi. to ℥ix of the 1 in 11 carbolic solution for a lotion, to be kept applied on lint under oiled silk. In the intertrigo which so commonly occurs between the toes and extends into the tough skin of the feet, a bath of this for the feet, frequently repeated, gives wonderful relief. Starch poultice makes a good vehicle for the application of this lotion and is useful on tender surfaces such as the face and neck. Suprarenal extract is a good application previous to the carbolic, owing to its power of reducing the turgescence and exudation, thus leaving the surface fit for its action, while, applied in the very beginning of the initial erythematous stage,

it will often entirely arrest it. Adrenalin is undoubtedly the best form of this substance.

Cerebral Influenza.—Cases of this affection are reported by T. G. Moorhead, T. W. Clay, and J. Livingston. The symptoms variously observed were general weakness, rise of temperature, inability to stand or walk, vomiting, violent head pains, delirium, coma, paresis, convulsive seizures, etc. Of the four cases reported, three recovered and one died. It was difficult to make a positive diagnosis at the outset, except that it was evident that the patients were suffering from some profound toxemia of the nervous system. No special treatment was employed beyond the meeting of the various symptomatic indications. The general type of the severer cases was not unlike that of a cerebrospinal meningitis.

Berliner klinische Wochenschrift, June 22, 1908.

Experimental Glycosuria.—Eichler and Silbergleit tell of Zack's observation, that glycosuria may appear after injury of the duodenum by caustics. Pflüger produced diabetes in the frog by extirpating the duodenum without interfering with the pancreas, or even simply by cutting the nerves which pass from the pancreas to the duodenum. The authors experimented with dogs, destroying the mucosa of the duodenum by the application of caustics and, in some cases, by the use of the Paquelin cautery. Sugar appeared in the urine of the animals after the operation; no prolonged diabetes could be produced, and control experiments with the destruction of the mucous membrane elsewhere in the bowel showed that the same phenomenon may result in some cases. The authors think that hepatogenic glycosuria is produced by the operation, the intense irritation of the mucosa of the intestines being accompanied by a like effect upon the liver. The latter organ, accordingly, begins to excrete glycogen very rapidly, and thus leads to the appearance of sugar in the urine. The technique of the operation is very simple, and the animals stand the procedure very well. The method may therefore be used for the production of glycosuria for the purposes of research.

Dislocations of the Hip in Little's Disease.—Wollenberg says that dislocation at the hip is a frequent accompaniment of Little's disease in children. Of ten successive cases examined by him three showed the presence of complete dislocation, and a fourth a marked tendency toward its production. One patient had a bilateral dislocation. Wollenberg thinks that the complication should be prevented by early interference with the existing muscle spasms by means of myotomy of the adductors and the flexors of the hip. If necessary, further tenotomies are to be performed, the limb being placed in extreme adduction, and fixed by plaster bandages or by splints, this attitude keeping the head of the femur in the deepest part of the acetabular cavity. Existing dislocations ought to be reduced though recurrence of the condition is frequent.

Munchener medizinische Wochenschrift, June 23, 1908.

Cutaneous Reaction with Fat-free Tuberculin.—Leber and Steinharter say that v. Pirquet's cuti-reaction for tuberculosis is only of value in early childhood, most of the adults giving a positive reaction to the test in spite of absence of any tuberculous lesions; the ophthalmoreaction, on the other hand, is too dangerous to be used except in occasional cases. They have experimented with a fat-free preparation of tuberculin and find that the results of the cutaneous test with it are much more valuable. Sixty patients out of seventy in the first stage of tuberculosis, thirty-nine out of forty-seven in the second stage, and seventeen out of fifty-eight in the third stage reacted positively with the new preparation. One hundred and forty-eight out of one hundred and fifty-two patients suffering from other diseases, *i.e.* 97.3 per cent., gave a negative reaction. The authors give in detail their technique of preparing fat-free tuberculin, and recommend its use to enhance the value of the cutaneous reaction.

Total Resection of the Sternum.—Siegel has found only seven cases of this operation reported in the literature. The most frequent indication for the operation has been tuberculosis, then follow tumors of the sternum and of the mediastinum, while partial resections are quite frequently performed in preparation for surgical treatment of the lesions of the heart and of the great vessels. Siegel thinks that the operation ought to be performed more frequently, especially if the posterior wall of the bone is involved by tuberculosis, in which case curetting of the focus of disease is seldom of much use. He communicates the particulars of a case in which total resection of the sternum was performed and a coexisting tuberculous cavity was opened at the same time. The result was favorable, the cavity being healed completely with the help of artificial hyperemia.

Deutsche medizinische Wochenschrift, June 18, 1908.

Vaginal Operation in Tubal Pregnancy.—Dührssen says that the vaginal extirpation of the pregnant tube is in many cases preferable to the usual "ventral" operation. The surgeon, however, must have mastered the technique of colpoceliotomy and its special application in removing the inflamed or otherwise diseased adnexa, and must have the assistance of two men in addition to the anesthesist, and a well equipped operating-room. If these conditions are present, the extirpation of the tube by anterior colpoceliotomy is indicated in the first three months of tubal pregnancy in the following cases: If the tube is not ruptured; if rupture has taken place and free blood is present in the peritoneal cavity, yet the condition of the patient is such that time may be taken for properly preparing her for the operation; if tubal mole exists with or without peritubal hematoma. In cases of large or old hematoceles simple drainage by opening them through the posterior vaginal wall is indicated; if there is danger of secondary hemorrhage, the "ventral" operation with the removal of the gravid tube is to be preferred.

Secretions of the Suprarenals in the Blood and Urine.—Waterman and Boddaert say that the presence of adrenalin in the blood and urine of nephritics is not at all proven. Both the color reaction with iron chloride solution, greenish-blue color, which becomes pink on warming, or on addition of potassium hydroxide, and the dilatation of the pupil in the extirpated eye of a frog do not prove its presence, but simply give evidence of increase in the amount of benzcatechin derivatives in the blood of such patients. Before making any conclusions as to the rôle of adrenal products in nephritis a good test for the substance must be found. At present it can only be said that the blood serum and the urine of nephritics contain more mydriatic substances than the like fluids of healthy individuals.

French and Italian Journals.

Mixed Tumors of the Uterus.—P. Peuch and G. Massabuau describe mixed tumors of the uterus as occurring like hydatid moles, hanging in the vagina with a pedicle reaching up into the uterus. They consist for the most part of connective tissue, fibrous, myxomatous, sarcomatous, and adipose tissue, and unstriped muscular fibers, all of which are related to the tissues of the organ. There are two heterogeneous tissues found in them, striped muscle and cartilage, which is generally hyaline and found in patches. The symptoms are hemorrhage, leucorrhea, and pain, with sense of weight. The best theory to account for their existence is that they are embryomas, since from some part of the urogenital canal any one of these tissues may develop. The evolution of these tumors is like the malignant growths. They end in death from cachexia when left to themselves. When removed they recur easily and quickly and may give rise to metastases at a distance. Operation, to be successful, must be complete, abdominal hysterectomy being preferred.—*Gazette de Gynecologie*, May 15, 1908.

Chronic Appendicitis in Children.—J. Comby finds that appendicitis in children is comparatively frequent, and is essentially a chronic disease which may have existed for a long time with insignificant and vague symptoms before the acute attack caused a diagnosis to be made. It occurs in well nourished children who have a hereditary predisposition to the disease, and in cachectic children who have been subject to intestinal and gastric troubles all their lives. Another class of patients is that in which adenoids, tonsillitis, and nasal troubles, with enlargements of the cervical glands are frequent. It is frequently associated with cyclic vomiting and mucomembranous colitis. The chief symptoms are indigestion, lack of appetite, pains in the abdomen, and constipation. Intestinal catarrh may exist instead. Infectious diseases are very apt to cause attacks of appendicitis. The differential diagnosis has to be made from enterocolitis, hepatic and renal colic, movable kidney, and dysmenorrhea and ovarian troubles in young girls. Many surgeons claim that an operation in the interval is demanded in all cases. For the milder cases rest, attention to the diet, and to the bowels is in order, as some cases become cured by sclerotic changes.—*Le Bulletin Médical*, June 10, 1908.

Corrosive Sublimate Applied Without Pain.—Appleman (*American Medicine*) states that when solutions of mercuric bichloride are made with normal salt solution instead of water, they do not cause the slightest pain when applied to the mucous membranes.

Book Reviews.

The Common Sense of the Milk Question. By John Spargo, Author of "The Bitter Cry of the Children," etc. New York: The Macmillan Company, 1908.

Mr. Spargo's book is an attempt to acquaint the general reader with the problem of the relation of the public milk supply to the public health. He very properly says that there are no mysteries in this problem that are beyond the comprehension of an intelligent layman; a thorough acquaintance, on the other hand, with the questions and difficulties involved is the best preparation for an intelligent attitude in the matter. As an introduction to the main body of the work, Mr. Spargo writes of "The rise in the value of babies" which has taken place with the course of time, and of the reasons for the failure of many mothers to provide the natural and best food for their infants, namely breast milk. Cow's milk as the best substitute is then considered and the various and devious ways in which this article of food suffers deterioration and adulteration while on the way from the cow's udder to the baby's mouth are fully presented. The summary of the problem is then stated, its expression being found in a few phrases: dirty milk, high infant mortality as a consequence, the great economic and political difficulties in the path of improving the situation. As a remedy for the evils Mr. Spargo proposes many far-reaching measures, among them the establishment of a "National Milk Reform Association"; rigid enforcement of certain standards of cleanliness and purity; infants' milk depots; the elimination of tuberculosis from the dairy herds; the education of mothers in the principles of milk hygiene, etc. This brief summary of the book's contents show that it is of interest both to the general reader and to the physician, who, above all, ought to have an intelligent opinion in the matters discussed.

The Every-Day Diseases of Children and Their Rational Treatment. By George H. Chandler, M.D. Chicago: The Clinic Publishing Co., 1907.

To those who are interested in the subject, this book may be welcomed as a practical expression of the efficacy of alkaloidal therapeutics in the treatment of the diseases of children. The arrangement and classification of the text are practically the same as in other works on pediatrics. Very little space is given to a consideration of diagnosis and prognosis, most of the work being devoted to therapeutics, especially to alkaloidal treatment. Like most members of this school of therapeutics, the author is a firm believer in the power of drugs to curtail disease. In speaking of the treatment of varicella, a disease which is self-limited, and whose treatment is simply symptomatic, the author, after advising the administration of a cathartic, says: "Calcium sulphide and arsenic sulphide are the two main remedies; the administration of gr. 1/3 of calcium sulphide every two hours and gr. 1/67 of arsenic sulphide after each meal checking the disease within four days. The papules cease to appear, the few vesicles shrink and rapidly dry up, and normal conditions are reestablished."

Diagnóstico y Tratamiento de las Enfermedades de las Vías Urinarias, por Alberto Suárez de Mendoza, Professor de Enfermedades de las Vias Urinarias en la Facultad de Medicina de Madrid. Madrid: Perlado, Páez y Ca., 1908.

Although his book is modestly offered as "elementary lessons," Professor Suárez de Mendoza covers the field of genitourinary diseases as exhaustively as is possible in 778 large quarto pages and 12 pages of an excellently made index. The general plan of the book follows that of Guyon's Maladies des Voies Urinaires, without, however, for that reason lacking in originality of presentation. As is proper in a text-book for medical students and junior practitioners, the author avoids polemics and consequently omits, without doing violence to facts as he observes them, minor points, such as for instance, the discussion of priority in methods, instruments, etc. It is therefore readily comprehensible that the author attributes a discarded form of the Valentine urethroscope to Luys. Suárez de Mendoza's attitude regarding the treatment of gonorrhea by irrigations is shown (p. 277) as follows: "Tens of thousands of patients in Spain have been treated and cured by this method. None other is employed in the San Juan de Dios where it was introduced ten years ago by Professor Sanz Bombin." The author most profitably and interestingly emphasizes the genitourinary conditions that may simulate other diseases, such as intermittent fever, gastroenterological conditions from dyspepsia to most obstinate constipation or diarrhea, joint diseases, neuralgias, rheumatism, etc. He shows, by most fascinatingly related histories, how readily they subside, as the genitourinary affection is relieved. The second to the seventh lessons of this work are devoted essentially to disturbances in urination and their pathological significance. The forcefulness of his presentations are well demonstrated by lines which he emphasizes as follows: "When pollakiuria evinces itself as intensely at night as it does during the day, the existence of pyelonephritis must be sought" (p. 17), "....as Heister said, 'in case of retention there is no choice except to urinate or die'" (p. 21). In the treatment of urinary incontinence of children that has resisted the usual methods (p. 35) Suárez de Mendoza enthusiastically endorses Cathélin's epidural injections (fully detailed in the Medical Record, September 26, 1903). In his study of anuria the author relates the case of a woman whom he successfully operated upon on the tenth day of suppression. He further recites that hysterical anuria may last fifteen days and more without danger. He warns the student, however, that persistent apyretic anuria presages death. The author's differentiations of the hematurias are most clearly presented. As an aid to urethral irrigations Suárez de Mendoza offers a double cannula, destined to avoid penetration of solutions into the bladder. He also describes a sterilizer for catheters and bougies, devised by him, that acts as a case for these instruments as well. It is singular that our author, striving to "render unto Cæsar," neglects to give Piffard credit for his small but important meatometer, which he describes and illustrates without mentioning its originator. It is regrettable that the space which can be allowed so generally admirable a work prohibits consideration of the parts devoted to major genitourinary surgery. The hope is justifiable that this important work will find a translator for the benefit of those who do not read Spanish.

Nursing the Insane. By Clara Barrus, M.D., Woman Assistant Physician in the Middletown State Homeopathic Hospital, Middletown, N. Y. New York: The Macmillan Company, 1908.

Published in April, 1908, this is one of the latest books on nursing the insane. It is also one of the most complete. The asylum woman physician comes into close contact with both the attendant and the insane patient; and, at the beginning, her services were utilized, perhaps, more as a head trained nurse than as a physician. This early enforced experience has been of service to both physician and attendant, in many ways, and reacted to the benefit of the patient. An intimate knowledge of practical necessities in nursing and care of the insane seems to be reflected in this book; and from it the asylum nurse may gain many valuable practical suggestions both in regard to nursing and management of the insane, and to the more common medical and surgical conditions arising in any community; but she may also obtain considerable information respecting the insanity laws and customs of New York State. We are glad to note that but little space is devoted to psychology. Many useful hints are given in the moral (or mental) treatment of the insane. There are no chapters on anatomy or physiology. Theory, in fact, gives way to practice throughout the book. Homeopathic practice, *per se*, does not obtrude itself.

Practice of Medicine for Nurses. A Text-book for Nurses and Students of Domestic Science, and a Handbook for all those who care for the sick. By George Howard Hoxie, A.M., M.D., Professor of Internal Medicine in the University of Kansas; Superintendent of the Eleanor Taylor Bell Memorial Hospital, Kansas City. With a Chapter on the Technique of Nursing by Pearl L. Laptad, Principal of the Training School for Nurses of the University of Kansas. Philadelphia and London: W. B. Saunders Company, 1908.

The literature of nursing is increasing rapidly. Text-books are appearing on every branch of medicine and surgery, devoted to the needs (or supposed needs) of nurses. The present volume is on the Practice of Medicine, and covers the ground quite satisfactorily. But occasionally material is introduced which cannot in any way concern the nurse. For example, in the chapter on Malaria, we find: "The diagnosis of malaria, therefore, depends on finding these organisms in the blood; and without such finding a diagnosis of malaria is simply guess-work. It is necessary, therefore, for any physician who would diagnose malaria to have access to a high-power microscope, and be able to use the modern methods of staining the blood for examination." Again, in the same chapter: "We would reiterate the necessity of using a microscope to determine whether or not the patient ill with chills and fever has really malaria." Diagnosis is not within the province of the nurse. There is a useful chapter on the care of the patient and the sickroom, by a nurse (Pearl L. Laptad). The book contains much that will be of service to those for whom it was written.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 16, 1908.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

The Pathological Changes in the Thyroid Gland as Related to the Varying Symptoms in Graves' Disease, Based on the Pathological Findings in 275 Cases of Exophthalmic Goiter.—Dr. LOUIS B. WILSON of Rochester, Minn., read this paper, illustrating it with lantern slide projections and stereoscopic views. The material for his paper was obtained from operations and autopsies on cases of hyperthyroidism (exophthalmic goiter) in St. Mary's Hospital, Rochester, Minn. All specimens were brought immediately from the operating room to the laboratory, usually within ten minutes after they were removed, and examined fresh and then placed in fixatives. The histology of each case was carefully reviewed from all the preparations at hand, and notes made according to a formula compiled from the reports of previous observers. While this review was in progress every care was taken to exclude all knowledge of the clinical histories of the cases in order that there might be no clinical bias entering into the pathological estimate. As the work progressed it was found that certain pathological pictures were repeating themselves with monotonous frequency. When the examinations were completed these pictures were found to present cases forming four large natural groups, and there was little trouble in arranging the remainder of the cases so as to form connecting groups between the large and more striking ones. On the basis of this grouping, which was from the study of the sepcimens alone, and on the working hypothesis that Graves' symptoms arose from increased absorption of thyroid secretion, Dr. Wilson ventured to make a conjecture of the probable clinical history of each case. This was an attempt to determine in as unbiased a manner as possible, whether or not there existed any definite relationship between the varying pathological changes in the thyroid gland and the varying symptoms in Graves' disease. The cases were grouped from a pathological standpoint into two series: Series 1, those showing marked increase of the total number of parenchyma cells within given alveoli, and these were divided into four groups, according to the development of the process. Series 2, those showing an increased number of alveoli only without extra alveolar increase, and these were divided into four parallel groups in a similar manner. Dr. Wilson said that, while their cases were too few to draw positive conclusions, yet so far as they went, one would seem to be warranted in making the following tentative statements, from the clinical standpoint:

1. Very early acute cases showed pathologically hyperemia and cellular hyperplasia, if not throughout the gland, at least in much of it, provided, of course, the more enlarged lobe had been removed.

2. Later acute, moderate, severe, and very severe cases showed greater parenchyma increase, and in many instances evidence of increased absorbable secretion. Speaking broadly, the parenchyma increase was in direct proportion to the intensity of the symptoms. The relatively few variations from the rule might be accounted for by the varying resisting power of different individuals. Where relatively small amounts of absorbable secretion were found in alveoli whose walls were crowded with actively functionating cells, they must assume that the secretion had already been absorbed. In fact it would seem a necessary conclusion that in any gland with a given amount of secreting parenchyma, the less secretion found in its alveoli at any given moment, the greater the amount that had been absorbed. In regard to the secretion, both the histologist and the chemist were measuring only the complement of that portion which had been absorbed, and which was directly responsible for the symptoms.

3. Cases in which clinically there was any remission of toxic symptoms, showed somewhere within the gland more or less evidence of decreased function in the exfoliation or flattening of parenchyma cells, or of decreased absorption, by the presence of thick gelatinous stainable secretion, so-called "colloid."

4. Cases which have recovered from their toxic symptoms, and were now principally suffering from long previously acquired heart or nerve lesions showed exfoliated or flattened, nonsecreting epithelium and large quantities of well-stained thick gelatinous nonabsorbable colloid. In this class of cases it would seem as futile to search for previous causative parenchyma increase as to look for diphtheria membrane in the throat of a patient suffering from postdiphtheritic paralysis. As for the thick gelatinous colloid itself, it was difficult to conceive of its ever being absorbable, but that, even in the thyroids of healthy individuals, it was but the retained complement, degenerated probably, or the absorbed portion of the secretion. Its presence in large amounts in any thyroid would seem to bear a similar relation to secretion and excretion by the gland, as the retained urine in a hydronephrosis did to secretion and excretion by the urinary apparatus.

5. The recently developed very mild or the moderately mild cases of long standing were almost always pathologically adenomata, in which, while there was some total parenchyma increase by the multiplication of alveoli, there was not greatly increased functionating power of the individual parenchyma cells. Goiter of the adenoma type apparently passed through the same changes of hypertrophy and degeneration as those of the adenopapilloma type.

6. Simple goiter should be regarded as multiple retention cysts filled with nonabsorbable secretion, cell detritus, etc.

The Surgical Aspects of Exophthalmic Goiter.—Dr. WILLIAM S. HALSTED of Baltimore recalled some experiments on dogs in producing hypertrophy of the thyroid gland, and gave a blackboard demonstration of what took place in the dog's thyroid. The dog might present the typical gland of exophthalmic goiter, and yet give no evidences of the disease. It was a very difficult matter to interpret in every case precisely what the clinical symptoms would be. He agreed in the main with all that Dr. Wilson had said. A patient might present himself with quite a large parenchymatous goiter which did not present the gross lobulations that appeared in the colloid variety. There might be slight exophthalmic symptoms, but no exophthalmos; again, there might be nervousness, tachycardia, and large goiter. Although this was not a colloid goiter in the ordinary sense of the word, still the patients would state that the symptoms began with the appearance of the goiter. Such a goiter was not what was generally understood as Basedow's. There were various forms of goiter. There was one form which grew quite large—almost as large as the largest Dr. Wilson showed—and yet presenting mild symptoms. This was not the pure type of exophthalmic goiter. It was interesing to note that one might meet with an exophthalmic goiter which had been engrafted upon an ordinary colloid goiter; and then the reverse might obtain. With regard to operation, it might be a partial one, such as the ligation of the arteries, or the removal of portions of the gland or lobe; or one might do a lobectomy, or excision of one lobe. In this latter operation one should be careful not to injure the parathyroids or the circulation. To avoid injuring the parathyroids the subscapular operation was to be preferred with some modifications. The operation should be as bloodless as possible. The inferior or recurrent laryngeal nerve should not be injured, nor should it be caught in the ligature. Dr. Halsted preferred

using catgut ligature because, if this nerve was caught, it would be liberated when the catgut was absorbed, and so have its function restored. Transplantation of the parathyroids could now be done, and with success. As a result of the work done in Baltimore, he thought they were justified in placing the parathyroids back in the same human being; but whether we were justified in asking another human to give up the parathyroid, with or without moneyed consideration, he said he was not now prepared to say. Last winter he found a man who was willing to give up his parathyroids. This man was to be operated on because of a tumor, a lymphangioma of the neck. The tumor was removed, and then, to their surprise, as well as their keen disappointment, they found no parathyroid, only a small projection at the angle of the jugular and subclavian veins. Never before in animal or man had they failed to locate the parathyroids. Dr. Halsted then gave a blackboard demonstration of the method of transplanting the parathyroids. If one included Basedow's disease, adenoma, cysts with symptoms of exophthalmic goiter, there were probably in Baltimore 170 cases, all told, of exophthalmic goiter. Until last winter they had had but one death as the result of the operation for exophthalmic goiter. They had cured a very few cases, and probably had as many as four or five perfect cures. As a rule, the results of the operation for exophthalmic goiter were good, and many patients had been enabled to return to their usual avocations.

Some Considerations of Exophthalmic Goiter from the Medical Standpoint.—Dr. Alfred Stengel of Philadelphia read this paper. He said that if practitioners were able to have the gland removed in every case it would be easier to reach reliable conclusions as to the pathology in all varieties of this disease than had thus far been possible. The present day views of the pathological anatomy of this disease were based upon studies of glands obtained from cases of more or less abnormal character, with established and long-standing changes in the structure of the thyroid. There were cases in which goiter occurred with symptoms of hyperthyroidism, in which recovery, either spontaneous or under treatment, might occur within a short time. When the symptoms were pronounced, one was not in much doubt as to the propriety of calling the disease Graves' disease, but when there was only moderate enlargement of the gland, and the evidences of hyperthyroidism were but ill-developed, great difficulty was encountered in making a diagnosis. Temporary enlargement of the thyroid gland was known to occur from very trivial causes, such as menstruation, pregnancy, and emotional conditions. One could not escape the conviction that in many of these cases the enlargement was simple congestion. There were other conditions in which there was more persistent enlargement of the gland without marked functional effects. Among these conditions anemia, especially chlorosis, circulatory disorders, and nervous conditions were notable. (1) Anemia.—If one examined a series of cases in advanced chlorosis, enlargement of the thyroid would be encountered in a large proportion. There might also be tremor, palpitation, rapidity of the heart action, fullness of the eyes, etc., and yet these symptoms might be nothing else than the result of the anemia. In some cases the symptoms were so marked that one could not avoid the conclusion that they were the result of hyperthyroidism. The difference between these two groups might be one of degree only. (2) Circulatory Disorders.—In mitral disease and in some other forms of cardiac hyposystole with venous congestion some enlargement of the thyroid gland was not infrequent. Two groups of cases might be distinguished here also. A large class in which symptoms of hyperthyroidism were not demonstrable though cardiac irregularity and rapidity, tremors, sweating, and even fullness in the eyes might be present as the result of the circulatory derangement. In the second group, pronounced symptoms of hyperthyroidism appeared. (3) Nervous Conditions.—Emotional disturbances were known to occasion some enlargement of the thyroid gland in certain persons. The symptoms of fear in many respects bore a resemblance to Graves' disease; medical literature contained a number of instances of acute Graves' disease resulting from fright, and terminating in rapid death, or in a chronic form of the disease. The mode of termination might be significant of the different grades of severity of the disorder of the thyroid gland and of the whole organism, or of different degrees of resistance. Spontaneous cure or rapid recovery under ordinary treatment was evidence of the nonexistence of any serious lesion. In clinical experience, difficulty might arise in reaching a conclusion as to the significance of thyroid enlargement and the associated symptoms in organic as well as functional nervous states. He recalled a recent case of dementia præcox in which there was distinct thyroid enlargement and some suggestive symptoms of Graves' disease. He also spoke of a case of Landry's paralysis in which symptoms of Graves' disease preceded the final development of symptoms and death. Such cases made it difficult to escape the conviction that the thyroidal phenomena were merely secondary, and not to be interpreted as acute Graves' disease. The discussion of these doubtful cases was important for the following reasons: (1) Because some patients with temporary and mild hyperthyroidism recovered spontaneously. (2) Because in estimating the seriousness of the disease and its amenability to treatment such mild cases should be taken into account. (3) Because in attempting a classification that would be of use in directing proper treatment these cases should be distinguished from cases of true Graves' disease. Much difference of opinion existed among the profession as to the curability of the disease, and this was in all probability due to the fact that some included these doubtful cases and others did not. Statistics gave little light upon the subject. The truest estimation of the seriousness of the disease might be obtained by determining the frequency of recovery. Ord and Mackenzie stated that in about 50 per cent. of the cases complete recovery would eventually take place. No such flattering statistics could be made if one took only the cases of Graves' disease seen in the hospital wards. The question as to what data could be depended upon in distinguishing between the milder cases of hyperthyroidism and Graves' disease proper might be answered by saying that the character of the thyroid enlargement and the other clinical manifestations be considered and that the associated diseases, such as anema, circulatory disorders, nervous conditions, and antecedent history be taken into account. In regard to previous history, he said that many instances of Graves' disease possibly had their origin in the milder conditions alluded to, which had been allowed to remain uncorrected, and also to various acute infections. The importance of referring to these cases was that the thyroid condition might readily be overlooked, and he thought the alert clinician should detect thyroid diseases in their incipiency and correct them. Dr. Stengel then referred to symptoms that were less commonly discussed, such as the occurrence of lymphocytosis and the condition of the blood. His personal experience was that not much reliance could be placed upon the occurrence of lymphocytosis. In some cases enlargement of the lymphatic glands in the neck was met with, but his experience would not justify him in placing any reliance upon this as a diagnostic point. He could not place any reliance upon the enlargement of the thymus gland, although this condition was of regular occurrence. General adynamia and gastrointestinal symptoms were generally of more importance than was supposed. In doubtful cases these points might aid in making a diagnosis. Palpitation of the heart and tremor occurred so often in other conditions that their diagnostic value was not very great. Clinicians recognized that

Graves' disease was secondary to other thyroid diseases. The practitioner had to deal with three important types of Graves' disease: (1) Cases of moderate enlargement of the thyroid gland with mild symptoms of hyperthyroidism, occurring in either constitutional, circulatory, or nervous conditions, and which usually got well. (2) Typical cases of hyperthyroidism associated with fixed organic changes in the thyroid gland. These were cases of classical Graves' disease, and recovery might, or might not, result from proper medical or surgical treatment. (3) Cases of long standing goiter or other thyroidal diseases in which symptoms of Graves' disease supervened. Such cases belonged to the domain of surgery.

Stated Meeting, Held May 7, 1908.

The Gibbs Memorial Prize.—The Committee on the Edward N. Gibbs Memorial Prize announced that it would not award the prize this year. At the suggestion of the Committee, the Board of Trustees made a gift of $500 for the essay by Dr. Norman E. Ditman of New York City.

An Old and Valuable Gift.—A mortar and pestle were offered and accepted by the Academy. They had been used by Dr. Daniel Whitehead Kissam, who was born at Manhasset, Long Island, March 23, 1763. He graduated from the University at Oxford, and his medical education was under the supervision of Dr. Richard Bayley.

Lack of Accommodation for the Advanced Tuberculous Patients.—Dr. L. R. Williams, Chairman of the Section on Public Health, under whose auspices this meeting was held, said that at a meeting of the Section on Public Health, held on April 14, 1908, Robert W. Hebberd, Commissioner of Charities, spoke very forcibly of the overcrowding existing in institutions for tuberculous cases under the care of the Department of Public Charities. In 1905 there were admitted to the Metropolitan Hospital Tuberculosis Infirmary, 2,929 patients; in 1906, 2,531; in 1907, 2,798; the highest number during these three years, 1905, 1906, and 1907, was 640 on November 20, 1907. The greatest number of patients in the hospital at any one time during the present year was 801 on March 26. These figures were for a building meant to accommodate not over 680 patients, in a building originally erected for the care of the insane. In March, 1908, 121 patients slept on the floor. Commissioner Hebberd spoke of the possibility of removing the workhouse from Blackwell's Island and having it made available for tuberculous patients. In the discussion Dr. Alfred Meyer told of a waiting list of 41 at Montefiore Home and of 25 at the Bedford Sanitarium. Dr. Cauldwell and Dr. Shively spoke of the overcrowding at St. Joseph's Hospital. Dr. Frissell spoke of the overcrowding at Seton and Dr. Miller of the continuous number of applicants for the tuberculosis ward at Bellevue Hospital. Dr. Billings had since reported that there were 144 patients on the waiting list for Riverside and 74 names on the waiting list for Otisville. With these facts in mind, the Section on Public Health passed the following resolution:

"Realizing the fact that the total number of tuberculosis cases in this city is steadily increasing and that there has been no marked increase in the number of beds for tuberculous cases, and that the overcrowding now existing in several institutions in this city is a wrong to the sick poor, as well as a disgrace to the community.

"Be it resolved, that the Section on Public Health respectfully request the Council of the Academy of Medicine to bring this matter before the next meeting of the Academy of Medicine."

This resolution was substantiated by the fact that in 1900 there were 11,927 cases of tuberculosis reported in Greater New York, with 8,154 deaths, and in 1907 there were 19,725 reported, with 8,199 deaths. In consideration of the above facts the following was voted:

"Be it resolved that the Academy of Medicine deplore this great lack of accommodation for advanced tuberculosis cases in this city and earnestly request the Board of Estimate and Apportionment to take the proper steps to relieve this immediate need.

"Be it further resolved, that a copy of the above statement of facts, with this resolution, be sent to the Mayor, Comptroller, and President of the Board of Aldermen."

These resolutions took the usual course.

Possible Sources of Typhoid Fever in New York City.—Dr. Walter Bensel, Sanitary Superintendent of the City of New York, read this paper, which was followed by lantern slide pictures. He said that for some years the Department of Health, through its inspectors, had been making investigations into the possible sources of infection in each case of typhoid fever reported to the department, and the further they went the more were they impressed with the utter unreliability of any statistics based upon such investigations. In 1907, in the City of New York, there were reported 4,076 cases of typhoid fever. Of these the result of the investigation would seem to show that 663 were due to contaminated drinking water, 576 to contaminated milk, 113 to contaminated oysters, 294 to direct exposure to other cases, 866 contracted the disease out of town, and in 1,564 the source of the infection was not even open to surmise. He said he wished it to be understood that his remarks were in no sense a criticism of the department in making the investigations. There could be no question that typhoid fever could be caused only by the entrance of typhoid bacilli into the mouths of non-immune persons. The point for the sanitarian therefore was that the prevention of typhoid lay in the disinfection of infected excretions and materials from cases of typhoid, and in the protection of food and water supplies from contamination by excreta. The most striking evidence that typhoid was largely spread by contaminated drinking water was shown by the fact that in any community the death rate from typhoid declined in direct proportion to the introduction of proper protection of the water supply. In Massachusetts, since 1901, 90 per cent. of the inhabitants had been supplied by water under public control, an amount of protection provided by no other State in the Union. The water supply of New York City was most complex: the Croton watershed for Manhattan and the Bronx, the Bryan watershed and the product of a private company, together with some private wells, for the Bronx; the Ridgewood system, New Utrecht, and Gravesend stations, belonging to the city, and eight private water companies and other private wells supplied the Borough of Brooklyn; the Long Island City, Flushing, College Point, and Whitestone plants, together with five private companies and numberless private wells, supplied the Borough of Queens; the Municipal plant at Tottenville, and two private water companies, together with many private wells, supplied the Borough of Richmond. Constant supervision of all these various sources was maintained by the Department of Water Supply and the Department of Health, both by analyses and by inspection, and many instances of pollution had been found and eradicated. He then recalled some interesting facts regarding the outbreak of typhoid in the town of Katonah, as well as in the town of Plymouth, Pa. In the latter outbreak, in 1885, a single case of typhoid fever occurring on the watershed resulted in thirty days in 1,100 cases among a population of 8,000. Instances of this kind had been numerous, and showed how readily typhoid might be spread by means of a contaminated water supply. To show how necessary it was to investigate very thoroughly before assuming that milk was the carrier of infection, the outbreak of typhoid fever in the Borough of Brooklyn, in the year 1905, might be cited. Investigation of 941 of these cases showed that in 244, or 38.7 per cent., the milk supply came from one large company. Further investigation was necessary to show

that this same company supplied milk to a very large number of persons all over the City of New York, and that in other boroughs of the city the proportion of cases occurring among their patrons was only 7 per cent. Still further, it was found that this company actually supplied about 75 per cent. of the total amount of milk consumed in Brooklyn. It seemed reasonable to believe, therefore, that the milk had absolutely nothing to do with infection in these cases. Many instances have been found of oyster beds in polluted waters and much evidence was shown that the oysters were "fattened" in badly polluted streams. Every dealer now had to state the source from which he obtained the oysters and during this coming summer investigations would be made of these sources, and wherever there seemed to be danger through pollution of the water in which the oysters were grown, or through pollution of the waters where the oysters were freshened or fattened, the dealer would be compelled to discontinue that particular source of his product or his permit would be revoked and he would not be permitted to carry on his business in the city. While it was without doubt a fact that many oyster beds could be found in polluted waters of New York City that contained sewage contamination, it was also a fact that 90 per cent. of the total of oysters used in New York for food purposes came from points outside of those from which all the tests were made. He said there could be no question concerning the danger of possible contamination of oysters, but that such contamination was widespread might be seriously doubted. Green vegetables, if washed in polluted water, might be a source of typhoid fever, but such cases were very few. Contaminated water, whether taken in as drinking water, or possibly contaminating in its turn milk or fresh vegetables, seemed to be the main carrier of typhoid. Constant inspection and supervision of New York City's water supply could not possibly reduce the danger of such contamination to a minimum. In addition to inspection, filtration of the whole city's water supply was undoubtedly essential.

Dr. E. G. Janeway said that he was a member of the committee appointed to investigate the source of water supply to this city, and saw conditions similar to those described by Dr. Bensel. He went to Albany and pointed out the existence of these conditions, but no good resulted from the information he gave the members of the Legislature. The Deaf and Dumb Asylum had many outbreaks of typhoid fever, and in 1868 Professor Metcalf asked him to investigate 60 or 70 cases. Dr. Janeway found that there were half a dozen cases of pure typhoid, and the others had aborted. In other words, there were two kinds of typhoid; one the ordinary typhoid fever as they knew it; the other, a typhoid that ran a course of from three to ten days, and then ceased. The Board of Health investigated this and the question arose, where did it come from? Steps were taken to improve the sewage and drainage. The next outbreak in this institution was found to be due to an eroded vent pipe. When Dr. Janeway was Commissioner of Health there occurred another outbreak, and this time the disease was very limited. The source of contamination was found to be from an infected well. Five hundred feet from the hospital was the only pump there. The drain pipe was dug up and no source of leakage could be found. They then took a solution of lithium chloride and poured it into the hospital drain. The chemist of the Board of Health examined the water in the well six hours afterwards spectroscopically, and the lithium chloride was noted, showing contamination of the water supply. Dr. Janeway also told of an institution of learning that had an outbreak of typhoid fever, and it was interesting to note that in the first six cases the persons had their meals together, although they did not live together. It was found that there was a well within forty feet of a cesspool where the excreta were thrown; there was there a girl ill with typhoid fever. There occurred in that institution some thirty cases. A new water supply stopped the outbreak. A great thing that concerned us in the study of the source of typhoid fever was the water. The water in this city for the past six or eight months had been remarkably clear; but there had been times when there seemed to be danger even in bathing in it, it was so dirty. If New York City had a filtration plant, if it did not ruin the city, it would be a good thing. But New York City's financial situation was something awful, it being in debt seven hundred millions of dollars, almost equal to the national debt. Therefore, they must plan the work in a more economical way, and they should think about filtration in the future. The burden of supplying water should be on the shoulders of those people using the water.

Dr. A. Seibert believed that the chief carrier of typhoid infection was the water drank, the same in this as in other countries. Some years ago he made a comparison of the typhoid fever mortality of New York City for ten years, from 1890 to 1900, with that of the Prussian army, and the curve resulting from the study of the one could not be told from the other. The sameness between the two curves showed something in common, and this he believed to be the temperature. A filtration plant should be established in this city. Seventy per cent. of the cases of typhoid fever in cities was due to an infected water supply. So soon as the filtration plant was established, it had been found in other cities, the mortality dropped from one in eight thousand to one in twenty thousand. This was the drop in Hamburg, Breslau, and other cities. Dr. Seibert said that years ago he had listened to a paper by Dr. Bensel regarding the typhoid infected oyster, and he had not eaten one since.

Dr. Jonathan M. Wainwright of Scranton, Pennsylvania, after referring to the typhoid epidemic of Scranton, said that he did not believe that the typhoid in New York City was due to its water supply, and the institution of a filtration plant would not cut down the number of cases. In the Scranton epidemic it was learned that to a large extent typhoid fever was a directly communicable disease. In their epidemic the directly communicable cases ran from 20 to 40 per cent. He believed the time would come when typhoid fever would be looked upon as a communicable disease, as measles and scarlet fever were looked upon to-day, and the health boards should so consider it.

Dr. William H. Park said that Dr. Bensel had shown only the bad points regarding the Croton Water shed, and had neglected to tell them of the good points. At present more time was allowed for sedimentation than formerly. Dr. Park referred to the epidemic of one year ago; about March 1, the number of cases rapidly jumped up in two weeks, and this increase was confined entirely to Manhattan, and there seemed to be nothing to explain it. The Croton dam was drained because it was found to be covered with grass and shrubs, making the water offensive. At that time the water ran rapidly through Croton lake to New York City. It proved to him two things. First, that the number of cases of typhoid was in a measure dependent upon the rapidity of the water flow to this city; the faster the flow, the more cases. Second, it made him believe that Croton water did give some typhoid. With regard to Dr. Seibert's statement with respect to the number of cases increasing with the warm months of the year, this he believes to be due to the growth of the bacilli; the typhoid bacilli died out very quickly in the cold months. Typhoid fever should always be studied as Dr. Wainwright had studied the Scranton epidemic. There was no doubt that there would occur a decrease in the number of cases of typhoid fever when filteration plants were installed. Cities like Albany, where such plants had been introduced, were filtering bad water, but filtered bad water was better of course than such water unfiltered. Oysters in a bad condition made a good soil for the growth of typhoid bacilli. Other things than water should be consid-

ered in the spread of typhoid fever. Fly growth and typhoid growth occurred together, and he had no doubt that some cases of typhoid were caused by flies. Dr. Park then referred to the cook who, although apparently well, was dangerous to the community in which she lived because her feces contained at all times the typhoid bacilli. Some people were persistent typhoid carriers. Three of four per cent. of those who had had typhoid became typhoid carriers for life. As a result of this there were to-day in New York more typhoid carriers than there were cases of typhoid fever.

Dr. JOHN S. THATCHER said that it had been shown in other cities that the municipal government could do much in the way of improving its water supply. Years ago he wrote a paper calling attention to the fact that typhoid fever of cities came from the country in the main. Cities had to be protected by working on the country cases, because it had been demonstrated that typhoid was more prevalent in the rural than in the city districts. Cities got it through the supply of milk, of fruits, vegetables, people coming to the cities from the country, etc. Therefore, it seemed to him that they should work to improve the water supply, filtering the water, licensing the milk and oyster dealers, and this must be supplemented by trying to regulate the general hygiene of the people throughout the rural districts. The fecal hygiene of the country must be improved and we should attempt to educate the legislators as well.

Mr. GEORGE S. SOPER said he had been asked to be present and throw some light upon the reason why typhoid fever was more prevalent in some boroughs of New York than in others, and why there were fifty per cent. more cases in Brooklyn than in the Bronx. The borough of Queens was the most unsanitary borough of the city. There was one creek on Staten Island within three miles of the place where seven million gallons of sewage were emptied. Then again there were from three to six hundred bushels of oysters in these waters. These oysters lose in weight and substance by the process, becoming bloated rather than fattened. He regretted that the Board of Health when it passed a ordinance concerning the licensing of oyster dealers, had not mentioned shell fish dealers as well. Clams were as bad as oysters as disease carriers. A very large quantity of clams came from polluted waters in a near-by State. In that State no objection was made to sending clams to New York. Six hundred thousand oysters were produced annually in the vicinity of New York, and a large number of these were contaminated. Filtration and improving the water supply of cities had reduced the prevalence of typhoid fever only about fifty-three per cent. on an average. In ten cities the typhoid rate averaged 28.5, a very high typhoid rate. The rate for New York City was 8.1. For the whole country the rate was excessive and this he considers a public shame. For this country the rate was about four times what was found to obtain in Europe. How should typhoid be prevented? No one, he said, had mentioned the most simple measures, but forty years ago Samuel Budd gave a method of eliminating typhoid, and it was the only method by which the disease could be suppressed; that was, destroy the infectious nature of the discharges so soon as produced.

Dr. L. R. WILLIAMS thought it would be wise to consider the filtration plant for New York City at some future time and, in the meantime, to mull over the situation and report to the Academy the pro and con in the autumn. He asked if it would not be feasible to appoint a committee to consider the filtration plant question for New York City, that committee to report to the Academy in the autumn.

The PRESIDENT thought this would be feasible and asked for a motion to that effect. The motion was made, and Dr. Wyeth said he would name the Committee soon, and that Dr. Williams would be appointed Chairman.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MICHIGAN STATE BOARD OF REGISTRATION IN MEDICINE.

Examinations at Detroit, May 25, 26, 27, 1908.

ANATOMY.

1. Give origin, course, and branches of the internal maxillary artery.
2. Describe the thorax (of the skeleton) as a whole.
3. Describe the thyroid gland as to (*a*) size, (*b*) situation, (*c*) structure, (*d*) gross relation, (*e*) blood and nerve supply.
4. Describe the duodenum as to (*a*) size, (*b*) situation, (*c*) structure, (*d*) relations, (*e*) blood supply.
5. Trace the second cranial nerve from its origin to its distribution. (*b*) Describe briefly the structure of the eyeball.
6. Describe the pelvis (as a whole). What variations of form depend on sex, and what on age.
7. Describe the middle fossa of the base of the skull.
8. Describe the spleen under the following heads: (*a*) size, (*b*) situation, (*c*) form, (*d*) relations, (*e*) support, (*f*) blood supply, (*g*) nerve supply.
9. Describe the thoracic part of the sympathetic cord.
10. Describe the axillary artery, giving its relations, naming and indicating briefly the distribution of its branches.

HISTOLOGY AND EMBRYOLOGY.

1. Describe the structure of a sweat gland.
2. Describe the formation of the blood.
3. Give in detail the method of preparing hemin crystals.
4. Name the different kinds of connective tissue.
5. Describe medullated and nonmedullated nerve fibers.

PHYSIOLOGY.

1. Metabolism: (*a*) Define and give classification. (*b*) Discuss the manifestation of cell life.
2. (*a*) What are the functions of the bile? (*b*) What is the average quantity secreted daily, and what is the function of the liver other than the secretion of bile.
3. (*a*) Give location of articulate speech, and (*b*) mention the various forms of asphasia.
4. What is meant by the "refracting apparatus" of the eye, and what are the most common errors relating thereto?
5. State the three divisions of the organ of hearing and give function of Eustachian tube.
6. What changes take place in the composition of the blood as it passes through the kidneys?
7. What is meant by the term "inhibition"? Describe its mechanism.
8. Mention and give function of some one large system of veins beginning and ending in capillaries.
9. Blood: (*a*) Trace its course through the heart and lungs, beginning at the right auricle. (*b*) Describe the changes that take place.
10. What are reflex movements? Give classification and laws governing same.

CHEMISTRY AND TOXICOLOGY.

1. What is a chemical formula? Give chemical formulæ for (*a*) nitric acid, (*b*) sulphuric acid, (*c*) phosphoric acid. Give tests for each.
2. What is ozone; its properties; how recognized; its influence on epidemic diseases? If air, which is rich with ozone, is inhaled, what is the effect on the respiratory organs.
3. What is dextrine? What is starch; how obtained, and by what test can it be recognized?
4. What are ptomains? Give symptoms and treatment of ptomain poisoning.
5. What chemical tests are used for detecting the presence of organic impurities in water?
6. What are the properties and uses of carbolic acid? How is it made? How would you treat a case of carbolic acid poisoning?
7. What are the properties of arsenic? Of what use is the antiseptic quality of arsenic? What is the antidote for arsenic? How prepared?
8. What are the properties of hydrocyanic acid? Give symptoms and treatment of poisoning by same.
9. How is tartar emetic made? Give formula.
10. Name general properties of alkaloids. What are the principal liquid alkaloids?

BACTERIOLOGY.

1. How would you determine, by bacteriological method, if a specimen of drinking water was pure?

2. Describe the *Bacillus anthracis*.
3. What is a parasite? What is a saphrophyte?
4. Define a toxin, and an antitoxin. Explain the theory of disease, and treatment by antitoxins.
5. What are mordants?

PATHOLOGY.

1. Explain metabolism in diabetes.
2. Name the causes of hemorrhage.
3. How are infarcts formed?
4. What is the rôle of the exudate in inflammation?
5. What is pathologieal regeneration?
6. Describe the formation of a dermoid cyst?
7. Give the pathologieal anatomy in acute yellow atrophy of the liver.
8. Name the various forms of cancer of the stomach in order of frequency.
9. How are toxins formed, and how destroyed or eliminated from the system?
10. What changes in the blood-vessels take place in chronie interstitial nephritis?

MEDICAL JURISPRUDENCE.

1. What is the difference between expert and ordinary testimony?
2. How would you determine whether a wound found on a dead body was inflicted before or after death?
3. Define abortion? When is it not a crime?
4. Define insanity from a medicolegal standpoint.
5. In a case of suspected poisoning, give detailed directions for preparing and transferring organs to the ehemist for examination. What organs should be sent?

EYE, EAR, NOSE, AND THROAT.

1. Iritis: give diagnosis and treatment.
2. Ophthalmia neonatorum: give cause, symptoms, treatment, and prophylaxis.
3. Acute suppurative otitis media: give diagnosis and treatment.
4. Epistaxis: give causes, and describe in detail its treatment.
5. Edema of the glottis: give etiology, symptoms, and treatment.

OBSTETRICS.

1. Describe the eorpus luteum of pregnancy.
2. Describe the relation between ovulation and menstruation.
3. Diagnosis of pregnancy.
4. Extrauterine pregnancy: symptoms, diagnosis, treatment.
5. How would you diagnose a shoulder presentation, and what would be your treatment?

GYNECOLOGY.

1. What is ectopic gestation? Give methods of diagnosis and treatment.
2. Give causes of displacements of uterus, symptoms, and treatment.
3. Describe gonorrhea and its sequelæ in the female.
4. Curette: Give indications for using as a means of diagnosis; method of using; dangers of using.
5. Uterine hemorrhage: causes and treatment of each.

SURGERY.

1. What is an abscess? Give pathology.
2. Define appendicitis, and give method of exact diagnosis.
3. Give the best treatment for appendicitis in usual eases and in fulminating eases.
4. What is spina bifida? Give cause, pathology, and treatment.
5. Describe the best method for the restoration of the pelvic floor. Give technique.
6. In compound, comminuted fracture of the tibia, describe treatment fully.
7. In a gunshot wound through the head of the humerus, what would be your management? Give technique.
8. How would you treat a septic infection of the knee joint? Describe fully.
9. Give diagnosis of chanere, chancroid, and herpetie ulcer.
10. Describe snakebite, its symptoms, pathology, and treatment.

MATERIA MEDICA AND THERAPEUTICS.

1. Mention some of the temperature depressants; their manner of action and their doses.
2. What is the therapy of ergot? Mention some of its preparations and their doses.
3. Give the physiological action of strychnine and its toxicology.
4. Mention the methods by which medicines may be administered.
5. What is the general rule for calculating doses for children?

PRACTICE OF MEDICINE.

(Including Neurology and Pediatrics.)

1. Describe intracranial pressures: causes, symptoms, and treatment.
2. Differentiate between hysterical paralysis and paralysis from a spinal lesion.
3. Give causes, symptoms, physical diagnosis, and treatment of acute croupous pneumonia.
4. Deseribe causes, tests, symptoms, and treatment of typhoid fever.
5. Give causes of myocardial insufficiencies.
6. Diagnosis and treatment of pleuritic effusion.
7. Describe acute catarrhal jaundice and treatment.
8. What is vertigo? Give cause and treatment.
9. Differentiate between follicular tonsillitis and diphtheria.
10. Give cause, symptoms, and treatment of enterocolitis in young children.

HYGIENE.

1. Define hygiene.
2. Tell how you would manage a case of typhoid fever to prevent spread of infection.
3. What lower animals are carriers of diphtheritic poison? How manage cases of diphtheria to prevent spread of contagion?
4. How stamp out typhoid fever?
5. How prevent spread of scarlet fever? Of measles?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MICHIGAN STATE BOARD OF REGISTRATION IN MEDICINE.

Examinations at Detroit, May 25, 26 and 27, 1908.

PHYSIOLOGY.

1. (*a*) *Metabolism* is the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive (*anabolism*); and (2) destructive (catabolism).

(*b*) The manifestations of cell life are: (1) Irritability, or power of responding to a stimulus; (2) power of movement; (3) power of assimilation; (4) power of growth; (5) power of excretion, and (6) power of reproduction.

2. (*a*) *The functions of the bile* are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has very feeble antiseptic action.

(*b*) The average quantity of bile secreted in twenty-four hours varies from about 500 c.c. to 900 c.c.

The functions of the liver other than the secretion of bile are: (1) The formation of glycogen, (2) the formation of urea and uric acid, (3) the manufacture of heat, and (4) the conversion of poisonous and harmful into inert material.

3. (*a*) The center for articulate speech is thought to be located in the third or inferior frontal convolution of the left cerebral hemisphere; this is often called Broca's convolution.

(*b*) The various forms of aphasia, are: (1) Motor; (2) sensory, which may be (*a*) visual, (*b*) auditory; (3) conduction; and (4) mixed.

4. The *refracting apparatus* of the eye consists of: (1) The *refracting surfaces*, viz., the cornea, and the anterior and posterior surfaces of the lens; (2) the *refracting media*, viz., the aqueous humor, the crystalline lens, and the vitreous body. The most common errors relating to refraction, are: hyperopia, myopia, and astigmatism.

5. The three divisions of the organ of hearing are: (1) the external ear; (2) the middle ear, or tympanum; (3) the internal ear, or labyrinth.

The *function of the Eustachian tube*, is to keep the atmospheric pressure within the tympanic cavity the same as that on the outside.

6. As the blood passes through the kidney it loses water, salts, urea, carbon dioxide, and extractives.

7. *Inhibition* is the voluntary restraining of a reflex act, or of the processes which occur in one part of the nervous system by the activity of some other part. "The central nervous system is functionally united into a whole, and the activity of each part affects the activity of every

other part, *e.g.*, during the act of swallowing, the pulse beats more quickly because the cardioinhibitory reflexes are diminished; sneezing, respiration, micturition, etc., are checked by strong sensory stimulation. If, while the cortex of the Rolandic area of the brain is being stimulated by a current which would ordinarily produce a movement of certain muscles, a strong stimulus be applied to a sensory nerve, the cortical stimulation is rendered ineffective; actions which are ordinarily reflex become voluntary when attention is directed to them. Such instances of inhibition can be explained by supposing (1) that when impulses are passing through a reflex-path, neighboring paths are blocked; (2) that if the route toward a higher center is open, a part of the afferent impulse passes upward to the higher center (the amount of the impulse so directed depending upon the state of attention of the higher center); whereas, when this ascending route is closed, the whole impulse flows across a reflex-path." (Hill, *Physiologists' Note-Book.*)

8. The portal system of veins begins and ends in capillaries. Its function is to carry to the liver blood loaded with material absorbed from the contents of the stomach and intestines.

9. (*b*) In its passage through the lungs, the blood in the pulmonary artery: (1) becomes cooled; (2) becomes a brighter red color; (3) gains oxygen (about 10 or 12 volumes); (4) loses carbon dioxide (about 7 volumes).

10. *Reflex movements* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral.

CHEMISTRY AND TOXICOLOGY.

1. A chemical formula is a collection of symbols representing a molecule and expressing the number and kind of atoms of which it is composed.

The *formula* for (*a*) nitric acid, is HNO_3; (*b*) sulphuric acid, H_2SO_4; (*c*) phosphoric acid, H_3PO_4.

Test for (*a*) nitric acid: Neutralize with potassium hydroxide, evaporate to dryness, then moisten with H_2SO_4, and add a crystal of brucin; a red color appears. (*b*) Sulphuric acid: Add barium chloride, a white precipitate results, which is insoluble in HNO_3 or HCl. (*c*) Phosphoric acid: To dilute HNO_3, add the solution to be tested, and then add a solution of ammonium molybdate; a yellowish precipitate results.

2. Ozone is an allotropic modification of oxygen, in a condition of condensation; thus three molecules are condensed into two molecules of ozone: $3O_2 = 2O_3$.

Properties. It is a dark blue liquid, almost opaque, and is not decomposed at the ordinary temperature. It is very slightly soluble in water, is insoluble in solutions of acids and alkalies; and it is a powerful oxidizing agent.

Test: Paper impregnated with fresh tincture of guaiacum, is colored blue by ozone.

Ozone, being an antiseptic and disinfectant agent, may be supposed to have a restraining influence on epidemic diseases.

If air which is rich with ozone, is inhaled, an acute coryza and catarrh of the respiratory mucous membrane will be produced.

3. *Dextrine,* or British gum, is a substance obtained by subjecting starch to a dry heat. It is like gum arabic in appearance, is soluble in water, and in soluble in alcohol.

Starch is a carbohydrate having the empirical formula $C_6H_{10}O_5$; it exists in plants.

Preparation: "It is prepared from roots or seeds by crushing them and placing them upon a sieve or strainer, through which water is flowing. The water mechanically carries the starch through the sieve, leaving the fibrous and cellular substances behind. The water is then allowed to stand, and the starch deposits as a white sediment, from which the water is poured off, and which is finally dried." (Luff and Page's *Chemistry.*)

Test: A solution of free iodine gives, with starch, a blue color; this color disappears on warming, and reappears on cooling.

4. *Ptomains* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction.

Ptomain poisoning. Symptoms: Chilliness, headache, vertigo, muscular twitchings, hallucinations, imperfect vision, weak and rapid pulse, nausea, vomiting, diarrhea, cyanosis, early dyspnea, often subnormal temperature, and occasionally cutaneous eruptions. The prognosis is guardedly favorable.

Treatment consists in the use of emetics and cathartics, or lavage and rectal irrigation. Morphine may be indicated for the relief of pain, and collapse is to be combated by atropine, strychnine, nitroglycerin, external heat, whiskey, etc. After thorough purging, salol, naphthol, or bismuth may be given.

6. Carbolic acid is a colorless crystalline substance when pure, but it soon assumes a pink color; it has a peculiar odor, and a burning taste. It is soluble in water, alcohol, and ether. It is an antiseptic, a poison, and a corrosive. It is also used in the manufacture of its derivatives which are used in medicine, and as dyes. It is made by heating phenyl iodide and potassium hydroxide at a high temperature: $C_6H_5I + KHO = KI + C_6H_5OH$.

The treatment of carbolic acid poisoning consists in administering white of egg, sodium sulphate, or saccharated lime, followed by lavage. Alcohol is said to be antidotal.

7. *The properties of arsenic*: Arsenic is an element, with atomic weight of 75, molecular weight 300, valence three or five; the molecule contains four atoms. It occurs chiefly in combination in orpiment, realgar, mispickel, or iron pyrites. It is a brittle gray solid with metallic luster, or an amorphous powder; the vapor has an odor of garlic; it is insoluble in water; it unites with nascent hydrogen; it burns in oxygen. It is a good conductor of electricity. It is tarnished by moisture; in dry air it is not altered; heated in air it becomes arsenic trioxide. It combines with most metals, also with chlorine, bromine, iodine, sulphur, and with nascent hydrogen.

The antidote for arsenic is a freshly prepared solution of ferric hydroxide; this may be prepared by keeping the two following solutions in separate bottles, and when needed it is only necessary to mix them and administer: (1) Liq. ferri tersulphatis, ℥ij; aquæ, ℥vj. (2) Magnesiæ, ʒiij; aquæ, ℥viij.

8. *The properties of hydrocyanic acid*: It is a colorless liquid, with a penetrating and characteristic odor; it is rapidly decomposed on exposure to light. It is an extremely powerful and rapidly acting poison.

HYDROCYANIC ACID POISONING. *Symptoms*: "Its action is always rapid. Relatively small doses cause an immediate sense of constriction of the throat, followed in one or two minutes by sense of pressure in the head, vertigo, confusion of intellect, and loss of muscular power. The pulse is quick, the respiration slow and stertorous. Tetanic convulsions and involuntary discharges of urine and feces occur, followed by paralysis. Death follows, in from two hours to two days, from asphyxia. When large doses are taken no subjective symptoms are observed. The patient loses consciousness in less than one minute. There is a short convulsive seizure, usually accompanied by evacuations of feces, after which the patient lies perfectly still, with no sign of life, save an almost imperceptible pulse and infrequent spasmodic respiratory efforts, in which inspiration is short and expiration protracted. Death follows in from five to twenty minutes.

Treatment: "There is no time for administration of antidotes. The patient should be stripped, and cold water dashed upon the head and spine, which are them rubbed dry with warm towels, and the cold douche repeated, after which artificial respiration should be practised. Inhalations of chlorine or ammonia, largely diluted with air, are recommended." (Witthaus' *Essentials of Chemistry.*)

9. Tartar emetic is made by boiling antimony trioxide and acid potassium tartrate, in water, filtering, and allowing to crystallize. $Sb_2O_3 + 2KHC_4H_4O_6 = H_2O + 2KSbOC_4H_4O_6$.

10. *General properties of alkaloids*: Alkaloids are of two kinds, volatile and fixed. The volatile alkaloids are liquid, readily volatile without decomposition, and consist of C, H, and N. The fixed alkaloids are for the most part solid and crystalline, not, or only partially volatile without decomposition, and consist of C, H, N, and O.

Most of the alkaloids are alkaline in reaction, of a bitter taste, and of white color.

Most of the alkaloids are nearly insoluble in water, but are soluble in alcohol, chloroform, ether, and benzine; their salts are generally soluble in water and alcohol, but insoluble in the other solvents just named. They combine with acids to form salts in the same way that ammonia does.

The principal liquid alkaloids are: Sparteine, nicotine, and coniine.

BACTERIOLOGY.

2. The *Bacillus anthracis* is a large, rod-shaped microorganism, with slightly thickened ends; it is from 5 to 20 mikrons in length, and a little more than one mikron in breadth; it has a tendency to form long threads; it is nonmotile and nonflagellated; it is aërobic, and stains by all the alkaline aniline dyes and by Gram's method.

3. A *Parasite* is an organism which lives upon or within another (living) organism.

A *Saprophyte* is an organism which lives upon dead organic matter.

4. *Toxins* are the products of pathogenic bacteria or of ptomaines or leucomaines, and are actively poisonous.

An *antitoxin* is a substance formed in the body, of a protective character, and capable of rendering inert the poisonous products of bacteria.

5. A *mordant* is a substance used to fix the dyes used in staining tissues and bacteria.

PATHOLOGY.

1. *Metabolism in diabetes*: "The essential fact is the inability of the body to consume carbohydrates for the production of energy. As long as excess of proteid and fatty food is taken and consumed, no disturbance of the general metabolism results; but when digestion fails or the diet is poorly regulated, destruction of the proteids of the body with increased excretion of urea occurs. Emaciation may be prevented for a time by increased consumption of proteid food, but eventually occurs. In the destruction of the proteids of the food and tissues, acids are formed in excess (phosphoric from the phosphorus, sulphuric from the sulphur, beta-oxybutyric and diacetic from the non-nitrogenous part of the albumins), and the condition termed acid-intoxication results. A consequence, and to some extent a measure, of this is the increased excretion of ammonium salts in the urine. The uric acid of the urine is but little increased in diabetes." (Stengel's *Text-Book of Pathology.*)

2. The *causes of hemorrhage*, are: Injury to the vessel wall; disease of the vessel wall; invasion by tumors; removal of support of the vessel; increased blood pressure; certain diseases and conditions, like hemophilia, scurvy, etc.

3. Infarcts are formed by the plugging of an end artery by an embolus.

5. *Pathological regeneration* is the formation of new cells and tissues to replace those that have been destroyed by disease or traumatism. It occurs generally on a large scale, and often the regenerated parts are not perfectly identical with those which they replace.

8. According to Osler, the most common forms of cancer of the stomach, are the cylindrical-celled adenocarcinoma and the encephaloid or medullary carcinoma; next in frequency is the scirrhous, and then colloid cancer. Sarcomata are very rare.

10. In chronic interstitial nephritis, the blood-vessels are sclerosed and thickened; the most pronounced changes are in the intima; in the outer coats the connective tissue is increased. Arteriosclerosis is generally present.

MEDICAL JURISPRUDENCE.

1. In *expert* testimony, the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can be done only by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

In *ordinary* testimony, the witness testifies to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

2. A wound inflicted during life is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

3. Abortion is the premature expulsion of the product of conception (at any period of gestation), whether ovum, embryo, or fetus. It is not criminal when it is due to natural causes, or when done by a physician, after proper consultation, for sufficient cause. The chief conditions that justify the induction of abortion are: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of the fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head.

4. According to Taylor, the term insanity is applied to "those states of disordered mind in which a person loses the power of regulating his actions and conduct according to the ordinary rules of society. In all cases of real insanity the intellect is more or less affected."

5. In case of suspected homicidal poisoning, the following parts of the cadaver should be preserved: "The alimentary canal from the cardia to the middle of the rectum, *unopened*, and the contents enclosed by ligatures at the esophagus, duodenum, and lower end of gut; the liver, including the gall-bladder; one kidney; the spleen; a piece of muscular tissue from the leg; the brain, and any urine which may remain in the bladder. They are to be placed in *clean* and *new* glass jars, closed with glass or cork covers or stoppers. Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can be had to the interior only after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing-wax gets into the jars. Each portion should be placed in a jar by itself." (Witthaus' *Essentials of Chemistry.*)

EYE, EAR, NOSE, AND THROAT.

2. *Ophthalmia neonatorum* is an infectious, purulent inflammation of the conjunctiva in the new-born.

It is *due to* gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

Symptoms: Swelling and redness of the eyes, the presence of a discharge which soon becomes purulent, the conjunctiva of the lids becomes thickened.

Treatment: Wash the eye carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

Prophylaxis: Whenever there is a possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a 1 or 2 per cent. solution of nitrate of silver, immediately after birth.

OBSTETRICS.

2. The relation existing between ovulation and menstruation is not known. The two processes are usually coexistent, but they may be independent of each other. The following theories have been held: (1) Menstruation is dependent upon ovulation; (2) ovulation is dependent upon menstruation; (3) they are independent of each other; (4) they both depend upon some other (at present unknown) cause.

3. *Positive signs of pregnancy*: (1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy: (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

Subjective signs of pregnancy, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

Objective signs of pregnancy, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growth of the uterine tumor.

4. See below—GYNECOLOGY, Question 1.

GYNECOLOGY.

1. Ectopic gestation is a pregnancy in which the ovum is developed outside of the uterine cavity.

Diagnosis.—"When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri it patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs*; Nos. 3 and 4 are *probable signs*; Nos. 5 and 6 are *positive signs*." (*American Text-Book of Obstetrics.*)

Treatment consists in the removal of the product of conception by a laparotomy, as soon as the diagnosis is made.

5. The following (from Gould and Pyle's *Cyclopedia of Medicine and Surgery*) is a useful classification of uterine hemorrhages, and also gives the causes of the same:

I. *Hemorrhages Complicating Pregnancy, Labor, or the Puerperium*:

A. Hemorrhages of Pregnancy: caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) apoplexy of the decidua or placenta.

B. Hemorrhages of Labor: caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of the cervix; (5) rupture or inversion of the uterus.

C. Hemorrhages of the Puerperium: caused by (1) retained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

II. *Hemorrhages Occurring in the Non-Pregnant Woman:*

A. In Virgins Before the Age of Thirty: caused by (1) uterine congestion, the result of cold or exposure; (2) endometritis; (3) polypi and fibroid tumors.

B. In Married Women Before the Age of Thirty: caused by (1) subinvolution; (2) laceration of the cervix; (3) endometritis; (4) retrodisplacements of the uterus; (5) polypi and fibroid tumors.

C. In Women after the Age of Thirty: caused by (1) carcinoma of the cervix; (2) carcinoma of the body of the uterus; (3) sarcoma of the uterus.

MATERIA MEDICA AND THERAPEUTICS.

1. The following table (from Potter's *Materia Medica*) gives the chief temperature depressants, with their manner of action: Temperature depression may be done by five different actions working upon two principal lines, viz., by—

(*a*) *Lessening heat production, by*
- (1) diminishing tissue change.
- (2) reducing the circulation.

(*b*) *Promoting heat loss by*
- (3) dilating cutaneous vessels, thus increasing heat radiation.
- (4) promoting perspiration—its evaporation lowering the temperature.
- (5) abstracting heat from the body.

The following list of antipyretics includes a few for each of the above-named actions, to which the numbers refer in each case, viz.:

Quinin, 1.	Aconite, 2.	Antipyrin, 1, 4.
Phenol, 1.	Alcohol, 1, 3.	Antimony, 2, 4.
Salicin, 1.	Nitrous ether, 3, 4.	Cold bath, 5.
Digitalis, 2.	Acetanilid, 1, 4.	Cold drinks, 5.
	Phenacetin, 1, 4.	Wet-pack, 5.

3. Strychnine. *Physiological action*: Strychnine is a bitter tonic, stimulates appetite, secretion, and digestion, increases peristalsis, stimulates the vasomotor centers, and so raises arterial tension, and stimulates both accelerator and inhibitory nerves of the heart. All the functions of the spinal cord are exalted by strychnine, reflex, motor, vasomotor, and sensory. Large doses cause dilated pupils, irregular and jerky respiration, increased reflexes.

The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

Treatment: "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

4. *Medicine can be administered*: (1) By the mouth; (2) by the rectum; (3) by inhalation; (4) by inunction; (5) hypodermically; (6) by intravenous injection; (7) by fumigation; (8) by cataphoresis.

5. Let x = the age of a patient; then $\frac{x}{x+12}$ = the fraction of the adult dose which the patient should receive. Thus, a patient of four years old should receive $\frac{4}{4+12} = \frac{4}{16} = \frac{1}{4}$ of an adult dose.

HYGIENE.

1. Hygiene is the science and art of all that tends to the maintenance and improvement of health, the prevention or shortening of the duration of diseases, and the prolongation of life.

2. Typhoid fever is preventable. All water for drinking or for washing dishes, etc., and milk should be boiled; no ice should be put *in* water or other drink or food; flies should be kept out of the house; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over.

3. Cats, cows, pigeons, and turkeys are said to be carriers of diphtheritic poison. To prevent the spread of contagion in cases of diphtheria, the patient should be isolated in the mildest attack, physician and nurse should use antiseptics and also a disinfectant gargle after coming in contact with the patient, sputum must be burnt, those in attendance must avoid the spray of the expectoration, the room and fittings must be thoroughly disinfected after the termination of the disease. Prophylactic doses of antitoxin may be administered to those exposed to the disease.

4. See No. 2, above.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct. 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	August 4
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct. 13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 11
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 6
Idaho	W. F. Howard, Pocatello	Boise	Oct. 6
Illinois	J. A. Egan, Springfield	Chicago	July 22
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	Oct. 27
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept. —
Kansas	D. P. Cook, Clay Center	Kansas City	Oct. 13
Kentucky*	J. N. McCormack, Bowling Green	Louisville	Oct. 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	ansing	Oct. 13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 6
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Aug. 5
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire*	Henry C. Morrison, State Library Concord	Concord	
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct. 20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 12
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	Sept. 22
N. Carolina*	G. T. Sikes, Grissom	Winston,Salem	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct. 6
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	J. C. Mahr, Shawnee	Shawnee	Sept. —
Oregon	B. E. Miller, Portland	Portland	
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	
Rhode Island	G. T. Swarts, Providence	Providence	Oct. 1
S. Carolina	W. M. Lester, Columbia	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Deadwood	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis / Nashville / Knoxville	May,'09
Texas	G. B. Foscue, Waco	Waco	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 5
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 6
Washington*	C. W. Sharples, Seattle	Seattle	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov. 10
Wisconsin	J. V. Stevens, Jefferson	Madison	
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 14

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

Therapeutic Hints.

Painful Rheumatic Joints.—In chronic cases the following may be of service:

℞ Acid salicyl.....3i.
Ol. terebinth.....3i.
Adep. lanæ.....
Adep. benzoin.....āā 3i.

M. F. ung.—*The Hospital.*

Chapped Hands.—

℞ Pot. hydrox.....gr. viii.
Glycerini.....3v.
Spt. vini. rect.....3v.
Aquæ.....3ii.

M. S.: Wash the hands with warm water and rub in the lotion freely.—*The Hospital.*

Enuresis.—The following formulæ by Sheffield are recommended in the treatment of enuresis:

℞ Ext. ergot.....3iij.
Ext. rhus toxicodendron.....3j.

M. Sig.: Five to ten drops every four to six hours.

In cases of incontinence due to hyperesthesia of the neck of the bladder, irritating foods should be avoided, sitz baths employed and the following antispasmodic mixture given:

℞ Ext. hyoscyami.....3ss.
Sodii bromidi.....3j.
Aq. anisi.....3j.
Syr. simp.....q. s. ad. 3ij.

M. Sig.: One teaspoonful every four to six hours. Counterirritation by means of mustard plasters should be employed over the lumbosacral region.—*Jour. of the American Medical Association.*

Pruritus.—

℞ Phenolis.....3ss.
Pulv. calamin.....3i.
Zinci oxidi.....3ii.
Glycerini.....3iii.
Aquæ calcis.....3i.
Aquæ rosæ.....3iv.

M. S.: To be applied repeatedly over the surface.

℞ Picis liquidæ.....3iv.
Pot. caustici.....3ii.
Aquæ.....3x.

M. S.: Dilute ten to twenty times with water and apply to the surface, which is afterward covered with an ointment.—*Bulkly.*

Gastroptosis.—

℞ Chloral hydrat.....3i.
Sodii bromidi.....3iiss.
Aq. chloroformi.....3iv.
Spts. anisi.....gtt. vi.

M.
S.: Teaspoonful in water after meals three times a day.—*Lockwood.*

Diphtheria.—If antitoxin cannot be obtained Dempsey recommends the following:

℞ Pot. chlorat.....3ss.
Tinct. ferri. chlor.....3i.
Aquæ dest. ad.....3iii.

M. S.: A teaspoonful in one-fourth glass of water as a gargle, spray or application.—*New Orleans Medical and Surgical Journal.*

Cystitis.—Kreissl uses the following:

℞ Decoct. sem. lini.....10–150.0
Salol.....4.0
Tinct. opii.....gtt. xx.
Syr. simpl.....30.0

M. S.: A tablespoonful every two hours.

℞ Extr. opii.....0.18
Extr. belladon.....0.06
Olei theobrom.....6.0

F. suppos. No. vi.

S.: One suppository two to three times a day.—*Clinical Review.*

Chlorine Gargle.—

℞ Potassii chloratis.....gr. xv.
Acid hydrochlor.....3 ss.
Aq.....q. s. ad. 3 vi.

When well dispensed this should be green in color. The secret lies in using crystals of the salt, strong acid, and a dry bottle. After decomposition is complete the water is added in small quantities at a time.—*The Hospital.*

Ointment for Pruritus Vulvæ.—

℞ Chloral hydrat.....gr. xx.
Gum camphor.....gr. xx.

Rub together in a mortar until they liquefy, then add:

℞ Pulv. acaciæ.....gr. xx.
Simp. cerat.....3 i.

M. Sig.: Apply a little of the mixture with the finger whenever the parts burn or itch.—CLENDENNEN.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 11, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	444	107
Diphtheria	235	33
Measles	431	14
Scarlet Fever	187	16
Smallpox	—	—
Varicella	47	—
Typhoid Fever	72	10
Whooping Cough	18	3
Cerebrospinal Meningitis	6	5
Malarial Fever	—	—
Totals	1440	188

Health Report.—The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 10, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Alabama, Mobile	June 13–20	7	..
California, Los Angeles	June 13–20	1	..
San Diego	To June 13	100 cases, estimated, and mainly in vicinity of the Pala Indian Reservation.	
San Francisco	June 13–20	4	..
Iowa, Davenport	June 1–30	3	..
Sioux City	June 1–30	2	..
Kentucky, Covington	June 20–27	3	..
Louisiana, New Orleans	June 20–27	5	1
Missouri, Conway	Apr. 20–May 24	29	..
Kansas City	June 20–27	1	..
Ohio, Cincinnati	June 19–26	4	..
Dayton	June 20–27	1	..
Troy	To July 3	28	..
Rhode Island, Pawtucket	June 12	1	..
Tennessee, Dickson	June 12	9	..
Texas, San Antonio	Jan. 20–27	1	..
Vermont, Whiting	May 5	1	..
Washington, Spokane	June 13–20	17	..
West Virginia, Moundsville	June 17–July 2	1	..
Wisconsin, La Crosse	June 20–27	3	..

SMALLPOX—INSULAR.

Porto Rico, Mayaguez	June 6–20	4	..

SMALLPOX—FOREIGN.

Canada, Halifax	Jan. 13–20	6	..
China, Amoy (Kulangsu)	Apr. 6–May 16	..	Present
Foochow	May 23–June 6	..	"
Shanghai	May 18–24		3
Cochin-China, Cholon	May 23–30	5	1
Ecuador, Guayaquil	May 23–30	..	4
Egypt, Cairo	May 27–June 3	6	2
Germany, General	May 30–June 6	6	..
Java, Batavia	May 2–30	14	1
Portugal, Lisbon	May 30–June 16	10	..
Russia, Moscow	May 23–June 6	69	27
Riga	June 6–20	5	..
St. Petersburg	May 16–June 6	40	33
Siberia, Vladivostock	May 5–14	1	..
Turkey, Bagdad	May 30–June 6	20	2

PLAGUE.

Chile, Antofagasta	May 24	24	2
Arica	May 27	..	Present
Iquique	May 26	11	1
China, Foochow	May 30–June 6	..	Present
Cochin-China, Cholon	May 23–30	5	3
Saigon	May 9–30	16	15
Ecuador, Guayaquil	May 23–30	..	10
Egypt, General	May 27–June 2	42	16
	June 3–9	36	26
Alexandria	May 29–June 10	3	3
Mauritius, Port Louis	May 1–31	2	2
Peru, Galonal	May 31–June 6	38	11
Callao	May 30–June 6	7	2
Lima	May 30–June 6	3	4
Straits Settlements, Singapore	May 9–16	..	1
Turkey, Bagdad	May 30–June 6	11	6
Venezuela, Caracas	June 10–12	5	1

YELLOW FEVER—INSULAR.

Porto Rico, San Juan	July 7	1	On S. S. *Julia* from Santiago

YELLOW FEVER—FOREIGN.

Brazil, Manaos	May 23–30	2	2
Para	May 30–June 6	4	4
Cuba, Daiquiri	July 6–9	3	1
Santiago	July 4	1	..
Ecuador, Guayaquil	May 23–30	1	..
Mexico, Laguna de Terminos	June 27	2	..
Veracruz	July 7	1	1

CHOLERA.

Cochin-China, Cholon	May 23–30	23	22
Saigon	May 9–30	71	63
Straits Settlements, Singapore	May 9–16	..	2

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Original Articles.

A BRIEF ACCOUNT OF THE HISTORY OF MEDICINE IN THE PROVINCE OF QUEBEC, FROM 1535 TO 1838.*

By HERBERT S. BIRKETT, M.D.,

MONTREAL.

PROFESSOR OF OTOLARYNGOLOGY, MCGILL UNIVERSITY, MONTREAL; OTOLARYNGOLOGIST, ROYAL VICTORIA HOSPITAL, MONTREAL; FELLOW OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fellows of the American Laryngological Association:

Permit me to express my deep sense of appreciation of the honor you conferred upon me in electing me your President. It has been my endeavor to discharge the responsibilities of this high office to the best of my abilities, and I trust to your satisfaction, and with credit to the Association.

It is with very great pleasure that the Medical Profession of this city and of this Dominion welcome you to the first convention of this Association to be held on Canadian soil. Your loyal support in the preparation for this year's meeting and especially the cooperation of our able Secretary, have enabled us to present an excellent program of papers for your consideration. I can only add that we shall endeavor to make your brief stay in Montreal as pleasant as I trust it will be profitable.

It is fitting that I should refer on such an occasion to the loss which this Association has sustained by the death on the 9th of December last, of one of our most eminent corresponding members, Professor Moritz Schmidt.† Perhaps I may recall to you the chief points in his brilliant career. He was born in Frankfort-on-Main on the 15th of March, 1838. He studied in Göttingen, Vienna, Berlin, Utrecht, England, and France, and graduated in 1860. After the practice of general medicine for twenty-six years, he began in 1886 to devote his time exclusively to diseases of the ear, nose, throat, and lungs. He retired from practice in 1903, after receiving signal honors from his colleagues and his Sovereign. He made many valuable contributions to laryngology, most notably the work with which you are no doubt familiar, on diseases of the upper respiratory passages.

At the recent Tuerck-Czermak Jubilee, this Association was unfortunately not represented, but our good wishes were conveyed to the President through a letter from the Secretary.

We have to chronicle a sad event in connection with this Jubilee, in the sudden death from cardiac syncope on Wednesday morning, April 25, of our recently elected Honorary Fellow, Professor Leopold von Schroetter, who had on the previous day delivered, apparently in the best of health, the oration on the opening of the First International Congress of Rhinolaryngology.

Hofrat Professor Dr. Leopold von Schroetter,* Ritter von Kristelli, was born in Graz on the 27th February, 1837. He studied medicine at Vienna, and graduated in 1861, receiving immediately an appointment as Assistant to Skoda, after whose death he acted as substitute in the professorship of clinical medicine. In 1875 he became extraordinary professor of throat and chest affections. In 1881 he was appointed Director of the clinic for laryngology in the Allgemeine Krankenhaus. This position he relinquished in 1890 to accept the professorship of clinical medicine, which position he was about to resign, having reached the age limit of seventy.

His principal writings of laryngological interest are: "Laryngologische, Mittheilungen" (1875), "Beitrag zur Behandlung der Larynxstenosen" (1876), "Vorlesungen ueber Krankheiten des Kehlkopfs," etc. (1867), "Vorlesungen ueber Krankheiten der Trachea" (1901), besides many important papers on clinical medicine. He took great interest in tuberculosis, and was the founder of the celebrated Austrian Sanitorium "Alland." Together with Stoerk and Schnitzler, he was one of the three great laryngological authorities of Vienna. Finally, his taking part in the celebrated November Consultation of 1887 in the case of the then Crown-Prince of Germany, has become historical.

Dr. Newcomb, our worthy Secretary, has but expressed, I am sure, our concordant wish in conveying to the families of our deceased members, the sincere condolences of this Association on the loss of such distinguished men.

The unique significance of this time and place have suggested to me the topic upon which I am to address you. I feel that the honor which you have conferred upon me in electing me your President is in a sense international, and may perhaps justify the choice of a subject which is in a measure national in its scope. It occurred to me that a brief account of the early history of medicine in the province of Quebec might not be inappropriate in a meeting which is held for the first time in the history of the Association in Canada, in this, the oldest Province of the Dominion, and on this, the tercentenary of the founding of Quebec by Samuel de Champlain.

On the 3rd of July, 1908, Canada will celebrate the three-hundredth anniversary of the foundation of Quebec, the real birthday of the Canadian nation. The history of medicine in this Province, however, began seventy-three years before, when Jacques Cartier built his rude fort on the banks of the St. Charles, facing the Indian village of Stadaconé.

It was on the 14th of September, 1835, that Cartier chose this place as a temporary shelter, and leaving his men to construct an abode against the

*Presidential address delivered before the thirteenth annual congress of the American Laryngological Association, held in Montreal, Canada, on May 11, 12, and 13, 1908.

†I desire to express my indebtedness to my friend, Sir Felix Semon, K.C.V.O., for the notes kindly supplied regarding the deceased members.

approaching winter, sailed up the river St. Lawrence as far as the village of Hochelaga, the site of which includes a part of the grounds of McGill University.

Upon his return to Stadaconé, he found the little fort in a state of alarm. Scurvy had broken out in the Indian villages, and according to the account of the leader of the tribe, fifty had already succumbed. Every precaution possible was taken to prevent intercourse with the natives; but nevertheless the disease began to manifest itself among Cartier's crew, "insomuch as some did lose all their strength, and could not stand on their feete, then did their legges swel, their sinnowes shrinke as blacke as any cole. Others also had all their skins spotted with spots of blood of a purple coulour; then did it ascend up to their ankels, knees, thighes, shoulders, armes and necks: their mouth became stincking, their gummes so rotten that all the flesh did fall off, even to the rootes of the teeth, which did also almost all fall out. With such infection did this sickness spread itselfe in our three ships, that about the middle of February, of a hundreth and tenne persons that we were, there were not ten whole, so that one could not helpe the other, a most horrible and pitifull case, considering the place we were in, forsomuch as the people of the countrey would dayly come before our fort and saw but few of us. There were alreadie eight dead, and more than fifty sicke, and as we thought, past all hope of recovery."

The winter wore on; disease and death fell like a pall over the little fort, and Cartier was threatened with a danger more to be feared even than scurvy. Upon the heights of Cape Diamond stood the villages of the Ajoaste, Starnatam and Tailla, branches of the ferocious Iroquois, the first passion of whose souls was war. Hitherto they had been overawed by the presence of the wonderful ships manned by sturdy crews, but gradually, as signs of activity disappeared among the white men, they grew bolder, and at any moment the sound of the war-whoop might be the signal for an invasion of the ships.

Among the crew, there was evidently a man possessing a knowledge of surgery, who determined to hold a postmortem on the body of one Philip Rougemont, 22 years of age; to ascertain the cause of death, and, if possible, save the remnants of the ship's company. Here, in the quaint language of the time, is the result of the first autopsy held in Canada: "He was found to have his heart white, but rotten, and more than a quart of water about it; his liver was indifferent faire, but his lungs blacke and mortified, his blood was altogether shrunke about the heart so that when he was opened, great quantitie of rotten blood issued out from about his heart; his milt towards the backe was somewhat perished, rough as if it had been rubbed against a stone. Moreover, because one of his thighs was very blacke without, it was opened, but within, it was whole and sound: that done, as well as we could he was buried."

The captain was a man of observation. Walking one day on the ice, he perceived a band of the Indians from Stadaconé; amongst them was one Domaguaya, who, less than two weeks before, was in the grip of the disease, "with his knees swolne as bigge as a child of two years old, all his sinews schrunke together, his teeth spoyled, his gummes rotten and stincking. Our captain seeing him whole and sound, was thereat marvellous glad, hoping to understand and know of him how he had healed himselfe, to the end that he might ease and help his men." from Domaguaya he learned that the specific was the bark and sap of a certain tree called in their language "Ameda." This tree is known today as "Tepinette," or the spruce. The method of preparation was as follows:

"To take the bark and leaves of the sayd tree, and boile them together, then to drink of the sayd decoction every other day, and to put the dregs of it upon his legges that is sicke: moreover they told us that the vertue of that tree was to heale any other disease."

The sailors in those days as in these were troubled with another complaint, "French Pockes," but after liberal doses of the bark, they "were cleane healed." From this time forth, the decoction was at a premium and men were ready to kill each other in their eagerness to test its efficiency, "so that a tree as big as any oake in France, was spoiled and lopped bare, and occupied all in five or six daies, and it wrought so wel, that if all the phisicians of Montpelier and Lovaine had bene there with all the drugs of Alexandria, they would not have done so much in one yere, as that tree did in sixe daies, for it did so prevaile, that as many as used of it, by the grace of God, recovered their health."

With the opening of navigation, however, Cartier returned to France, prepared for fresh deeds of adventure. Brave, indeed, were the hearts of those men who lived their lives under the perpetual menace of destruction, facing the perils of the deep to meet the still greater dangers of pestilence on land. Steadfast, heroic, subdued only by the grim reaper, Death, such were the discoverers of old.

Cartier visited our shore again, and spent another winter under scarcely more favorable conditions, notwithstanding that he had found a sovereign remedy for scurvy. With his departure from our shores in 1542, a curtain falls over the history of the country, between Stadaconé and Hochelaga, for a period of sixty years, and we find no reliable account of a settlement on the banks of the Saint Lawrence. Nevertheless, in the year 1578, there were one hundred and fifty vessels engaged in trade with France in the Saint Lawrence, and over two hundred ships belonging to the English, the Spanish, and the Portuguese. We may presume, therefore, that there were temporary settlements, and it is probable that medical supervision in some form was not overlooked.

In the month of April, 1604, Des Monts undertook to colonize New France, and among the men who accompanied him was Louis Hébert, an apothecary, born in Paris. Hébert remained at Port Royal until the month of August, 1607, when the settlement was abandoned. Ten years later, he was invited by Champlain to take up his residence at Quebec, and he was among the first real settlers who cultivated the soil for a livelihood.

His residence was in the Upper Town, near the Basilica. He soon became a prominent figure in the little community, and in 1621 was named "Royal Procurator." The first entry of a marriage in Quebec is that of Hébert's daughter. In 1626 he was granted the fief St. Joseph on the river Saint Charles, with the title of Sieur d'Espinay. He died in January, 1627, as the result of an accident, and was buried in the cemetery of the Récollets. He appears to have been held in high esteem by the Governor, the Récollets, and the citizens.

When Champlain arrived in Canada in 1608, he left his ships at Tadoussac, near the Saguenay, and sailed up the Saint Lawrence in a small craft to found the future city of Quebec. In his company were a number of mechanics, and a surgeon named Bonnerme. The axemen felled the trees on the

narrow belt which skirts the promontory of Cape Diamond, and soon a modest building arose, rudely fashioned into a fort, styled the "Abitation de Québec." While this building was in the course of construction a plot was developing to murder Champlain and deliver Quebec into the hands of a band of Spaniards at Tadoussac. Bonnerme was suspected of complicity in the plot, but his innocence was established and he was released. He died, however, during the winter from the effects of either scurvy or dysentery. It is difficult to determine which disease decimated the colony.

Among the earliest settlers in Quebec was Adrien Duchesne, a surgeon of Dieppe, who probably arrived in 1618. When Champlain surrendered the fort to Sir David Kirke in 1629, Duchesne remained and practised his profession under the English régime. The colony was restored to France in 1632, under the treaty of St. Germain-en-Laye, and a year later Champlain returned as Governor. A few months before the death of the Governor in 1635 Duchesne received a grant of land from the Crown and later transferred it to Abraham Martin, after whom the Plains of Abraham were named. In 1645-6 we find him interested in the young Charles Lemoine, *Seigneur* of Longueuil, and father of the famous Iberville. His practice extended from Quebec to the post at Three Rivers, midway between Quebec and Montreal.

Another surgeon, a contemporary of Champlain, was Robert Giffard, Sieur de Beauport, a native of Mortagne au Perche in France. He was born in 1587 and came to Quebec in 1628 in the capacity of surgeon to the company of "The Hundred Associates." He resided on the Beauport shore and appears to have spent his leisure in hunting and fishing. A year later, however, Quebec fell into the hands of the English, and he returned to France. After the restoration, he obtained a grant of the Seigneury of Beauport in 1634. He was evidently a man of considerable influence and enterprise, for within the space of two years he induced fifty excellent families to settle on the banks of the Saint Lawrence.

The task of colonization in those days was exceedingly difficult. Canada was under the monopoly of the great fur trading companies, whose policy was opposed to any extensive plan of settlement. A sufficient number of residents to facilitate trade was all that was thought desirable. His efforts, therefore, under the circumstances, were remarkable.

In 1647 Giffard obtained a larger grant of land, known as the fief St. Gabriel. A year later, he was appointed a member of the Council, a body empowered to enact local laws and to arbitrate the differences of private individuals. He practised his profession in Quebec and in the surrounding country, and was visiting physician to the Hôtel Dieu, founded in 1639. Giffard was recognized as a man of considerable importance in his time, and when he died in 1648 the community of the Hôtel Dieu felt that they had lost not only an eminent physician, but a true friend.

The colony founded by Champlain at the foot of Cape Diamond had been in existence for half a century, but its institutions were still very primitive. In 1658 Jean Madry, a surgeon of Quebec, while on a visit to France, obtained from the Sieur Barnois, Premier Surgeon in Ordinary to the King, and Provost of the Royal College of St. Come, in the University of Paris, "Letters of Surgeon" for himself, with power to establish in all parts of Canada the authority of surgery in order that the sick might receive more efficient medical care. These letters were registered in the Sovereign Council at Quebec, but they do not appear to have been of much service to the profession. Little appears to have been preserved regarding Madry. He was elected the first Mayor of Quebec, an office which was abolished after a trial of five weeks. The machinery of municipal government was too complicated and expensive for the needs of a community of less than five hundred souls.

There was at this time evidently a need of more physicians to attend the wants of the settlers, for we find that Jean Martinet, Sieur de Fonblanche, who was born in Moustiers, Bourgogne, undertook to teach his brother-in-law, Paul Prudhomme, the art of medicine and surgery by the system of apprenticeship. This is the first recorded instance of a method of teaching, which subsequently became much in vogue. This system led to such an increase in the number of physicians that keen competition and rivalry resulted in the establishment of a form of "combine" or partnership. Those entering into such a partnership "pooled all their possessions, furniture, provisions, roots, and peltry; all the products which they gathered from the ground, their instruments of surgery, their medicines, and lastly, all the revenue which they would obtain from their work and industry." It was further agreed that each of them would devote himself to the profit of the partnership as far as lay in his power, and that he would not run into debt (without the authority of his associates) exceeding the sum of five sous. At the end of four years the profits were equally divided. It was further stipulated that in the case of the death of a member before the expiration of this term, all the goods of the community would belong to the survivors.

An interesting physician of this period was Dr. Gaulthier, who, as a corresponding member of the Royal Academy of Sciences, had made many botanical observations in Canada. It was he who discovered the wintergreen plant, which to-day carries his name, and is known as the "Gaultheria Procumbens." Gaulthier devoted himself also to the study of law under the tutorship of the Sieur Verrier, Procurator-General.

With the considerable increase of population, not only at Quebec, but also at Ville-Marie (Montreal), disease in various forms had become much more prevalent. Smallpox, especially, had spread to such a degree that it was necessary to provide some suitable place to care for and attend the unfortunate sick.

The Duchesse d'Aiguillon, finding such an unfortunate condition of affairs, decided to found a hospital, and sent from Dieppe a certain number of nuns. She received a grant of land in 1637, and established in 1639 the Hôtel Dieu at Quebec. Of the attending staff of this hospital there is one who deserves especial notice, Michel Sarrazin, who came to Canada in the capacity of Surgeon-Major of the French troops. After practising his profession in Quebec for some years he returned to France for the purpose of pursuing his medical studies at the University of Rennes. Three years later he received the title of Physician to the King, and was delegated by the Academy of Science of France to make a special study of animals and plants in Canada. His work in this direction was remarkable. In the Transactions of the Academy of Science for 1704 there appears a paper by Sarrazin on the "Anatomy of the Beaver" which even to-day is regarded as the best work on the subject. His further anatomical researches dealt with the muskrat,

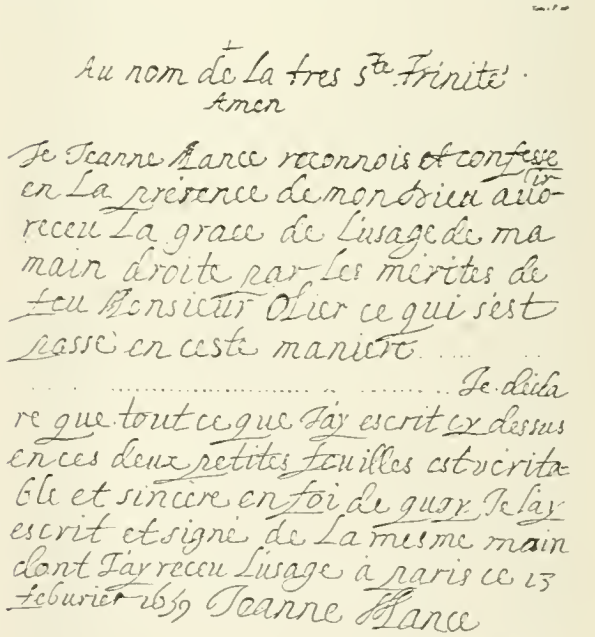
the seal, and groundhog. He also investigated the mineral waters at Cap de la Madeleine. In his botanical researches he discovered the pitcher plant, which is known to-day as the "Sarracenia Purpurea." In recognition of these extensive researches he received a pension of 550 pounds. To Sarrazin's skill as a physician the records of the Hôtel Dieu bear ample testimony.

Expansion and colonization in this new country frequently followed in the wake of missionary activity. "Not a cape was turned," writes Parkman, "but a Jesuit led the way." Few more striking examples of religious enterprise are to be found than the establishment of the little colony at Ville-Marie (Montreal). The founders were Jérôme Royer de la Dauversiere, receiver of taxes at La Fleche in Anjou, and Jean Jacques Olier, a young priest of Paris. To both of these men there came at nearly the same time (1636) the idea of founding a religious colony at Montreal. They formed an association for this purpose and called it the "Society of Montreal." At first the society consisted of six members, but the number was soon increased to forty. Among these was Madame de Bullion, who gave 42,000 livres for the purpose of endowing a hospital in the new settlement. In 1641 Paul du Chomedey, Sieur de Maisonneuve, set out for New France with a company of 100 soldiers under his command. Among those who joined the expedition was Mademoiselle Jeanne Mance, the descendant of an honorable and influential family in France, who became a member of the Society of Montreal. To Mademoiselle Mance was entrusted the control of the funds given by Madame de Bullion, for the establishment of a hospital at Montreal. On the arrival of the expedition in the Saint Lawrence, the summer was found too far advanced to proceed to Montreal, so the winter was spent in Quebec. Many efforts were put forth to dissuade the company from pushing on to Montreal, but in vain. The following spring they sailed up the Saint Lawrence and took possession of the island on the 17th May, 1642. The settlement was named Ville-Marie in honor of the Virgin Mary, to whom it was especially dedicated.

Of a hospital, however, there seemed for a time to be little need. The colony was exceptionally free from sickness, and there were as yet no wounded to be attended, for the Iroquois knew nothing of the little settlement and left the colonists to build in peace. Mlle. Mance even suggested that the endowment for the hospital be given to the Jesuit Missions. To this, however, Madame de Bullion refused to consent. Work on the hospital was continued, and the building was opened on the 8th of October, 1644. There were two rooms for the sick, a room for Mlle. Mance, a kitchen, apartments for the servants, and a chapel 10 feet square, built of stone. During the following year the furniture, medicine, and surgical instruments arrived, and some live stock was brought for the use of the inmates. The usefulness of such an institution was soon conceded, for scarcely had the walls been completed when news of the settlement reached the Iroquois and encounters with the savages began. The wounded were among the first to reap the benefit of the shelter and careful attention which the hospital afforded.

A few years later it was rumored that the "Society of Montreal" had lost interest in the undertaking, and was on the point of dissolution. This prompted Mlle. Mance to return to France and approach Madame de Bullion for further assistance for the hospital. In this she was entirely successful. It now became evident as the work of fortification went on that the hospital was likely to become permanently established. The Iroquois, however, decided to renew their attempts to destroy it. In July, 1651, the hospital was besieged, and had to be abandoned. The defenders took refuge in the fort. The colony was in danger of destruction and it was necessary to have reinforcements. To procure aid, Maisonneuve undertook a journey to France, for which the hospital endowment furnished the money. Upon his return with more than 100 men a new hospital was built and opened in the spring of 1654. The reinforcement of men brought by Maisonneuve put new life into the colony, and enabled them successfully to resist the Iroquois. Thus, a second time, Mlle. Mance, by her judicious use of the endowment funds of the hospital, saved the colony of Montreal.

In 1657 Mlle. Mance, who had been Directress of the hospital since its foundation, fell on the ice, fractured her right arm, and dislocated her wrist. Etienne Bouchard, a surgeon, set the arm, but failed to discover the dislocation of the wrist. Jean Madry also examined her injuries but with no better success. The arm remained entirely useless until Mlle. Mance's temporary return to France occasioned by the financial needs of the hospital. Here the use of her arm, pronounced by the most eminent surgeons in Paris to be beyond recovery, was miraculously restored by touching the casket containing the heart of M. Olier. Mlle. Mance issued the following statement in writing, regarding the miraculous cure:



Au nom de La tres Ste. Trinité.
Amen

Je Jeanne Mance reconnois et confesse en La presence de mon bieu avoir receu La grace de L'usage de ma main droite par Les merites de feu Monsieur Olier ce qui s'est passé en ceste maniere . . . . . Je declare que tout ce que J'ay escrit cy dessus en ces deux petites feuilles est veritable et sincere en foi de quoy Je L'ay escrit et signé de La mesme main dont J'ay receu L'usage à paris ce 13 feburier 1659 Jeanne Mance

"Au Nom de la Tres Sainte Trinite, Amen."

"Je, Jeanne Mance, reconnais et confesse en la pre-
"sence de mon Dieu avoir receu de l'usage de ma
"main droite par les mérites de feu Monsieur Olier
"ce qui s'est passé en ceste maniere. . . . . .

"Je declare que tout ce que j'ay escrit cy-dessus
"en ces deux petites feuilles est véritable et sincère
"en foi de quoy je l'ay escrit et signé de la mesme
"main dont j'ay receu l'usage à Paris, ce 13 Fevurier,
"1659

"Jeanne Mance"

The efforts to secure additional funds for the hospital from Madame de Bullion were successful. Of the 22,000 francs obtained for the purpose, Mlle. Mance entrusted 20,000 to the care of Le Royer de la Dauversiere for the purpose of investment; but

upon his death it was found that the funds had been misappropriated, and the hospital was left without necessary means properly to carry on the work. On account of this loss, the inmates were reduced to extreme poverty, and suffered intensely from the cold and lack of nourishing food. Under such circumstances Mlle. Mance continued to administer the affairs of the hospital until 1673. After her death in that year the financial affairs of the hospital caused increasing anxiety. The income had been reduced by heavy losses to 12,000 livres a year, 400 of which were derived from the cultivation of one hundred arpents of land. Owing to the French Revolution their revenue for a time was lost altogether, but the funds were recovered in 1821.

Hôtel Dieu was destroyed by fire in 1695, in 1721, and in 1734.

During the siege of Quebec in 1759 Surgeon Robert Adair established hospitals for the British on the Island of Orleans, while the surgeons of Quebec appear to have attended to the needs of the French. Andrè Arnoux, a native of Rochfort, was surgeon-major of the French troops. He and his son established themselves on St. Louis Street near the Ursuline Convent. When Montcalm received his mortal wound on the morning of the 13th of September, he was taken to the home of the surgeon where his wounds were dressed by the younger Arnoux. It was here that Montcalm died at four o'clock on the following morning.

About the year 1773 the attention of the Government of Lower Canada was drawn to the increasing ravages of a peculiar disease, which, originating at Mal Baie, had spread to other parts of the Province. A tradition exists that it was brought to Mal Baie by a detachment of Scottish troops who were either sent there on service or had been thrown there by some accident of navigation a few years before. The great resemblance of this disorder to syphilis and its disgusting character led the unhappy sufferers who were aware of that resemblance to conceal their condition as long as possible; while those who were not aware of it looked upon the symptoms as the result of scurvy and trusted to ordinary remedies or to time for relief. From both these causes, in addition to the remoteness of the parish where the disease first made its appearance, and the want of medical assistance on the spot, the disease was not commonly known until it reached such a height as to require the attention of the Government.

The symptoms of the disease as stated in a private description circulated by the Government in 1785, are as follows:

"Ulcerations appear on the soft palate, tonsils, uvula, and mucous membrane of the mouth. As time goes on, these extend and cause destruction of these parts. At a later period nodes appear on the head, arms, legs and trunk, which, breaking down, produce extensive stinking ulceration. When the disease has attacked the nose for a length of time, it results often in the bridge falling in. Loss of the hair of the head, eyesight, and hearing, and a horrible stench are generally the precursors of death. No one is exempt from the disease, the child at the breast as well as the aged or infirm being equally attacked."

Shortly after the disease first attracted the attention of the Government in 1775, General Carleton, who was Governor at the time, sent a surgeon's mate of the Seventh Regiment to St. Paul's Bay with instructions to administer medical relief. Upon investigation the remedy which he distributed was found to consist of calomel and mercurial ointments. This officer was recalled to Quebec, and upon his death, Philippe Louis François Badelard, who came from France as Assistant-Major of the French troops, was appointed by General Haldimand, after the departure of General Carleton, to investigate the disease and report thereon. He therefore wrote a pamphlet on the subject, which was printed by the Government. It is stated that the use of the foregoing remedies resulted in many of the afflicted ones being cured.

Upon the exact nature of this disease the opinions of medical men were found to differ. Among those most keenly interested in the subject was Dr. John Bowman, who was employed by the Government in investigating the affected districts and in distributing the remedies. One Robert Jones of Montreal wrote an elaborate pamphlet, published in Montreal in 1786, to prove that the disease was not syphilis; while a letter of Dr. Charles Blake, Surgeon of H. M. Thirty-ninth Regiment, states that: "This disease is nothing more than a confirmed syphilis showing itself in different ways in different parts of the body and making anomalous symptoms and appearances accordingly. The habits of the Canadians facilitate its communication in various ways. They use the same cup, often borrow one another's pipe to smoke, chew their infants' food and spit it into their mouths. They constantly spit on their floors, and never clean them, and the lower classes are generally regardless of cleanliness. All these circumstances help to communicate the disease, which may take effect anywhere that the skin happens to be broken. The disease being of the nature already stated, it gives way to no remedy but mercury."

The Province of Quebec had as yet no facilities for teaching medicine other than the form of apprenticeship which did not appeal to the ambitious student. It was necessary, therefore, to go elsewhere for a medical education. The earliest student to go abroad was François Blanchet, who was born in 1776, and received his preliminary education at the Seminary at Quebec. At the completion of his course at the Seminary, he studied medicine in New York, and published a work on "The Application of Chemistry to Medicine." After graduation, Blanchet returned to his native home, Quebec, and entered upon the practice of his profession. His ambition, however, was not satisfied in medicine. He launched into journalism, founded a newspaper called *Le Canadien*, published several seditious articles, and was imprisoned for a short time by the haughty Governor. His active interest in politics and education, however, led to his election as a member of the legislative assembly, and it was he who proposed during his tenure of office the first law on education. During the war of 1812 he occupied the post of Chief Medical Officer in this province.

Following the example of his preceptor, Blanchet, we find Jacques Labrie, after serving his apprenticeship, going to Edinburgh to complete his course of studies. He was the first to visit and study at the Royal University there. Before leaving for Edinburgh, Labrie founded a newspaper called *Le Courier*, which announced his return to his native city in August, 1808. Like his preceptor, Labrie entered politics and became a member of the Chamber of Assembly; and it is to him and his medical colleagues that we are indebted for the institution of those tribunals which now guard the honor of the medical profession.

The condition of the medical profession and the state of education were, like everything else, in a

state of transition. The medical men of good professional status who were practising in the country at this time were either Canadians who had served their apprenticeship with a physician of standing and then gone to the mother country for graduation and further study; or they were, as often happened, Englishmen and Scotchmen who had received their entire training at home. Many of these were former army surgeons who had found the demand for their medical services in civil life so great that they had retired from active duty and were engaged only in their profession as private practitioners. It is said that the type of Englishmen who thus first practised medicine in Canada was as good as British education could make it.

On the other hand, as was natural in a country where there was no provision for medical education, and where the demand for medical assistance far exceeded the supply, quackery seems to have flourished abundantly. It was to correct such a condition of affairs that in 1750 the Intendant Bigot introduced an ordinance which may be considered the code of the medical profession in Canada. This ruling provided that no one should practice medicine without passing an examination. Those wishing to practise in a city were to be examined before the Physician of the King in the presence of the Lieutenant-Governor of the Jurisdiction. Those wishing to practise in the outlying districts were to pass an examination before the Physician of the King and a sub-delegate.

This ruling continued until 1788, when the British Parliament passed an act which provided that no one should practise physic and surgery within the Province of Quebec, or midwifery in the towns of Quebec and Montreal without a license. A license was to be obtained by passing an examination conducted by capable persons appointed by the Governor or Commander-in-Chief of the Province. This regulation did not subject those to an examination who had already taken a degree in any university, or had been commissioned as surgeons in the army or navy. "But the ordinance of 1788 had a radical fault. It placed the study and the practice of medicine absolutely in the hands of the executive power. It opened the door to partiality, to injustice and to administrative tyranny. The licenses were to be given by the Governor, and the examiners were to be nominated by the Governor also, which made them simply officers of the Government Executive. At a period when prejudice and narrow ideas in official spheres reigned, this domestication of the profession might cause serious rejection of justice.

"If one can believe the memoirs of a contemporary, this deplorable side of the ordinance soon became evident. The celebrated Pierre de Sales Laterriere, who had studied medicine for some time before leaving France, and who practised medicine from time to time since his arrival in Canada in 1766, found himself subject to the new legislation. He had practised without a diploma, often with success, according to what he says himself. But henceforth he must, under the penalty of a fine, abandon the practice of medicine or submit to an examination before the members of a bureau appointed by the Governor. He decided on the latter alternative, and was the first candidate for the study of medicine who presented himself before the Board of Medical Examiners in Canada. Let him relate his unhappy experience:

"'I had lost my certificate of St. Come, and the documents of my apprenticeship in Paris, but I knew I had talent enough to pass an examination. I was the first to present myself before the medical bureau of examination at 8 o'clock in the morning in the presence of four practitioners and four councillors, and a very large assembly attracted by curiosity because there was a new institution in the country. The examination lasted until four in the afternoon. One question did not wait for another. However correct my answers were, my examiners, because of my failure to present my letters to them, did not wish to permit me to continue practising. It was necessary for me to go to another college to obtain other certificates. Their partiality, their hardness, their malice were so apparent that many of my friends, mere spectators, said to me, 'Go to Cambridge, near Boston, where, in a short time, with the knowledge that you have obtained here, you would obtain what you now lack.' My examiners having seen that, and the reproaches that the public were making, rather through shame than friendship, said: 'Yes, if the candidate should go to Cambridge or elsewhere, we will give him a certificate favorable to the talents and knowledge which he has displayed.'"—(*Memoirs* of Pierre de Sales Laterriere.)

"During the winter and spring of 1788 M. Laterriere studied at Cambridge. After passing a satisfactory examination, in June, 1789, he obtained the diploma of Bachelor of Medicine and returned to Canada. He appeared again before the Medical Board, consisting of Drs. John Foote, James Fisher, James Davidson, Francois Lajus and Fred Oliva.

"The last clause of the Act provided that anyone holding a university degree should not be subject to an examination. Nevertheless, the examiners wished to examine him, saying that as his diploma was from a foreign university they could only give him a simple certificate of study, and could not receive him unless he passed an examination. Laterriere submitted to the examination, which he passed successfully.

"The Ordinance of 1788 relative to the Medical Profession opened the door to disadvantages of which the most serious was the arbitrariness of the executive. In proportion as the country developed, as the population increased, and as the number of candidates for medicine became greater, the acts of injustice also became more frequent. The influence of the national and political question was felt in this sphere as well as in most others. The French Canadian physicians complained that owing to official power, the English physicians made them wait and retained the exclusive authority over the administration of the profession and of the conditions of admission to the learned fraternity. It is to be noted that for about forty years there was not a single French Canadian examiner either at Quebec or Montreal."—(J. E. Roy, "Histoire du Notariat au Canada.")

This Act was repealed in 1831, when another Act was passed regulating the practice of medicine (I William 4 caput 27). This Act provided that no one should act as physician without a license from the Governor, and that all persons intending to study physic with a view to obtaining a license should undergo an examination before a *Board of Examiners* for the election of which provision was made in this Act. The Board was to consist of twelve members, seven forming a quorum.

It was also enacted that no license should be granted unless candidate were of full age and had served an apprenticeship of five years.

In 1841 an Act was passed to enable persons authorized to practise physic or surgery in Upper or Lower Canada, to practise in the Province of Canada.

By the Act of 1847 the medical profession in Lower Canada was incorporated under the name of "The College of Physicians and Surgeons of Lower Canada" and was empowered under certain restrictions to frame its own statutes for the regulation of the study of medicine in all its departments, and by-laws for its own government.

In 1849 an amendment to this Act was passed which authorized the Provincial Medical Board to issue licenses.

Let us pause to consider for a few moments what were the general conditions of the people of Nouvelle France.

During the course of time, increased intercourse with France and England had led to greater numbers of immigrants reaching the colony. The marked increase of population had brought about the prevalence of disease, "that everlasting traveller which follows humanity wherever it goes," and one of its earliest manifestations was in epidemic form.

The earliest disease to be mentioned was scurvy (mal de terre and mal de mer). A description of the symptoms and its treatment as noted by Jacques Cartier has already been given. It is interesting to note here that new and more drastic remedies were evidently resorted to. Captain Knox in his Journal writes:

"This morning I was an eye witness to the ceremony of burying a man alive, *mirabile dictu*, for the sea scurvy. To explain this matter, it must be observed that a pit was made in the ground, and the patient stood in it, with his head only above the level earth; then the mould was thrown in loose about him: and there he remained for some hours; this, I am told, is to be repeated every day until his recovery is perfected."

Scurvy, which was known in the early days of New France under the name of "Mal de terre," and later found to be the same disease as "Mal de mer," was certainly one of the chief causes which retarded the colonization of Canada. The disastrous results were seen at Tadoussac (1600), Island of St. Croix (1604-5), Port Royal (1506-9), Quebec (1609), and on the Island of Miscou (1635).

After scurvy came smallpox with its attendant train of fatalities. There were during the French regime four characteristic epidemics: 1703, 1732, 1733 and 1755.

The epidemic of 1703 was particularly severe. The registers of the Province of Quebec show that there were over two thousand deaths, Indians included. "Never had such a misery been seen," remarks the historian of the Hôtel Dieu of Quebec. "Every one was deploring the loss of a relative, one of his wife, another of her husband, one his brother, another of his children. Orphans wept for their parents; all were in tears, and there were no gatherings except for funerals."

In a letter written on 14th October, 1733, by Beauharnois to Hocquart, it is stated that "the smallpox which has afflicted this country since the end of the Autumn of 1732, up till to-day, and which has carried off nearly 2,000 persons from this colony, has exhausted the resources of everyone, and the suspension of all work has necessarily followed. The working classes at Quebec are becoming from day to day more of a burden upon men of means, and more upon us than upon others by their too frequent importunities. We cannot find any other expedient than to find work for them to take them out of their misery."

"It spread on all sides throughout this Government (Province or country) and in that of Three Rivers where it is still prevalent. By the account which has been brought to me, about 900 persons have died from this disease in the environs of Montreal, as many men as women, girls and infants. At Quebec, 278. I have not yet had a list of the number in the environments of Quebec or Three Rivers, but the number may well be five or six hundred which this disease has carried off from the colony. It is true that the greater number are children, but there have been a great number of sick at Quebec, there being at one time more than 2,000 between those in the Hôtel Dieu and in private houses.

"This disease was commonly accompanied by a circumstance which was as annoying for the sick as for those who cared for them. This was the insupportable odor which accompanied the disease. I think it will not be necessary for me to go into details. I have seen several persons attacked with this disease in France, but it was far from being as virulent as it is in Canada."

A disease as dreadful in results as smallpox naturally incited the pioneers in medicine to try various methods of treatment. We find that Michel Sarrazin thought that in his discovery of the "Sarracinea Purpurea" he had found a remedy; but this proved useless and it was not until 1765 that we find any attempt being made to introduce vaccination as a preventive. This was first employed in September, 1768, by a Mr. Latham, surgeon to the King's or Eighth Regiment of Foot, who announced to the inhabitants of Quebec that he was prepared to carry on this method of prevention.

The people of New France were indeed sorely afflicted, for we find that plague made its appearance amongst them on no less than three different occasions (1711, 1718, and 1740). The historian of Hôtel Dieu of Quebec relates that it was brought to this country by a ship hailing from Siam where the plague was prevalent about that time. The disease was therefore known as the "Disease of Siam." There are no records affording any description of the symptoms of those afflicted with the disease, hence any opinion as to the exact nature of the epidemic must be mere conjecture. The same authority, however, makes the following comments: "I have never seen so many sick in the hospital; the wards, garrets and outer buildings all were filled, and we can hardly pass between the beds. All became as black as coal as soon as they were dead." This last remark may possibly justify the opinion that the disease was what is known to-day as the "Pestis Bubonica." History also relates the recurrence of other epidemics of a similar nature, extending over several periods (1710, 1746, 1750, 1756, 1757, and 1759). The death rate was evidently very high.

Owing undoubtedly to unhygienic conditions at this time existing, diseases other than those just mentioned of an epidemic nature were prevalent amongst the colonists. Chest affections were frequent, and the methods adopted to effect a cure were perhaps unique in the history of medicine in this country. In a letter from Vaudreuil and Bégon dated at Quebec, on 6th October, 1720, we learn that "there are a great number of persons in these parts who are attacked by chest diseases, and that the most efficacious remedy is asses' milk. As there are no animals of this kind in the colonies, we beg the Council to see that a male and a female are sent out next year by the ships of His Majesty."

The use of ice for the purpose of reducing the temperature in typhoid fever is thought by many to be of comparatively recent date; but about 1780 we learn from the memoirs of Philip de Gaspé that when a child, he had been cured of a very severe

attack of typhus or typhoid fever by the use of ice. "I showed scarcely any signs of life for three days," he writes, "my death was expected each minute." So far, the patient had been treated by some one who possessed only a pretentious knowledge of medicine; as the condition of the patient became one of extreme gravity, Dr. Fred Oliva was sent for. He suggested that the child be dipped in a bath of iced water and then wrapped in hot flannels. "At the end of half an hour," writes de Gaspé, "there followed an abundant perspiration which saved my life."

From 1800 to 1832 the country appears, as far as one is able to glean from available sources, to have been singularly free from diseases of an epidemic nature. Nevertheless, Asiatic cholera, which had originated in India during the early part of the nineteenth century, gradually spread over extensive areas, until in 1832 it reached France and England. The English Government, as Christie says, "with characteristic providence and anxiety for the welfare of the province, had advised the Governor to make preparation against it in Canada, as in all probability it would with the influx of immigrants hither attend them. Legislative provision accordingly was made to meet the impending evil, and sanitary precautions were adopted. Grosse Isle, thirty miles below the port of Quebec, was made a quarantine station, to which medical men were appointed, and temporary wooden buildings were erected upon it for hospitals, and the establishment put under military authority."

The Spring of 1832 was rainy, cold and backward, and remarkable for the prevalence of heavy northeasterly gales. "With the arrival," writes Christie, "of every vessel bringing immigrants, the pestilence was expected to make its appearance in Quebec. At length, on the 8th of June, the appalling news reached the city of its actual appearance at Grosse Isle, by *The Garricks* from Dublin, with 133 passengers on board, 59 having died of cholera during the passage. From Quebec it bounded onwards as it were by leaps in its direful progress up the St. Lawrence, breaking out on the 10th at Montreal with great violence." The severity of the epidemic may be gathered from the fact that from the 9th June to the 2d September no less than 2,215 people died from this alone in the city of Quebec. Since that time, there have occurred four outbreaks (1834, 1849, 1852 and 1854) of Asiatic cholera in the Province of Quebec.

Let us now leave Quebec, with its illustrious past, and turn our attention to the city where we are now meeting which was destined to become the centre of medical education. Montreal was in 1816 a thriving town of 20,000 inhabitants, a distribution centre for immigration and the headquarters for the thriving trade of the North West Company.

The various charitable institutions of this city were for several years found inadequate to the increasing wants of the population, due to the increase of immigration. The termination of the war in 1815 brought to our shores vast numbers of persons who through sickness on their passage or poverty on their arrival were incapable of reaching their destination. Unable to procure either support or medical attendance from any funds of their own, they made an urgent appeal which prompted the benevolent inhabitants of our cities to devise means for the relief of these miserable exiles. An association of women in Montreal designated as the "Ladies' Benevolent Society" was formed expressly for the relief of the indigent immigrants; but more than this was needed. The sick required medical aid; and to attain this object, some medical men of the city agreed to give their assistance, provided a house could be obtained where the most necessitous cases of sick poor could be relieved. A small building of four apartments was then hired, and called the "House of Recovery." Small as it was, and inadequate to meet the numerous cases that needed relief, it became the germ of that noble institution which redounds so greatly to the benefit and honor of the city of Montreal—the Montreal General Hospital. This building was soon found totally inadequate to relieve all those who made request for assistance, and means were taken of raising a sum of money which, when sufficient, enabled them to rent a larger house in Craig street. The medical department was placed under the direction of four physicians who attended monthly in rotation; one of them as house surgeon attended daily in cases of accident. On the 1st May, 1819, such patients as were in the House of Recovery, together with the little property belonging to that establishment, were moved into the new institution, which now assumed the title of the "Montreal General Hospital."

Considerable interest had been aroused in favor of this newly-established charity, and to such a degree that in August, 1820, sufficient funds had been raised to enable them to buy a new site on which to erect a modern building. The site which was purchased was that which is now occupied by the hospital. On the 6th June, 1821, the foundation stone was duly laid, and in May, 1822, it was opened for the reception of patients. The medical staff consisted of Doctors Caldwell, Robertson, Holmes and Stephenson. Within ten years from the first foundation of the hospital the demands for admission exceeded its capacity, and an important addition was made to it, which was opened for the reception of patients in December, 1832. The hospital at this time contained nineteen wards and had a capacity of 160 beds."—(Hochelaga Depicta.)

An institution attended by active and energetic physicians and supplied with abundant clinical material being now a fully established fact, the staff was naturally led to approach the vexed problem of medical education. The means by which it was eventually solved have been most thoroughly described by Dr. Maude Abbott in her history of the Medical Faculty of McGill University, and from this I shall venture to quote at some length:

"The formation of a medical school was the natural outcome of a general impulse in a rapidly growing city where a real need for medical teaching exists. As a result, therefore, we find that in 1822 lectures were publicly announced and given by some of the members of the staff of the Montreal General Hospital, notably, Drs. Stephenson and Holmes. This continued for a year, when a meeting of the hospital medical staff was held on the 20th October, 1823, to consider the expediency of establishing a medical school. Steps were immediately taken to organize a teaching staff, and to utilize the hospital for clinical purposes, to give a course of lectures, and these were begun on the 15th November, 1824, and delivered at the home of the institution, the first announcement of teaching reading as follows: Principles and Practice of Medicine, Dr. Caldwell; Surgery, Anatomy and Physiology, Dr. Stephenson; Midwifery and Diseases of Children, Dr. Robertson; Chemistry, Pharmacy and Materia Medica, Dr. Holmes."

"This organization was then known as the Montreal Medical Institution, and the first session of this body was held in the Academic years 1824-5. Once established, the Montreal Medical Institution

seems to have worked its way on quickly winning good repute until 1829, which marks an epoch in its history when it became 'engrafted upon' McGill University as its medical faculty. This University, founded by the will of the Hon. James McGill, did not come into actual operation for many years, in spite of the need that was felt for such an educational institution amongst the English-speaking population. The bequest, which consisted of £10,000 and the estate of Burnside, was left in trust for a college to The Royal Institution for the Advancement of Learning, a body contemplated by a Provincial Act of 1801, but which was not incorporated and therefore not able to hold property until the year 1818. This circumstance, combined with an almost total lack of funds in the institution, delayed action. And delay was further occasioned by protracted litigation over the bequest. Indeed, had it not been for the farseeing condition of the bequest, that the legacy should revert to certain persons unless a university were established within ten years of the testator's decease, it is more than probable that the project would have been indefinitely delayed.

"In the year 1829, that portion of the lawsuit which referred to the bequest of the landed estate of Burnside was decided in favor of the University, but the question of the £10,000 continued unsettled for many years longer, and no funds were at the disposal of the college. Yet it was felt that to fulfill the conditions of the will actual teaching must now be done in the University, and the purely nominal appointments of 1823 be refilled or supplemented.

"At this time the eyes of the Royal Institution and of the friends of education were turned upon the Montreal Medical Institution, now an active teaching body of established reputation, and it was decided to bridge the difficulty by making this body the medical faculty of the University, its officers becoming professors or lecturers in their respective branches.

"On June 29, 1829, the first meeting of the Governors of "Burnside University of McGill College" was called at Burnside House, which had just come into the hands of the Royal Institution under the will. This meeting had as its object the promulgation of the Charter and the Inauguration of the University. It was largely attended by representative citizens of all classes, and at this meeting the members of the Montreal Medical Institution who had been invited to be present were formally engrafted upon the University of McGill College as its medical faculty.

"The Montreal Medical Institution, as it still continued to be called for some years, was now a faculty of an established university capable of granting degrees. For some years the only active work done in the university was that in this faculty, and by its simply fulfilling the time limit of the will, it may justly be said to have saved the university at least from much involved and tedious litigation if, indeed, it did not preserve for it the bequest itself."

The improvement of medical education was even as early as this period (1837) a much discussed subject, and relevant to it is an extremely interesting report and suggestion made by Sir John Doratt, M.D., then Inspector-General of Hospitals, who was appointed by the British Government to investigate, report upon, and advise regarding this question. In this report is suggested the establishment of a medical school in the city of Quebec in connection with Hôtel Dieu and the Marine Hospitals. These hospitals, it was considered, would conjointly provide clinical beds to the number of three hundred. The selection of Quebec for the proposed medical school was due to various reasons. The population of the city was now between 30,000 and 40,000. As the principal port also for ocean shipping, it was at Quebec that the diseases continually brought by incoming vessels and the accidents from the process of loading and unloading in port were most in evidence. It was here, therefore, that the aid of medicine and surgery was most urgently required. It was felt also that the school would attract from the colonies of New Brunswick, Nova Scotia and Prince Edward Island the young men who had hitherto been compelled to go abroad for an opportunity of studying medical science.

Among the suggestions regarding the course of medicine to be pursued was the proposed regulation that the whole period allotted for education at the medical school should be five years. The first three years were to be passed in strict attendance at the school of medicine and the last two years in close attendance to duties at the hospital. It was further suggested that the clinics at the hospital should be given from 8 to 10 A. M. These suggestions are worthy of note, since it is only within the last year that both McGill and its sister university, Laval, have adopted five years as the period necessary for the prescribed course of study. The suggestion of early clinics is now also under consideration.

The year 1826, it is to be noted in closing, marked an era in the history of medicine of the Province of Quebec: It gave birth to the first attempt which had been made with a view to opening a free intercourse with the literary world, and to promoting the interest and cultivation of medical science within the limits of our country by the formation of the first medical society in Quebec. The President was Joseph Morrin. It was at the same time that the first medical journal in the Province appeared, with the following words on the title-page: "Journal de Médecine de Québec, publié et redigé par Xavier Tessier."

The period of time allotted to the consideration of the history of medicine in our province has been covered and it remains to me now to express with the greatest of pleasure my sincerest thanks to Dr. A. G. Doughty, C.M.G., Dominion Archivist, for the privilege accorded in having access to the valuable manuscripts and works in the Archives; also for his invaluable assistance and suggestions in the preparation of this paper, and his arrangement of the bibliography; to Dr. N. E. Dionne, Librarian of the Provincial Legislature of Quebec, for his kind assistance; to Mr. C. B. Gould, Librarian of the Peter Redpath Library, McGill University, for the privilege of consulting the valuable works of reference; to his able assistant, Miss Hepburn, for her untiring energy in carrying out and preparing the research work; and to Miss Charlton, Librarian of the Medical Faculty of McGill University, for her very kind assistance.

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Beauharnois & Hocquart to the Minister. Praise Sieur Gauthier, physician, Sieur Felz having been appointed surgeon-general to the troops at Montreal, compensation is due to the Sieurs Benoit, father and son. Quebec, 13th September, 1742, Vol. 77, p. 9.

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The President of the Navy Board to Beauharnois & Hocquart, Sieur Gauthier, who was appointed King's Physician in Canada, will go there this year. Also respecting the Sieurs Briant, Felz and Benoit. 17th April, 1742, Vol. 74.

Memorandum from the King to Beauharnois & Hocquart. The Sieur Gauthier, Physician, having assiduously and with success followed the Sieur Verrier's lessons in Jurisprudence, is appointed Councillor. 24th March, 1744, Vol. 78.

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The President of the Navy Board to Bigot. Has done well in sending the different seeds that the Sieur Gauthier, Physician, has collected for the King's garden, 18th April, 1745, Vol. 89.

The President of the Navy Board to Bigot. Is satisfied with Dr. Ganthier's report on the mines discovered at Baie St. Paul, 31st May, 1750. Vol. 91.

The President of the Navy Board to Vaudreuil and Bigot. The Sieur Chamel has been chosen for the position of King's Physician, vacant by the death of Sieur Gauthier, 27th March, 1757, Vol. 105.

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Bowman to the Committee on Public Accounts. Memorial respecting his account. No date (1785?).

Agreement between Hamilton and Bowman respecting the latter's treatment of patients, etc. No date (1785).

Lt.-Gov. Henry Hamilton to Dr. Bowman. Appoints him to administer and distribute the medicines in connection with the St. Paul's Bay disease. Shall keep a diary according to instructions received. Shall endeavor to conciliate the good will of the clergy. Instructions concerning medicinal springs. Shall collect materials for a complete history of the disorder for publishing. 18th April, 1785.

Dr. James Davidson to Bowman. Brief report of what he has done in connection with the observation and treatment of the disease. Quebec, 20th April, 1785.

Prendergast, Thomas, to Bowman. Has attended a number of patients, great satisfaction with the medicine given. Three Rivers, 26th April, 1785.

Dr. James Bowman. Extract from his journal. Examination of a mineral spring near the church of Chateau-Richer. 24th May, 1785.

Hamilton to Bowman. Approves of his whole conduct. 10th October, 1785.

Lt.-Gov. Henry Hamilton to Hugh Finlay, Chairman of the Committee on Public Accounts, concerning Dr. Bowman's case. 25th October, 1785.

Bowman to Hamilton. General report on his mission. Prays for protection. Three Rivers, 29th October, 1785.

Hamilton to Brigadier General Hope. Transmits Bowman's letter of the same date and recommends him for protection. 29th October, 1785.

Bowman to Hamilton. Extract of a letter. Reports what he has done. Complains against Government which does not fulfil its promises. November, 1785.

Bowman to Hope. Respecting his plan of treatment of the disease. 16th November, 1785.

Gray, Alexander, to Bowman. Asks for report, vouchers, details, etc., on his work. Quebec, 3d December, 1785.

Bowman to Gray. Sends him copies of certificates for the inspection of the Committee on Public Accounts. 8th December, 1785.

Bowman to Dr. Mabane. On the scientific part of the business he was employed in. 20th December, 1785.

Bowman. Letters respecting his accounts. 20th and 21st December, 1785.

Bowman to Alexander Gray. The Bishop's circular letter will explain the expectations of the clergy. 22nd December, 1785.

Bowman to Hamilton. Has acted according to his instructions of the 18th April, 1785. Notes that the disease has within a few years spread over the Province; ravages made are alarming; hopes the prosecution of the plan adopted will be successful; clergy is warmly engaged in assisting with their influence. No date (1785?).

Abbe Deguire to Dr. Bowman. Congratulates him on the success which has crowned his efforts. 19th January, 1786.

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Bowman to Henry Hope, Lt.-Gov. Part of the letter (28 pages) in which he sends an account of the amount charged by him for the execution of the plan concerning the St. Paul's Bay disease; Certificates of priests, and reports generally on his mission. (The last part of this letter being lost, there is neither signature nor date.)

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THE PATHOGENESIS OF PERNICIOUS MALARIA.*

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Pernicious malaria is almost as varied in pathogenesis as it is in its manifestations. Not only are its several forms associated with unlike conditions, but for the explanation of some the presence of several different factors is necessary. Thus, comatose malaria may be associated with at least two different forms of the parasite; the peripheral blood may show very great numbers of these parasites or they may be scanty; in the brain they may be found in hordes, even to the occlusion of small vessels, or they may be entirely absent.

As may be inferred no one etiological element can account for all cases, even of the same type. Probably the only essentially common factor is the presence of the malarial parasite, the manifestations of which run the gamut from the mildest intermittent to the profoundest cachexia, from the most artfully masked to the deadliest pernicious.

Until comparatively recently it was believed that infections with the so-called benign organisms never gave rise to pernicious symptoms. Celli[1] states that the tertian and quartan parasites never cause pernicious fevers. Marchiafava and Bignami[2] say that there is no instance on record of a malignant fever following tertian and quartan infections and that no autopsy has ever been made in connection with a malignant spring tertian or quartan. Mannaberg[3], Van der Scheer[4], and Maurer[5] believe that only the estivo-autumnal parasites have a rôle in the production of the pernicious fevers. Thayer, in his "Lectures on the Malarial Fevers," says that he never heard of a pernicious paroxysm occurring in tertian or quartan infections with the exception of the case of French.[6]

While the vast majority of cases of pernicious malaria are due to infection with the tropical parasites it cannot now be maintained that tertian and quartan infections are not occasionally accompanied with perniciousness. Craig[7] says that any of the malarial parasites may cause pernicious infections leading to death. Crespin[8] informs us that it is not rare to find on examination tertian and quartan parasites in these cases. Billet[9] found the large tertian in six of forty cases of typhoid pernicious. Ziemann[10] observed a case of pernicious malaria due to the benign tertian. Thiroux[11] found this parasite in a case of convulsive pernicious in a mulatto infant. Ewing[12] in sixty-four cases of the cerebral type of pernicious, found the large tertian parasite alone in five. French[6] reports a case of comatose malaria in a man, age twenty-one, whose blood harbored the tertian parasite. Hunt[13] observed a case of common tertian complicated by

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alarming hematemesis in a boy aged eleven. McElroy[14] had a case of comatose pernicious due to tertian infection in a negro male, aged thirty. Ficucci[15] records a case with a pernicious meningocerebellar syndrome due to tertian parasites. Fenner[16] gives the history of a case of the comatose type in an adult; the blood examination showed crescents and large tertian forms.

Craig[7] makes the assertion that quartan infections are more apt to become pernicious than tertian. The writer, however, agrees with Davidson,[17] who says that pernicious symptoms occur more rarely in connection with quartan infections than with simple tertian. The reasons for this are probably the relative rarity of quartan fever and the more even distribution of parasites throughout the circulation, there being slight tendency to form accumulations.

It is not yet known with certainty which variety of the estivo-autumnal parasite gives rise most frequently to perniciousness. Marchiafava and Bignami[2] and Mannaberg[3] hold that the tertian estivo-autumnal infections are the most dangerous, only a few cases showing the quotidian. Craig,[18] however, found the quotidian parasite most often in cases infected in Cuba and in the Philippines. This was also the experience of Wright,[19] in British Malaya, who found the pigmented quotidian parasite most frequently associated with the cerebral and gastrointestinal types of pernicious malaria.

The part played by the crescents in the pathogenesis of pernicious paroxysms is worthy of brief consideration. Marchiafava and Bignami,[20] Celli,[1] Mannaberg,[3] A. Plehn,[21] Koch,[22] Manson,[23] Thayer,[24] and others believe that this form of the organism is nonpyrogenic. Ewing,[25] however, holds with Laveran that it is by no means certain that the formation and development of the crescents are entirely innocuous to the patient. Ewing doubtless in part bases this opinion on the finding of crescents alone in thirty-three of sixty-four cases of cerebral pernicious.[12] Whether the blood examined in these cases was peripheral or visceral is not stated, but as only three were fatal it may fairly be assumed that in most instances, at least, it was peripheral. That the crescentic form of the parasite has an intimate relation to the production of the pernicious fevers is improbable for the following reasons: First, crescents alone may be found in the peripheral blood and intense localizations of active forms be present in the brain or other viscera. The number of parasites in the superficial circulation is not a reliable guide to the severity of the attack. In eleven of Ewing's sixty-four cerebral cases no parasites were fully identified, and in many of his thirty-three cases in which crescents alone were found the search was successful only after one and two hours. Secondly, crescents are rarely if ever present in the parasitic localizations and thrombi frequently observed in pernicious cases.

Of the pathogenetic factors which excite perniciousness the following are to be regarded as the most important and approximately of relatively equal importance: 1. An excessive number of parasites. 2. Localizations of parasites. 3. Toxins. 4. Individual predisposition and external etiological influences.

Number of parasites. Golgi's law, that the number of parasites determines the severity of the attack, has been generally accepted. Cases in which the parasites are in very great numbers in the peripheral blood are usually accompanied by coma.

We have no means of estimating even approximately the total number of malarial parasites in the body of a malarial patient as the distribution of the former varies within the widest limits. They may be numerous in the peripheral and visceral circulation generally; they may be scanty or absent in the peripheral circulation and numerous in most of the viscera; or they may exist in moderate numbers or be absent except in certain areas where they may be intensively localized. That the parasites are abundant, either absolutely in the body as a whole, or relatively in certain areas, probably holds good in a great majority of the cases, though, as Celli[1] states, we cannot always attribute perniciousness to the large number of parasitic forms. Marchiafava and Bignami[20] call attention to certain grave cases of comatose, convulsive, delirious or mixed pernicious in which from beginning to end and even at autopsy very few parasites are found. Mannaberg[3] says: "From the general impression which I have obtained, naturally only from the peripheral blood, the number in malignant fevers is perhaps larger, yet the difference scarcely seems so decided as to make this factor alone responsible for the perniciousness."

As applied to the number of parasites in the peripheral blood Golgi's rule is applicable only in a very general sense. Ziemann[26] states that the number of parasites in the peripheral blood is not always in direct relation to the severity of the attack. Crespin[27] acknowledges that he had difficulty in finding the parasites, which were always scanty in these cases. He gives the details of a case in which there were neither parasites nor pigment in the peripheral blood but they were numerous in the vessels of certain viscera. This writer quotes Nocht as saying "in pernicious attacks the hematozoa are not found in the peripheral blood but only in the viscera." Moore[28] says "I have often seen cases where the symptoms in no wise seemed commensurate with the number of parasites observed in the specimen of blood." According to Kendall[29] there may be only a few parasites in the peripheral circulation or it may even be impossible to find them. Mannaberg[3] states that it sometimes happens that the peripheral blood is very poor in parasites. Marchiafava and Bignami[20] note the fact that the contradiction found so often during life between the number of the parasites and the gravity of the disease disappears when an autopsy allows of an examination of all the organs. Craig[18] asserts that "the number of parasites found in the peripheral blood is not always a criterion as to the perniciousness as one of the most rapidly fatal cases I have ever observed showed but few parasites in the peripheral blood." To quote Barker[30]: "In the estivo-autumnal infections the number of organisms circulating in the peripheral parts affords, as a rule, very insufficient data upon which to base an idea of the severity of the infection." Thayer[24] says that there may be very few parasites in the peripheral circulation. He mentions a fatal case of the comatose variety showing no active parasites in the peripheral blood and only a very few ovoids and crescents after a careful search of the blood obtained by puncture of the spleen. Marchoux[31] reported three cases of pernicious malaria in which the parasites were very scanty in the peripheral circulation. Zeri[32] records four cases of pernicious fever in all of which the parasites were few in number. Bloombergh and Coffin[33] treated a case ending fatally in which no parasites could be found until forty-eight hours after onset notwithstanding repeated examinations. In seven cases in which Fenner[16] examined the blood, no parasites were found in five.

Ewing's[12] eleven cases of the comatose form in which no parasites were fully identified have been mentioned. I have observed one case of severe comatose malaria in a boy aged 12 in whose peripheral blood the parasites were scanty.

On the other hand the superficial circulation may be teeming with parasites while the patient experiences only a mild attack. Thus A. Plehn[34] gives the histories of two cases in which the symptoms were slight though the peripheral blood showed as many as thirty-five and forty-six tropical parasites respectively to each field of the microscope.

It is highly probable that an enormous number of parasites, equably distributed, depends for its power to elicit pernicious symptoms upon the increased quantity of toxin elaborated.

Localization of Parasites.—Accumulations of parasites in the brain were first described by Planer (1854) and by Frerichs (1861), those in the liver by Guarnieri (1867). More recently the minute observations of Marchiafava and Bignami, Dock, Barker, and Ewing have taught us that pernicious malaria in many of its varied manifestations is dependent on these localizations in one or more of a multiplicity of localities. Localizations in the brain have been found associated with a wide variety of cerebral symptoms; in the mucosa of the alimentary tract with gastrointestinal symptoms and typical algid attacks; in the heart with cardiac symptoms; in the medulla with bulbar paralysis; in the retina with amblyopia; in the pancreas with hemorrhagic pancreatitis, etc. In proportion to the amount of damage sustained by the kidneys in malaria there is less tendency for parasites in pernicious attacks to accumulate in these organs than in any other of the body. The most carefully studied case of this condition is that of Ewing.[35]

These localizations consist in the main of parasite-infected red blood cells; there may be, however, pigmented leucocytes and free parasites and pigment. The parasites in each particular case may be of the same or of different stages of development. The pigmented and sporulating forms are probably oftenest seen, but the earlier phases are frequently observed. It would seem reasonable that the crescents, on account of their size, would frequently form an important element in these accumulations of parasites, but such does not appear to be the case.

The cause of these parasitic concentrations is problematical. It cannot be due to the size, weight, or loss of elasticity of the infected cells, for, as Mannaberg[3] states, the benign parasites would be more apt to form thrombi if this were the cause. Kelsch and Kiener[36] and others have observed endothelial swellings in the small cerebral vessels with consequent construction of caliber, but whether this is a cause or an effect cannot be said. Vasomotor influences and phagocytosis have also been invoked in explanation. The most probable theory is that of Mannaberg[3] who attributes the condition to a sort of agglutination or adhesiveness that holds the infected erythrocytes to the vessel walls.

The symptoms present in cases in which, on post-mortem examination, localizations of parasites are demonstrated, are not always referable to these aggregations alone, since changes are frequently observed which are secondary to parasitic thrombosis and may outweigh the latter in pathogenic importance. The most conspicuous of these changes are perivascular exudation, hemorrhage, and necrosis. The hemorrhages are usually punctate, but Blanc[37] and Ziemann[26] report large cerebral clots.

This propensity of the parasites in pernicious fever to congregate undoubtedly explains the course of many cases but by no means all. Fatal cases of comatose malaria have been observed with no parasites at all in the brain. Ford[38] reports a case with serious pulmonary symptoms in which the parasites were no more numerous in the lung than in the general circulation. "The severity of the renal lesion with the absence of parasites in the renal vessels also requires mention."[39]

It is not known whether parasitic thrombi may exist without producing symptoms. Frerichs,[10] who frequently observed thrombotic occlusions of the cerebral vessels insisted that too much stress should not be laid on them on account of the rich collateral circulation. He likewise affirmed that he had more than once seen markedly pigmented brains without cerebral symptoms during life.

From the study of a case in which the patient was suddenly attacked with transient coma three times in five days, Ewing[39] believes that embolic processes are factors in some instances. This is the most probable explanation of these cases.

Toxins.—The existence of a toxin, the product of the malarial parasite, is almost universally assumed by students of malaria. The grounds for this assumption may be briefly recounted as follows:

1. An analogy with other infectious diseases.

2. Immunity. This immunity is not absolute, but that a relative immunity to malaria exists there is no room for doubt.

3. The formation of an antitoxin. Ford's[40] experiments are nothing short of conclusive of the existence of an antitoxin.

4. Degenerative changes in the kidney, liver, spleen, and other organs, not otherwise explainable.

5. Blood changes, as anemia out of proportion to the number of parasites, and brassy degeneration, stippling, and polychromatophilia of the red cells.

6. Increased toxicity of the urine and sweat.

7. The existence of coma in malaria without parasites or pigment in the brain.

8. The fever and its relation to parasitic sporulation.

9. Experimental proof. The negative results of Gualdi,[41] Montesano,[41] Mannaberg,[3] and Celli[1] are devoid of weight against the convincing experiments of Rosenau, Parker, Francis, and Beyer,[42] who demonstrated the existence in malarial blood of a poison capable of reproducing the symptoms of the disease when injected into the veins of other men.

Individual Predisposition and External Etiological Influences.—"We ought then, in cases of pernicious fever, to seek in the conditions of the ground whose quality is so different, and not in the quantity of the seed, the reason which shall explain to us the gravity of the disease."[43]

The quality of the soil, in the sense so aptly employed by Homem, as a factor in the pathogenesis of pernicious malaria, has probably not received the attention it deserves. This influence in many instances doubtless not only induces the attack but determines its type. Organs or systems enfeebled by antecedent ailments are apt to play the title rôle in the pernicious tragedy. Thus algid and choleraic attacks may be associated with a history of intestinal catarrh; the comatose and delirious cases with a history of abuse of alcohol; the convulsive with epilepsy, etc. It is not improbable that some cases of dysenteric, cardialgic, syncopal, tetanic, cataleptic, paralytic, pneumonic, pleuritic, gastralgic, and other forms described by the older writers may be similarly explained. Mercier[44] goes

so far as to say that all pernicious attacks are merely visceral complications.

Malarial subjects who are much exposed to the heat of the sun are liable to be stricken with pernicious fever, especially of the cerebral type. This danger is enhanced if to the solar heat are added fatigue, deficient or improper food, or other hardships. Certain psychic states have causative significance. Hertz[45] states that he has seen the localization of pernicious symptoms determined by injuries of the skull through a fall or a blow.

In addition to the four principal factors enumerated, congestion of viscera and parasitic obstruction of the hepatic capillaries have been regarded as important. It is probable that they have little influence.

A feeble phagocytic activity was considered by Golgi as predisposing to pernicious attacks. In the present state of our knowledge it is impossible to define the relation of this function to perniciousness.

A consideration of the relative frequency with which the several factors are concerned in the pathogenesis of the various forms of pernicious malaria will necessarily be brief. In the comatose variety any of the four chief agents may take part; idiosyncrasy and external influences may unite with any of the other factors; an extraordinary number of parasites in the general circulation without accumulation in the brain is productive of coma probably because of the toxin. Ewing[39] says that the majority of cases of comatose malaria coming to autopsy do not show a massing of parasites in the brain. He attributes these cases to general toxemia. However a study of the autopsy records of Marchiafava and Bignami[2] shows that in a great majority of their fatal comatose cases the parasites were markedly localized in the brain. Davidson[17] and Ruge[46] believe that almost always the cerebral capillaries are found filled with parasites in those who have died with coma.

Other pernicious cerebral forms are usually associated with parasitic localizations.

The algid variety, while possibly sometimes dependent on toxemia, is usually due to a massing of the parasites in the gastrointestinal mucosa. This is explained by Davidson[17] as follows: "Experiments show that the alimentary tract is in closer connection with the cardioinhibitory center than other parts of the body, and that irritation of this tract, if sufficiently powerful, will produce cardiac inhibition, with pallor of the surface and accumulation of the blood in the abdominal vessels. That the intestinal canal is the center of mischief in this form of pernicious attack will appear all the more probable if we observe the character of the disturbances so frequently associated with the algid condition—the cardialgic pain, the choleraic vomiting and purging, and the dysenteric discharges."

Other forms of pernicious malaria are probably due to localization or to complications.

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AN IMPROVED TREATMENT OF GONORRHEAL ARTHRITIS (SO-CALLED GONORRHEAL RHEUMATISM).*

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NEW YORK.

WHILE so much has been written in late years of the therapeutic possibilities of static currents (as produced by a Wimshurst-Holz influence machine), there seems to be a general lack or knowledge as to its action on infective conditions, both local and general. Experiments extending over a series of years have led the writer to the conviction that this current exercises a potent curative influence upon such processes.

In this paper I will confine myself to presenting my observations on the action of the static currents upon one special form of infection—namely, gonorrheal arthritis, or so-called gonorrheal rheumatism. This I do because I have now collected sufficient

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clinical evidence to warrant an expression of positive views as to its therapeutic value.

A word of explanation as to how I came to employ this method in the treatment of gonorrheal arthritis may not be out of place.

For several years past, at the suggestion of Dr. William Benham Snow of New York City, I have been treating prostatitis and seminal vesiculitis of a non-gonorrheal character with the static wave current. These applications were made with a specially designed metal electrode, introduced in the rectum and placed against the prostate gland and seminal vesicles.

According to Dr. Snow's investigations, which have been completely confirmed by my own, the beneficial effect of this current in these cases is to be explained as follows: The oscillations of the static wave current, surging through the tissues at each discharge between the positive and negative poles of a Wimshurst-Holz static machine (the patient is connected to the positive pole, while the negative side is grounded), produce deep, painless, rhythmical, wave-like contractions, or physiological tissue gymnastics, even in the ultimate protoplasmic cell, thereby relieving the local stasis, inducing a circulatory drainage and restoration to normal metabolism.

Repeated experiments showed that this method of treatment, however, was of limited service in inflammatory conditions of the prostate and seminal vesicles of undoubted gonorrheal origin. It occurred to me that, by modifying the modality, it might be possible not only to produce the deep tissue contractions above mentioned, but also to induce a non-corrosive chemical action in the tissues, destructive to the gonococcus.

Without going *in extenso* into the numerous experiments made for this purpose, which might be tedious, I finally accomplished my object by the use of a specially constructed insulated vacuum electrode. I found that cases of gonorrheal prostatitis and seminal vesiculitis, which had been refractory to the application of the wave current, made with the metal electrode, improved and were ultimately cured when these vacuum tubes were employed.

This difference in action can be explained only in one way: The actinic action of the vacuum tube-discharge exerts a direct bactericidal effect upon deep-seated gonococci. In addition there are generated on the surface of the vacuum electrode, when in contact with the parts or tissues of the body, nascent nitrous acid and ozone, as a result of the disassociation of the air between the surface of the tube and the lining membrane of the part or cavity; these, together with the actinic discharge of the vacuum tube, are carried into the tissues to a depth of from 2 to 6 mm. by the action of the high-potential currents.

After becoming thoroughly convinced of the efficiency of this method in gonorrheal prostatitis, I was led to consider its possibilities in the treatment of systemic gonorrheal infection, especially that of the joints, for the following reasons. Recent investigations have been made in the laboratories of Harvard and Johns Hopkins Universities with a view of producing a serum for the treatment of gonorrheal arthritis. While these proved unsatisfactory from a therapeutic standpoint, they demonstrated that the local symptoms and tissue changes in this disease are due to the toxins of the gonococcus, and not to the local presence of the organism. It is a well-established fact that the gonococcus cannot live outside of a mucous surface. Other careful observers have determined the presence of gonococci in the prostate gland or seminal vesicles in all cases of true gonorrheal arthritis. Dr. Eugene Fuller of New York has been treating cases of chronic seminal vesiculitis by opening the vesicles through the perineal route, and curetting them thoroughly. He found, upon examining the material removed, in cases with associated chronic joint symptoms, large numbers of gonococci. Coincident with the recovery from this surgical procedure, all arthritic symptoms cleared up.

These facts seem to establish the conclusion that the gonococci are apt to persist in the prostate gland or seminal vesicles, where they thrive indefinitely, and pour out their toxins, which are taken up by the circulation and produce the usual train of symptoms of gonorrheal arthritis or general systemic infection.

How many patients would submit to a radical operation for the relief of gonorrheal rheumatism if a more simple, non-surgical means would promise the same result? Prostatic massage and stripping of the vesicles have proved ineffective, and are often harmful because of the mechanical injury frequently resulting from this plan of treatment. The plan of treatment offered here is absolutely devoid of all risk, and, when the principle is understood, will appeal to the advanced therapeutist.

In the management of this class of cases the following procedure is carried out: After the rectum has been emptied, the patient is placed in the Sims position, upon an insulated platform (this platform should be insulated by glass legs not less than 12 inches in length, and be at least three feet distant from the machine). The vacuum tube, after being lubricated, is then passed into the rectum and up against the prostate gland or seminal vesicles. The instrument is held in position by an ordinary tube-holder and stand, or the patient can hold it.

An ordinary connecting wire or rheophore is fastened to the electrode and to the negative side of the static machine. The strength of the current is determined by the length of the spark-gap between the balls of the sliding rod of the machine.

It is essential to begin with a small spark-gap and gradually increase the size according to the effect produced and the tolerance of the patient. The treatment should never be painful. A feeling of relief follows each application. Each treatment should last about twenty minutes, be repeated daily for two weeks, and then on alternate days until the secretions from the prostate and vesicles are free from gonococci, which can be determined by "stripping" the glands and examining the discharge under the microscope.

It will often be found that, during the course of and following these applications, a thick, semi-coagulated material, which consists of a wax-like, altered secretion of the glands and of dead gonococci, will be forced out of the urethra. This shows, it is fair to assume, that the action of the current not only destroys the local specific infection, but forces out the altered secretions through the natural channel by the intense cellular contraction induced.

When repeated examinations show that the secretions no longer contain gonococci, and both gland and vesicles are reduced to their normal size, attention can be directed to the joint and other tissue changes by daily application to the affected parts of indirect static sparks.

It may not be out of place to mention the assistance rendered by hygenic measures, appropriate diet, and tonics in these cases.

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UNUSUAL CARDIAC MURMURS.

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I DESIRE to describe briefly a number of unusual heart murmurs. Each has been examined by at least two physicians who have agreed in the diagnosis.

CASE I.—Cardiorespiratory murmur. From the apex to the axilla there is heard a superficial double murmur with a distinct pause between. The murmurs have the same intensity, pitch, and quality. The apex is normal; the action regular; the pulse normal, and the general health perfect. Both murmurs disappear after a deep expiration, leaving the heart sounds unusually clear.

CASE II.—Strong, well man; aged 28. To the left of the apex, and low in the axillary line, there are heard a systolic and a diastolic murmur of the same intensity, pitch, and quality. The murmurs are very clearly heard, though at times they are feeble. They are not affected by exercise or by a change in position; they entirely disappear after a full expiration.

CASE III.—Strong, well man; aged 30. Between the nipple and the sternum, there is heard a double murmur of the same intensity, pitch, and quality. The apex is normal; the action is regular. The murmurs entirely disappear after a complete expiration, as they do on forced inspiration. The murmurs are heard with their maximum intensity during normal respiration. They are short, clear puffs, lasting through the first half of the systole and the first half of the diastole. There is no murmur over the aortic area.

CASE IV.—The man is 6 feet 2 inches tall; looks anemic, but he has always been well. An unknown doctor said "diastolic murmur at the base." A careful examination by three experts shows apex in the nipple line, 5th space; some hypertrophy, but no apex murmur and no diastolic murmur. Over the pulmonic area, there is heard a loud, long systolic murmur which at times entirely disappears. The chest is somewhat flat; the sternum decidedly depressed. The murmur is evidently hemic. His physician states that he has a normal heart. The heart is sensitive, pulse 90, action regular. "Mitral regurgitation heard over the auricle" was suggested but discarded, as the murmur entirely disappeared at times. This murmur could be heard through a thick overcoat. The final judgment was—no diastolic murmur; an inconstant systolic murmur over the pulmonic area.

CASE V.—Strong, well man; aged 27. A murmur is heard, called aortic regurgitation by an outside physician. Examination shows apex normal, action regular, loud sibilant systolic murmur over the pulmonary area; murmur is quite diffused. There is no murmur heard over the mitral or aortic area. At times the murmur over the pulmonary area entirely disappears for some minutes, and then suddenly reappears. Same conditions after exercise and after lying down. Functional murmur over the pulmonic area.

CASE VI.—An unknown physician said "hypertrophy with aortic stenosis." A careful examination shows apex normal; action regular, mitral and aortic areas normal. On lying down, an unmistakable diastolic murmur is heard but no systolic murmur. On standing up, a systolic murmur is heard over the same area, exactly like the diastolic murmur. This change in the time of the murmur occurred repeatedly with the change in position. The diagnosis was a functional murmur over the pulmonic area.

CASE VII.—The lower sternum is depressed slightly, the ensiform cartilage forced to the right at an angle of 20 degrees. A clear diastolic murmur is heard along the left edge of the sternum, which entirely disappears on lying down. This was noted a number of times. The apex was normal; action regular; mitral area normal. The depressed sternum was responsible for the accidental diastolic murmur.

CASE VIII.—Man, aged 30; always well. Over the pulmonic area there is heard a short systolic murmur, followed by a short diastolic murmur of the same intensity, pitch, and quality. The murmurs continue after exercise and after lying down. There are no murmurs heard over the aortic and mitral areas: the apex is normal; the action regular. Three such cases of short systolic and "diastolic puffs" have been heard in five years of observation.

CASE IX.—Man aged 35; well in every way. Shows a double murmur as in Case No. 8, the only difference is that these murmurs are inconstant. A skilled specialist in diseases of the chest tells me he has seen two other cases like this—short functional systolic and diastolic murmurs over the pulmonic area.

CASE X.—A man aged 55; short, red, and fat. He states he has always been well. The apex is in the nipple line; the vessels are full; the heart overacting. A clear short presystolic murmur is heard with the usual palpation thrill. There is also heard that characteristic crunching thrump which indicates a mitral stenosis, even with no presystolic murmur. An experience of years proves that a mitral stenosis is most often overlooked. The average physician at once hears a faint mitral regurgitation, often hears a low aortic regurgitation, but seldom hears a mitral stenosis.

CASE XI.—A mitral stenosis with all of its typical signs. Over the left lower sternal line there is heard a clear low aortic regurgitation almost concealed by the mitral stenosis. Physicians, as a rule, are satisfied with the examination at the apex; they forget the aortic area—along the left sternal line and across the sternum to the second right and so up the right carotid.

CASE XII.—Ten years ago this man was declined by an insurance company; to-day, he reports, there are some doctors who say his heart is normal. An examination shows a presystolic murmur with a purring thrill and a characteristic crunching thrump. It is remarkable how such a heart seems "normal" to the physician who has not mastered the points of a mitral stenosis. From my own observation, I believe the crunching th-r-rump is often not recognized by some fairly good ears.

CASE XIII.—Over the mitral area there is heard a diffused systolic murmur, now clear, now faint, and now of a high pitched musical quality. This is the second inconstant clear musical high-pitched systolic squeak I have heard, associated with a constant murmur.

CASE XIV.—Man, age 36; always in good health. Over the 3d and 4th costal cartilage, left side, there is heard a long systolic murmur sounding like a mitral regurgitation. This murmur is somewhat diffused over the precordial area, but it is not heard at the apex nor at the angle of the scapula. It is not a pulmonic stenosis: it is not carried up and to the right; it is not heard over the carotid; the murmur is not changed by exercise: the apex is in the nipple line. The judgment of three physicians

was a mitral regurgitation with its maximum intensity diffused about the left auricle. This seemed to be one of those rare cases where the murmur is carried by the blood back into the left auricle.

Case XV.—Man, aged 23; looks well. There is a clear long musical systolic murmur over the aortic area with a purring thrill over the heart and over the middle of the sternum. There is also heard along the left sternal line a long, faint diastolic murmur. The apex is in the 6th space, nipple line. A marked aortic stenosis with aortic regurgitation.

Case XVI.—Man, aged 38. He has known of a "murmur" since childhood. Four physicians examined him recently, and they said they heard no murmur, but a New York specialist said "faint murmur." A careful examination with the ear alone shows a faint diastolic murmur over the lower third of the sternum and along the left sternal line. This case showed the value of training the ear to work without the stethoscope, as the faint diffused murmur was easily heard by the ear but with difficulty heard by the stethoscope. Long experience with many physicians shows the best work is done by those who depend chiefly on the ear alone in lung diseases; on the ear alone and the stethoscope in heart diseases.

Case XVII.—Man, aged 60. A well known expert had written his opinion of this case twenty years ago. The heart still remains in splendid condition; clear aortic regurgitation with regular action and normal apex.

Case XVIII.—A laboring man, aged 46, looks strong and well. Heart examination shows apex beat in the sixth space, one inch outside the nipple line, with heaving impulse and marked Corrigan pulse. There is heard a high-pitched musical churning murmur, widely diffused. The maximum intensity is heard over the middle of the sternum where the "churning" is specially clear. I have never heard such a high-pitched musical churning diastolic murmur. The man had worked daily with little inconvenience, till a failing compensation now drives him to the clinic for relief.

Case XIX.—Insurance applicant, aged 45; looks very well. Over the left sternal line there is clearly heard a systolic and a diastolic cardiorespiratory puff, somewhat diffused over the cardiac area. On deep expiration there is heard a faint long diastolic murmur along the left sternal line and across the sternum.

Case XX.—Red-faced, robust appearing man, aged 42. He had been told he has heart disease, but he states he "feels first rate and knows he will live to old age." Examination shows a huge heart with its apex two inches to the left of the nipple line; heaving action; marked Corrigan pulse; aortic second sound accentuated; good compensation. History of rheumatism for six weeks when 17 years old.

Case XXI.—A very muscular young man, aged 21; declined by an insurance company because of aortic regurgitation. At once he consulted his family doctor and returned with "blood in his eye." His doctor had told him the heart was normal. The company found the same murmur. Later, repeated examinations by three physicians disclosed this interesting condition. There was an inconstant systolic murmur, diffused about the apex, with an inconstant diastolic murmur over the aortic area, so the heart presented these four conditions: (1) no murmur; (2) systolic murmur about the apex; (3) diastolic murmur over the aortic area; (4) a systolic and a diastolic murmur. In every other way the heart was normal.

TETANUS; WITH A REPORT OF A CASE TREATED BY INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE.*

By W. H. POWERS, M.D.,

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Tetanus is an infectious disease produced by the bacillus of tetanus, occurring in man and animals, and characterized by clonic spasms, pain, fever, constipation, etc. The bacillus of tetanus is a short, blunt-ended, spore-forming bacillus, very resistant to heat and antiseptic agents, also anaërobic. It is easily cultivated and produces perhaps several toxins which imitate all the symptoms of tetanus when introduced into the animal body. The bacillus is especially prevalent in warm climates, being found in manure heaps, the soil of gardens, street dust, etc. From its anaërobic nature it necessarily grows better in punctured wounds or wherever laceration of tissue has occurred.

Tetanus has been subdivided into several forms. The idiopathic form consists of those cases in which the history of a trauma cannot be elicited. It has a customary incubation period of from eight to fourteen days, though cases may commence before and after this period. The prognosis is considered to be influenced considerably by the term of incubation. Tyson gives a mortality of about 80 per cent. The American Text Book of Surgery gives no statistics, and others place the mortality at from 75 to 85 per cent.

There comes on rather gradually, first, a stiffness of the jaws, inability to swallow, some pain, perhaps a little elevation of temperature, constipation, rapid emaciation, clonic spasms with constant rigidity of many muscles, particularly those of the back, neck, and jaw. In most cases a history of an injury can be elicited. Profuse sweating, rapid pulse, clearness of intellect, and the recumbent position will also be noticed.

The treatment is mainly symptomatic. Necessarily, one should open the infected wound, thoroughly disinfect, nourish the patient as much as possible, keep up elimination, and, if possible, neutralize the toxins and their effects. This is accomplished by the use of antitoxin and many of the opiates, narcotics, etc. The liberated toxin, when injected into a healthy animal in suitable ascending doses, has been found to produce a potent antitoxin. This is very valuable as a preventive, and should be used in every case of suspicious wound, either in the form of the dry dusting powder or in that of the liquid antitoxin, or in both forms. Aside from this, we should use morphine, chloral, bromides, alcohol, etc., as indicated.

Case.—About the middle of December a strong, healthy negro man, while lying on a cot, was shot by another negro with a 38-caliber pistol. The ball entered the thigh muscles posteriorly about the middle of the thigh, and ranged upward, probably lodging in the hip. About ten days later he was sent to Ocala, and was seen there by Drs. Izlar and Slaughter, and myself. At this time he was having a convulsion every minute probably, belly muscles rigid, also those of the leg, thigh, back, neck, and the jaws, thus producing the risus sardonicus. He could scarcely show the tip of his tongue, and complained severely of pain, particularly in the injured leg and the abdomen. He had a slight temperature, sweating profusely, was constipated, and already showed

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signs of emaciation. The wound of entrance was closed, and no trace of the course of the bullet was discovered, nor was any effort made to remove it, as its position was decidedly uncertain. Owing to the probable length of the bullet's course and the fact that the wound of entrance was completely healed, no effort at opening and disinfecting its tract was made, contrary to the usually indicated method. The pulse was 120 to the minute and the respiration was quickened at times, when the patient was not in a convulsion.

The diagnosis was positive and the prognosis was decidedly grave, although there could be no certainty as to the date of infection, whether at time of injury or a subsequent dressing.

The patient was chloroformed, turned on the side, with the body flexed. A small area over the lumbar vertebræ was sterilized, the line at the upper margin of innominate bones ascertained, and a little to one side of the spinous process a small skin incision was made. An ordinary solid metal 10 c.c. syringe was filled with a 25 per cent. solution of sterilized magnesium sulphate; a four-inch needle was used. After the needle had been inserted approximately to the proper place the syringe was detached. As no spinal fluid appeared, it required a little further manipulation of the needle before the cavity was penetrated. About 2 c.c. of spinal fluid was allowed to flow, then the syringe was attached and 2 c.c. of magnesium solution was injected slowly. A prescription was written for a combination of chloral, bromide, and morphine, also for a saturated solution of magnesium sulphate. This was at 4:30 P. M., and Dr. Van Hood saw the patient about 7 P. M. At this time he was having some mild convulsions. Owing to the patient being cared for by negroes, no careful account of symptoms can be given, and the medicine was also given sporadically.

On the third day, having 10 c.c. of tetanus antitoxin, I injected this deep into the thigh muscles along the supposed course of the bullet. At this time the patient was considerably worse as regards pulse and respiration, although the convulsions were not so severe as when first seen. The next day another spinal injection of magnesium sulphate was given in slightly larger dose, and three hours after this the patient was absolutely relaxed, and complained of a "splitting" headache. This injection I thought had a marked effect as late as forty-eight hours. Six days after coming to town I had the man removed to the hospital as a charity patient. At this time he was absolutely rigid, but the general conditions had improved, and the convulsions were not so frequent or severe. From this on his condition gradually improved under the use of chloral and bromide, and salts per os, until sixteen days after his arrival in town, when he was able to walk about.

Remarks.—A contracted muscle means a working muscle, and constant contraction means constant work, therefore, exhaustion, and this is given as the cause of death in tetanus. The intraspinal use of magnesium sulphate paralyzes the muscles, therefore gives rest while the system is elaborating an antitoxin. No mortality from this procedure has been recorded either in the few cases in which injections of magnesium sulphate have been used or in experimental work upon animals.

The injection itself is comparatively simple. The solution should be used only at body temperature. The injection should be repeated at intervals of from twenty-four to seventy-two hours, depending upon the severity of the seizures.

Pathological Physiology and Motor Reduction of Visceral Symptoms of Tabetics.—Maurice Faure, in a paper read before the Ninth French Medical Congress, says that the muscles of the life of nutrition are disturbed in their function in tabetics in the same order and from the same causes as those of the life of relation—that is: 1. A lessened tonicity (atony, hypotonia, relaxation). 2. A diminution or disappearance of coordination. These visceral symptoms depend on the medullary and radicular lesions that exist (laryngeal, visceral, intestinal). Atony or relaxation of the muscular tunics of the bladder, intestine, or bronchial walls, determines stasis and infection of these physiological reservoirs. These muscles, not being under the control of the will, their reduction is impossible, but massage and faradization excite their contractility and diminish their atony. The voluntary cervical muscles, the scapular, dorsal, and intercostal muscles, the diaphragm, the walls of the abdomen, and the perineal floor, are all, like the muscles of the limbs, subject to atony and incoordination. Their atony results in lessening of the resistance of the abdominal and thoracic walls, the diaphragm, and the perineum. Consequently, when the thorax dilates in the inspiratory effort, when the diaphragm compresses the intestinal masses for the effort of expulsion of the urine and feces, the walls of the thorax and abdomen allow themselves to be distended, the diaphragm is aspirated into the thorax, and the pressure in the interior of these cavities is unchanged. There result from this insufficient variations of pressure corresponding to respiration, micturition, defecation, and stasis of the mucus, urine, and feces, which produce insufficient nutrition, infection, and cachexia. This incoordination has, as a result, a defect of synergy in contraction. When the thorax contracts in respiration or coughing, the glottis closes instead of opening; when the abdominal wall contracts for defecation the diaphragm and perineum relax; when the urine is about to flow from the bladder the striped muscles of the sphincter and perineum do not contract to arrest it, etc. From this result laryngeal crises, retention or incontinence of urine and feces, etc. The functions of the life of nutrition are, from a motor point of view, submitted to education like the functions of the life of relation (gymnastic education of the act of respiration, social education of micturition, and defecation). It is possible to teach again these mechanisms as one learns again the mechanism of walking. These exercises are adapted to the action of the muscles of the neck, thorax, abdomen, and perineum, which are submitted to the general laws of motor reduction. Laryngeal crises may thus be quickly lessened or prevented; subjects that were obliged to make use of the catheter recover the power of voluntary micturition; defecation becomes easy, and constipation less; infections of the bladder, intestine, and bronchial tubes are prevented or lessened, and the principal dangers that threaten the tabetic are thus removed.

Purulent Pleurisy of the Apex.—G. Carrière and J. Vanverts state that pleurisy of the apex of a purulent type is rare, since the anatomical situation of the apex allows pus to gravitate, and it can only remain at the apex when adhesions confine it there. The retracted and adherent lung forms the floor of the containing cavity. The pus is at first confined, and gives the symptoms of fever, general malaise, dilatation of the interspaces, and loss of vesicular murmur. Later it may open spontaneously, and all the symptoms subside, expectoration becoming very abundant. A pleurobronchial opening may be established, and cicatrization and closure of the pocket result in a cure. Exceptionally, it opens through an intercostal space. Opening gives immediate relief to the general symptoms. The treatment demands surgical opening of the purulent cavity and its drainage if opened. It involves washing out with antiseptics when the cavity is already open.—*Le Nord Médical.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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IN QUEST OF LONGEVITY.

IT is a matter of some significance that during the past six months there have been published three volumes dealing with the special problem of lengthening the span of human life through a minute scientific study of the causes of old age and death. To be sure, the desire for immortality is very old, much older even than Plato or any of his teachers, who strove to determine the nature and characteristics of soul rather than of body, but all the scientific efforts that have been made to show why old age comes on apace have up to the present failed to satisfy the inquiring mind. That "all men would live long, but no man would be old" is an epigram that comes back to us from first-reader days. Its author is long since dead and forgotten, yet the truth of his statement lives on in the minds and hearts of us all.

Through the zeal of Metchnikoff, whose "Prolongation of Life" is enjoying as wide a reading in this country as it obtained when first published in France two years ago, we are brought face to face with an analysis of the problems of disease, old age, and death. Whether Metchnikoff's theory of intestinal infection and systemic absorption as a cause of premature decay be correct or not, it is of vital interest at the present moment, inasmuch as we are just beginning to realize the evil results of autointoxication and the importance of the digestive tract as a factor in diseases of obscure origin. We have been taught to believe and accept as indisputable that the "fatal triad" is inseparable from our common earthly lives; but, however it may be with old age and death, we have learned to know that disease is largely a matter of accident, dependent upon ignorance, and that under ideal sanitary conditions most diseases would disappear from the face of the earth forever. But we are still far from the ideal, for, with the great increase of population, there has come to be a great increase in the chances of accidental death through the multiplication of disease germs and the possibilities of ready transmission from host to host.

Present-day records tend to show that the average length of life in rural districts is greater than in large cities, taking into account the factors of heredity, exposure to the elements, etc., and every surgeon knows how much more free his country patients are from wound infection than are those in his city practice. These matters have been touched upon by Dr. Pearce Kintzing, in his recent book on "Long Life and How to Attain It," and, although the author is an avowed lover of rural life, and is, perhaps, prejudiced in favor of the field and wood, there is much truth in what he says, and not a little mental pabulum for the urbanite who sometimes thinks of the country only as a group of white slabs surrounded by a fence. However, since Dr. Kintzing writes from a popular viewpoint, and not distinctively for the profession, his book will scarcely have a wide appeal for medical men who are familiar with the principle of practical hygiene.

In his book on "Age, Growth, and Death," also recently published, Prof. C. S. Minot of Harvard University takes up the matter as an embryologist, who holds that the forces leading to old age are active even at birth. Life or the power of assimilation upon which it depends is like a top set spinning by a boy; it runs occasionally for a long time, if a proper impetus has been given it, but it runs with ever decreasing force and rapidity—and finally runs down. We obtain, therefore, in this book points of view which suggest new lines for future investigators.

There is much to be said in support of the thesis that we are still almost totally ignorant of the workings of great cosmogonic forces, as they move to and fro and weave into a complete fabric the threads of human destiny. We do not know, perhaps never can know, what life *is*, because we are obliged to be eternally concerned with what life *does*. When a patient dies we are content to insert typhoid or tuberculosis in his death certificate, inasmuch as this satisfies the law, but carried back to the last analysis we are not quite sure that we know what was the real cause of the cessation of life, because we are circumscribed by the complexities of nature that lie thick everywhere about us.

THE PROGNOSIS OF SYPHILIS.

THE general prognosis of syphilis is, of course, well known to physicians, this aspect of the ancient disease having been studied through the many centuries of its existence. Careful statistics of the subsequent histories of patients are not, however, easily obtained in numbers large enough for generalizations, especially in the United States, where the absence of the passport system makes it difficult to trace a man very far if he has several times changed his residence. The police regulations of Germany are quite different in this respect, and it is such regulations that have enabled Waldvogel and Süssenguth to compile the data referring to 297 patients treated for syphilis in the Göttingen Clinic between 1873 and 1882. The results are of interest in one respect at least: evil consequences have not at all been as frequent in this series of cases as is usually thought to be the rule by both medical and lay men. No predisposition to tuberculosis seems to have followed syphilitic infection, the number of deaths from this cause being less than the one in three which is the usual rate of mortality from it, according to the data of the German Health Office. Seven patients were affected with tabes dorsalis, and three of them died from this disease. Eleven deaths, or 9.3 per cent. of the total 118 deaths, were due to progressive paralysis, three other patients being still alive, though suffering from this supposed sequel of syphilis. The general mortality of the patients

when compared with the life insurance figures for the proper age appeared to be higher by 9 per cent.; moreover, the average loss of life expectation was two years per person. Almost none of the patients gave any history of tertiary symptoms, and at least 109 of the 297 patients recovered good health after the treatment, consisting in inunctions, and sometimes in injections, of mercuric preparations, while another dozen were suffering from various heart, kidney, and lung lesions that could not be looked upon as resulting from the old syphilitic infection.

So far as the immediate victims of specific disease are concerned, these figures little justify the usual view of luetic infection as carrying with it a greatly increased morbidity and mortality. The disease, however, is especially characterized by the damage it does to the descendants of the patients, and the authors whose work we are considering have tried to obtain some data of this aspect of the subject. Of the 265 patients with secondary symptoms, 48 remained single, a percentage which is quite high, considering the rural character of the population treated. The marriages, however, did not seem to have been any less fruitful than the average shown by life statistics. Further figures in reference to other points involved could not be obtained or were based on too few cases to be of general application. One thing seems to be shown by the careful statistical tables of the authors: so far as the material studied by them is concerned, syphilis is no such fateful disease as is usually thought. The comparison with the results of the same infection among town dwellers, as well as the influence of race and country upon the prognosis, would well repay the trouble of anyone who has sufficient material open to him for such a study.

Nonparasitic Chyluria.

The parasite responsible for elephantiasis and chyluria of the tropical and subtropical regions, *Filaria bancrofti,* is widely distributed in China, India, Africa, Brazil, and elsewhere, and the inhabitants of these countries or travelers through them often turn up in the north with the above symptoms. The history in such cases points directly, of course, to infection with the parasite as the cause of the disease. But in addition to these parasitic cases, medical literature contains a few reports of chyluria occurring in persons who have never left northern countries, and, indeed, have in no way exposed themselves to infection with filaria. The ingenuity of the physician observing the case is then taxed to find some plausible explanation for the unusual condition. Osler tells of the postmortem in a case of thirteen years' duration, in which no trace of the parasite could be found (Practice of Medicine), and in the *Münchener medizinische Wochenschrift* for June 30, 1908, Dr. Herman Lüdke reports a case of chyluria in a woman who had never left Southern Germany. In this patient a severe cholecystitis, due to the infection with the colon bacillus, was followed by the appearance of chyluria; the urine contained sugar, albumin of several types, and a great deal of fat, which was responsible for the milky appearance and the similarity of the fluid to chyle. The change of diet to fat-free substances seemed to have no effect upon the fat-content of the urine, which reached six to eight grams of fat to the liter; just as little effect in the opposite direction was noted when a diet rich in fatty foodstuffs was ordered. No treatment seemed effective, nor was the condition any more serious for the patient than a moderate glucosuria, which is so often observed to continue for many years and is quite compatible with average good health. The only pathological condition which could be thought of in connection with the etiology in this case of chyluria was, of course, the severe cystitis, for no exposure to a parasite of the filaria type was present in the case and no trace of such infection could be found on repeated examinations. Excess of chyle in the blood was also absent, the examination for such a chylemia proving completely negative. The only explanation, then, was that the long-continued inflammation of the bladder might have produced some lesion of the lymphatics which allowed the admixture of the chyle to the urine. This cause appears probable in the case reported, but no such bladder lesion has been found in other patients suffering from the nonparasitic form of this affection, and an acceptable explanation of the condition in such cases is still to be found.

Ophthalmoreaction in Typhoid Fever.

We have already noted the application which Chantemesse made of the recent methods of diagnosing tuberculosis by the local reaction produced in the conjunctiva to the diagnosis of typhoid fever. Since the appearance of his report Kraus, Lusenberger, and Russ have published their results with the method employed by him, which in no way corroborate his findings. However, they used slightly different preparations of the toxin of typhoid fever, while Orszag, who followed the technique of Chantemesse, obtained results which were much more in accord with the latter's observations. Dr. Meroni has gone over the ground once more and in the *Münchener medizinische Wochenschrift* for June 30, 1908, reports the data obtained by testing twenty-four typhoid patients with the toxin instillations. In all of them positive reaction could be noted, of varying severity and duration, but always well enough marked to serve as a sign of some importance in the diagnosis of the disease. Control experiments showed that the reaction was sufficiently specific for typhoid fever if it continued twenty-four hours after the instillation; no ill-effects whatever were noted; the technique of Chantemesse proved to be quite reliable, and it is simple enough to deserve trial in the hands of other observers. The test has aroused no such widespread interest as the similar reactions in tuberculosis, but its importance is such that further results will be looked for by all practical physicians who appreciate the difficulties of diagnosing typhoid fever in places where bacteriological methods cannot be applied for this purpose.

The Relation of the Ear Lobule to Tuberculosis.

None of the numerous degeneration stigmata have been so much discussed as anomalies of the ear. While investigating the relation of tuberculosis to nervous and mental diseases Rossolino (*Wiener klinische Wochenschrift,* No. 22, 1908) noticed a peculiar shape of the ear in a large percentage of the patients who gave either a family history of tuberculosis or showed a habitus phthisicus. In the examination of 800 patients he found 531 who gave a tuberculous family history or displayed the

habitus phthisicus, and seventy-six per cent. of these showed abnormalities of the ears, chiefly an attachment of the lobule. Only twenty per cent. of the remaining 269 showed any degenerative changes in the ears. That an alcoholic or psychopathic family history did not influence the ears is shown by the fact that patients with such a family history, but not having the habitus phthisicus or giving a tuberculous family history, showed normal ears in eighty per cent. of the cases. Furthermore, patients with either a tuberculous habitus or a family history of the disease, and with no alcoholic or psychopathic family history, showed degenerated ears in eighty-three per cent. of the cases. If what Rossolino says is true, some relation must exist between the tuberculous habitus and anomalies of the ear lobule. His view, however, differs from that of the anthropologists who hold that the anomalies of the ear are not signs of degeneration but racial characteristics. Possibly both are right, for a large majority of the Chinese have the so-called Mongolian ear and at the same time are a race not well capable of resisting disease. Mense claims that the negro frequently presents abnormal conditions of the ear and he is certainly prone to tuberculosis.

Misuse of the Red Cross Emblem.

The Secretary of the New York State Branch of the Red Cross protests against the use of the Geneva or red cross as a means of raising funds for hospitals on "tag days" and similar occasions. The red cross is the common symbol of all army hospital corps and auxiliary Red Cross societies, which protects the sick and injured and the hospital personnel from attacks in time of war, and, the world over, has come to signify this special and official kind of protection, relief, and prevention of sickness and injury in war, disaster, and pestilence. Its employment except in this connection must seriously impair its usefulness. The need of a symbol to summarize and recall to the popular mind what has been done along these lines and what remains to be done is plain, and the Red Cross feels it necessary to protect its emblem, misuse of which was made a misdemeanor by an Act of Congress, January 5, 1905. The Department of Charities of New York City and Bellevue and the Allied Hospitals have set a good example by changing from the red cross to the symbol of Esculapius, an example which has already been followed to some extent. The national Red Cross is not a private society; anyone may become a member and have a voice; it is public and official; and the finances are audited by the War Department. It is linked with the Red Cross societies of forty-two other nations, whose total membership is upward of five million. In part as a preparation for such emergency relief as it may at any time be called upon to give, the Red Cross has this year taken up the mission of combating tuberculosis, which slays its hundreds where war slays its tens. Preparation is a matter of educating and arousing the people, and millions of dollars are needed before a condition of preparedness can be reached. In all this work the advantage of a distinct and peculiar emblem to signify the work of the Red Cross is evident.

A New Pathogenic Bacillus.

Great wars and great pestilences are no longer as synchronous as they were wont to be in former days, when the modern sanitary precautions in time of war were unknown. However, large congregations of men exposed in many ways to infections even now serve as splendid material for the study of diseases spread by contact or by food and utensils, and the Japanese physicians have made good use of the opportunity which the recent Russo-Japanese war offered them. Horiuchi reports in the *Centralblatt für Bakteriologie, etc.*, for May 16, 1908, the results of a study of a peculiar disease which attacked many soldiers. It was characterized by a sudden onset with a distinct chill: a high, continuous temperature; an exanthem appearing on the third to the fifth day of the disease; a step-like temperature curve during defervescence, and the absence of the Widal agglutination phenomenon. Horiuchi succeeded in isolating a bacillus from the blood of the spleen and of the veins, which agglutinated with the blood serum of the patients and possessed perfectly distinct and peculiar cultural characteristics. The new organism proved to be quite pathogenic for mice, guinea pigs, and rabbits. The author proposes to call it the bacillus of Manchurian exanthematic fever, for, although the disease observed by him has much in common with typhus fever, yet it may not be identical with it.

News of the Week.

Help for the Babies.—The Illinois State Board of Health has reissued its excellent pamphlet on the Care of the Baby. The pamphlet is well illustrated and most important teachings, tersely put, are displayed in bold-faced type. Sound information as to the importance of breast feeding is given, as well as directions in detail for preparing milk for children not breast-fed. The need of cleanliness both for the baby and for the mother, as well as for all articles used in preparing food, is insisted upon: and suggestions for dressing the baby lightly and comfortably during the summer are given. Dairymen and milk dealers are well instructed in a short chapter, and the pamphlet closes with a list of disinfectants.

Under the general direction of the Brooklyn Children's Aid Society, a number of the relief associations of that city have begun to work on a cooperative plan for saving the lives of the babies. The city has been divided into districts, and the Department of Health has assigned trained nurses to work in them. Sixteen stations for distributing modified milk have also been established, and medicines will be furnished free of charge. In New York, the number of deaths among infants during the hot weather recently has caused renewed efforts for their protection, and the attempt is being made to educate the mothers by systematic visits of trained nurses.

The Public Health and Marine-Hospital Service.—Candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service will be examined in Washington on September 14, 1908. Candidates must be between 22 and 30 years of age, and graduates of a reputable medical college. The examinations will be physical, oral, written, and clinical. Upon appointment, assignment is usually made first to one of the large hospitals. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon; promotion to the grade of surgeon is made according to seniority and after due examination. Assistant surgeons receive $1,600, passed assistant surgeons $2,000, surgeons $2,500 per year, and are

entitled to furnished quarters for themselves and their families or to allowance for the same. Further information may be obtained on application to the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

China Bars Morphine.—Japan has now been asked to join the other powers in consenting to the restriction of the importation of morphine into China, as well as of instruments used for injecting the drug. Measures for the control of the traffic are to be discussed at a congress which will meet in Shanghai next January. Unless Japan gives her consent, China is helpless to restrict the importation of the drug.

Opium in the Philippines.—The report of the Board of Health for the Philippine Islands states that since March 1, 1908, when the prohibition of the use of opium except for medical and scientific purposes, became absolute, the number of opium habitués desiring hospital treatment has enormously increased. Of the 307 patients admitted to San Lazaro, 260 have been discharged as cured. The majority seem to be really anxious to be relieved.

Absinthe Tabooed.—The question of prohibiting the manufacture and sale of absinthe in Switzerland having been put before the people, a vote of 80,000 majority in favor of the prohibition has been recorded. In France, a circular signed by 114 of the 300 Senators has been issued, proposing the passage of a bill making the manufacture of absinthe a crime.

United States Mails Will Not Carry Cocaine.—Government reports having shown that an enormous amount of cocaine is sent through the mails each year, the Post Office Department on July 16 issued an order denying the use of the mails to cocaine or its derivatives. Patent medicines containing the drug are included in the prohibition. The crusades carried on in many of the cities against the sale of the drug have caused the users to obtain it directly from the manufacturers through the mails, and the ease with which it has been obtained has largely negatived the work in combating the evil. The habit has said to have fixed itself to an alarming extent upon the negroes, especially of the South, and to offer as great a menace to the peace of that section of the country as the liquor habit. It is distributed among them largely by peddlers, who sell the powder by the "card"; that is, he measures it by spreading it thinly over the spots on a playing card. A customer may purchase anything from a "deuce" to a "ten spot" of "coke." A number of patent remedies said to contain cocaine are now being investigated by the Bureau of Chemistry of the Department of Agriculture.

Scarlet Fever in New York.—The records of the Willard Parker Hospital show that during the spring there was a large increase in the number of cases of scarlet fever in New York. In March of this year, for example, there were 405 more cases than in the same month of 1907. On April 25, the hospital, which has accommodations for 220 such patients, sheltered 646. Up to July 1, 1,500 cases had been received. An addition to the hospital building is urgently needed.

Yellow Fever in Cuba.—An outbreak of yellow fever has been reported from Daiquiri, Province of Santiago, Cuba. Ten cases have occurred.

Plague in Venezuela.—Reports from Caracas state that the epidemic of plague in Venezuela is abating. No new cases have developed in Caracas since June 28, and the last death from the disease in La Guayra occurred on June 28. Officially, the epidemic in La Guayra ended on July 3.

School of Preventive Medicine.—The State Health Commissioner has announced that arrangements have been made to establish a school of sanitary science and preventive medicine at Cornell University. The course will open on October 8, and lecturers have been appointed from the university faculty and from the staff of the State Board of Health. Lectures on special topics in sanitary engineering will also be given by specialists.

Wall Street Tackles Phthisis.—The three hundred telephone clerks employed by the New York Stock Exchange are being examined by a physician of the Health Department for tuberculosis. Of the thirty examined on the first day, three were found to be affected, and their employers at once undertook to provide suitable treatment for them. A short time ago all the employees, with the exception of the telephone operators, were examined, and of the four hundred, three were found with tuberculosis and were sent to a sanatorium by the Governing Board of the Exchange.

Preaching the Crusade Against Tuberculosis.—The clergymen of nine churches in Memphis gave up their pulpits on Sunday last to physicians and others interested in the warfare against tuberculosis, who detailed the work that was being done in this direction and urged their hearers to join in the crusade. It is estimated that over five thousand persons were appealed to directly in this manner, while the attention of thousands of others was called to the subject by the newspaper accounts of the novel procedure.

University Bars Tuberculosis.—The University of Utah has promulgated a decree denying admission to classrooms of the institution to any teacher, student, or employee suffering from tuberculosis.

Drinking Water on Trains.—The New York State Department of Health has recently investigated the sources of the drinking water provided for passengers by the railroads operating in the State. From the returns, it may be said that the quality of the water corresponds to that of the water used in the larger cities and towns. The department has been able to recommend certain changes in the source of supply where this was known to be unsatisfactory. In several instances a special and presumably better supply of water is provided for the dining cars.

Pasteurization in Vienna.—A complete plant for pasteurizing milk has been presented to Vienna by Mr. Nathan Straus of New York, and formally accepted by the Minister of the Interior. The rate of infant mortality in Vienna is high, and the workings of the plant will be followed with particular interest.

New Diet Kitchen.—The New York Diet Kitchen Association opened this week another station in the chain it already maintains in the tenement districts for supplying clean milk and fresh eggs to the sick poor. The new kitchen is located on the upper west side, and is the eighth to be opened. During the month of June these stations gave out 25,810 quarts of certified milk in cases of actual need, and during the recent very severe hot weather not a single death occurred among babies who were being fed upon this milk. The first diet kitchen of the Association was opened in 1873, in connection with the Demilt Dispensary.

New York Hospital System.—The State Charities Aid Association has issued a supplementary report on the hospital system of the city making recommendation for changes and additions. Emergency relief stations with an ambulance service

attached are recommended for establishment for the better treatment of rush cases. Local hospitals on the general lines of those already existing, but for acute cases and with special vacant wards for the handling of cases following great accidents, are also recommended. In addition to these, it is thought there should be hospitals for subacute and chronic diseases, for tuberculosis, and for acute contagious diseases. With such a system, New York would naturally become a great center for medical study and education. It is contended that hospitals should be built, as far as possible, in the crowded centers, where they would be most accessible. At present the daily number of sick in the entire city is estimated at 135,396. Of every 100 in the population 2.21 are sick of chronic or acute disease, and of these 8.4 per cent. are treated in hospitals. A more general treatment of cases in hospitals would, it is thought, materially lower the death rate.

Germs in Cracked Dishes.—Dr. Wiley of the Bureau of Chemistry of the Department of Agriculture, has extended the investigations of the Bureau to include the examination of cracked dishes taken from some of the "quick lunch" rooms of Washington. Lurking in the seams and cracks twenty-five different species of organisms were discovered by the bacteriologist of the department, a large number of them belonging to the colon group. In spite of the spotless appearance of the kitchens of some of these places, Dr. Wiley holds there is danger from them, since it is impossible to clean cracked dishes properly. The conditions found in Washington could doubtless be duplicated in any large city, and are probably of little importance in the dissemination of disease.

Girls Healthier than Boys.—Interesting facts have been presented as the result of the examination, under the new Child Labor Law of the District of Columbia, of 1,700 children, boys and girls, under sixteen years of age, who desire permits to go to work. Of this number, 75 boys were refused permits, and but 2 girls. Diseases of the heart and lungs were given as the reason for the majority of the rejections. As a consequence, it is stated that girls between the ages of twelve and sixteen are far better able to battle with the world than are their brothers.

Death of a Centenarian.—Within one month of her 105th birthday, Mrs. Sarah Hall Doremus died on July 15, at her home in Newark. Born in New Jersey, she has lived there all her life, and had been in good health until three months ago. With the exception of Washington, she had lived during the term of every President of the United States.

Provision for Treatment of Rabies.—The Secretary of the Illinois State Board of Health announces that in 1905 the General Assembly made provision for the care and treatment of poor persons duly certified by regular physicians who have been bitten by rabid animals, or otherwise put in danger of infection from rabies, and that such persons, unable to pay for treatment themselves, would be cared for at the expense of the State at the Pasteur Institute, Chicago.

Christian Science Deaths.—The recent deaths in New Jersey of two persons under Christian Science treatment, have brought about the appointment by the President of the Bergen County Medical Society of a committee of investigation. The chairman, Dr. J. Finley Bell of Englewood, in a very timely statement, calls attention to the fact that these "healers," knowing nothing of medicine, science, anatomy, or anything else that might tend to aid in relieving the suffering of the sick, get good pay for their attendance, and yet declare they do not practise medicine because no drugs are administered, and are, therefore, not subject to the law. Dr. Bell calls for a revision of the law, if necessary, to put a stop to these illegal practices.

Dr. George Dock, Professor of the Practice of Medicine in the University of Michigan, has been elected to the Chair of the Theory and Practice of Medicine in the Medical Department of Tulane University of Louisiana.

Dr. Daniel N. Eisendrath has been elected Professor of Surgery in the College of Physicians and Surgeons, Medical Department of the University of Illinois.

Drs. Alfred D. Kohn and Alexander L. Blackwood were recently appointed members of the Board of Education of Chicago.

New Journals.—The *Southern Medical Journal* makes its first appearance with a July number, under the editorship of Dr. J. A. Witherspoon of Nashville, Tenn., and a large staff of assistants and collaborators. The issue contains, besides case reports, a number of original articles, among them, "Clinical Notes on Apoplexy," by E. G. Wood; "Diagnosis of Painful Feet," by E. L. Scott; "Recent Work on Stomach Digestion," by W. H. Witt, and "Goiters of the Young," by Charles H. Mayo. The journal presents a very attractive appearance.

School Hygiene is the name of a new monthly issued in Boston by the American School Hygiene Association. The journal is of convenient size and good type. Abstracts of papers on eyestrain in school children, school baths in Sweden, the prevention of tuberculosis in school children, and the demands of school hygiene, are given. There are also short articles on "Playground Legislation," "The Education of the Public in Scientific Medicine," and "School Clinics." The article by Dr. Jarrett on the health of school children, in a recent issue of the MEDICAL RECORD, is reviewed at length.

The *Journal of the Tennessee State Medical Association* appeared in June for the first time. A report of the seventy-fifth annual meeting of the Association is included, as well as the address by the President, Dr. A. B. Cooke, on "Medical Organization: Its Purposes and Possibilities." The journal is of octavo size, with good paper and print, and makes a pleasing appearance.

Fasted Fifty-six Days.—Unable to obtain a physician because of the ban upon her husband, the wife of the "Outlaw of Cameron Dam," Wisconsin, has succeeded, according to newspaper reports, in curing herself of appendicitis by fasting fifty-six days. She is said to have lost sixty pounds in addition to the appendicitis.

The Fifth Pan-American Medical Congress will be opened in a formal way by the President of the Republic of Guatemala on the evening of August 5, at which session the official representatives of the country and those of the other American Republics will be present. The titles of the papers received, as well as anything else of importance, will be made known by the Secretary-General. There will also be an intermediate and a closing session, in the latter of which representatives of the different countries will make farewell speeches, and the congress will be duly closed. In the intermediate session, there will be scientific works presented, but there will be no discussions. The various section meetings will begin on the morning of the 7th, and continue until the congress adjourns. The papers are principally upon questions of general and tropical medicine,

hygiene and sanitation, both of civil and military character, and general surgery, the consideration of the different remedial agents used in southern countries, and papers on the different specialties. The papers from the United States cover about the same subjects, in addition to which there are a number to be presented on the different specialties. There are twenty sections, but the probabilities are that the number will be reduced to four or five, in order to insure a better attendance. There will probably be a section in medicine, including general, internal, and tropical medicine, with perhaps children's diseases, nervous and mental diseases, and therapeutics; a surgical section, including general and abdominal surgery, gynecology, anatomy, and obstetrics; a section on eye, ear, nose, and throat diseases; a section in hygiene, demography, miltary sanitation, and epidemiology. The entertainments will consist of a banquet in honor of the congressists, a ball also in their honor, a mock battle, a horse race, and numerous excursions to different points of interest.

British Medical Association.—The seventy-eighth annual meeting of the Association will be held at Sheffield, July 24 to 31, under the presidency of Dr. Henry Davy. The President-elect is Mr. Simeon Snell of Sheffield. The address in medicine will be delivered by Dr. James Kingston Fowler, the address in surgery by Mr. Rutherford John Pye-Smith, and the popular lecture on "Dust and Disease" by Mr. Edmund Owen.

South Dakota Board of Medical Examiners.—At the regular meeting of this Board in Deadwood, July 8 and 9, there was thirty-five applicants for a license to practice, thirty-one of whom passed. The annual election of officers of the Board resulted as follows: *President,* L. G. Hill of Watertown; *Vice-President,* H. S. Graves of Hurley; *Secretary and Treasurer,* H. E. McNutt of Aberdeen (reelected).

South Side Branch of the Chicago Medical Society.—The annual meeting was held June 19, when Dr. Edwin B. Tuteur was elected *President,* and Dr. F. Gurney Stubbs, *Secretary.*

Obituary Notes.—Dr. William Monroe of Monroe, Wis., the oldest practitioner of that State, died on July 6, following a paralytic stroke, at the age of 90 years. Dr. Monroe was graduated from Rush Medical College, Chicago, about 1865.

Dr. Beatrice Curran of South Hadley Falls, Mass., died suddenly at her home on July 9, at the age of 26 years. Dr. Curran was graduated from the Woman's Medical College of Philadelphia in 1904, and for a year or so practised in that city.

Dr. Samuel C. Primrose of Lawrencetown, Nova Scotia, died on July 1, after a long illness, at the age of 71 years.

Dr. Frank H. Montgomery of Chicago was drowned while sailing on Lake Michigan on July 14, aged 46 years. Dr. Montgomery was graduated from Rush Medical College in 1888, and had for some time filled the position of associate professor of disease of the skin at the same college. He was attending dermatologist to a number of hospitals, and had published the results of his work on diseases of the skin, and on syphilis and other venereal diseases.

Dr. William Elmer of Trenton, N. J., died on July 18, at Atlantic City, after a long illness, aged 68 years. He was graduated from the Medical Department of the University of Pennsylvania in 1864, and was a member of the American Medical Association, an ex-President of the New Jersey Medical Society, and Medical Director of the Mercer Hospital.

LETTERS TO A NEUROLOGIST.

To which are appended brief replies purporting to set forth concisely the nature of the ailments therein described with remarks on their appropriate treatment.

IX. From a Psychoneurotic Who is Hypochondriacal.

Rhode Island, April 16, 1908.

My dear Doctor:

Your suggestion, when I saw you at your office, that I should write a statement of my complaint, seemed quite reasonable until I began to try to put the facts on paper. Even then it seemed reasonable but also impossible. In the first place, I do not like to write, and in the second place I don't know what to put in and what to leave out. You have seen me and know that I am 21 years old, though I suppose I seem older because I have had to work since I was 14 years old and help to support my mother. This responsibility and the worry that I have had about myself have made me more mature than most young men of 21. I have a good position, and the respect of every one with whom I am associated, but if they knew me as I know myself, very likely I should forfeit them. I attribute all my troubles to masturbation, which I began when about 12 years old. After about three years I learned how injurious it was and stopped it. A few months later I began to have nocturnal emissions which were the result of my foolishness. About this time a great change came over me; I became regretful, remorseful, and self-conscious, and would often break out into a violent perspiration, particularly if I thought any one noticed me. All this was the result of the injury I had done myself. I tried to compensate for this injury by taking every kind of exercise that I was told would be beneficial, by taking cold baths, and paying great attention to what I ate, but none of them did me any good. I continued to have the same feeling and in addition a great deal of indigestion. When I was about 18 years old I was told that if I masticated my food thoroughly I would get rid of the indigestion. I began to do this, taking from an hour to an hour and a half to each meal.

Then it occurred to me that I could accomplish my purpose much better if I were to eat alone. At first I could stand it if persons were in the house, but if anyone were in the room my mouth would become so dry that I could not get the food soft enough to swallow and I would have a queer feeling of contraction in my stomach, and lose my sense of taste. My mother was then having a few lady boarders, mostly school teachers, which I persuaded her to give up because of my inability to take food if they were anywhere about.

Last February my mother went away to make a visit. She was to stay a week, so she cooked some food to do me during her absence. I got my own meals and ate them in my bedroom. During this time that no one was in the house I realized that it was unnecessary to chew my food until it became a liquid, my sense of taste returned, and I gained ten pounds in two weeks. My mother then came home, but I discovered at once that I could no longer eat while she was in the house. No matter if she was in another room I could not eat. I imagined she was listening, my mouth became dry, and this terrible constriction developed in my stomach, and it was impossible to go on

eating until she left. I persuaded her to put my meals on the table and then go out away from the house, to visit a neighbor, or to go to a store. Then I ate, but while doing so I was in constant fear that some one would come in. In order to avoid this I ate hurriedly with the result that lately I have had a great deal of indigestion. Now the neighbors are beginning to inquire why she always goes out at meal time, especially when it is raining and storming, and it is often embarrassing to give an explanation. But she must go or I starve, and I must keep up my strength. I always feel the sense of constriction of the stomach when I am in company, when I am talking, riding in the street car, etc., and especially if the person with whom I am in contact has shown more than ordinary interest in a personal or business way. I have it in the most troublesome way when I am with a girl that I know and like very well. It is hard for me to explain it in reference to this particular girl, but I must tell you that I have had lately a feeling that I would never let a woman get the better of me.

This has a queer relationship to what I consider to be the beginning of all my trouble. I have never had any inclination or desire to have certain relations with women; on the contrary, I have had a feeling of profound dislike for even the thought of it or for anything that suggests it. I do not think sexual intercourse is wrong or immoral but I do feel that if it were not for that I should not be in the condition in which I am now. Therefore I never go to a play or to a theater where they have ballet dancing, or where women play in short dresses, or where I would see anything which was likely to suggest these things to produce emission later when I am asleep.

A year ago, when the girl that I spoke about came to —— to visit, I met her and got to like her very much as a girl; I liked her just because it was she. I never thought of her in any other way than as a boy might think of an automobile. I used to go to see her often, but always after dark. She did not understand at first why I came then, but circumstances favored my calls at such time, and I was more ready to go because in the dark or with very dim light I do not break out into this awful perspiration, and I am not so terribly self-conscious and terrorized as I am at other times.

There are times when I feel perfectly well, even when I am with this girl. For instance I recall that some time ago I was calling upon her and I lay down upon a sofa; she came and sat beside me and caressed me. I felt as if a weight were lifted from me, and I said to myself, "I am perfectly well." If I should plan to repeat this I would get into such a state of excitement and distress, that I think I would go mad. In the first place I have to distinguish this girl from her sex. I am not at all sure that I make clear to you what I mean, but I have the conviction that the sex, meaning women, have had something to do with getting me into this awful condition. If they did not exist, that is, if there had not been something in me which demanded or called for their existence, then I should not be in the condition in which I am. My reasons, then, for not wanting to have anything to do with them is that I want to put this whole question of sex entirely outside my thought, and this is what I mean when I say that I have the feeling that I shall never let a woman get the better of me. But with this particular girl it seems that I don't feel that way and especially when I am with her. When I am not with her she is in the category of her sex, and the thought of her fills me, sometimes, with these extraordinary feelings which are a mixture of fright, anxiety, terror, and despair. I feel sometimes I can't withstand the sensation another minute, and if I don't get relief I'll explode, or go up in the air, or in some other manner cease to be.

I have explained to her a great many of my troubles, but of course she does not know what they come from. Once when she came out to —— I met her at the train and I told her I had to go to ——. She wanted to go with me. I thought I could not stand it, as it would be very light in the train, but finally she persuaded me to take her. The perspiration simply rolled from me all the way and I was most uncomfortable. I kept saying to myself, "If ever I get out of this I'll never get into such a mess again." Had it been dark I should have enjoyed myself. When we returned I went home, changed all my underclothes, which were so wet they dripped when wrung, and then went to her house. The light was low there and I felt all right. To-morrow she is coming up to —— to see a ball game. I am going to play. I shall suffer more than you can imagine because I know she is there. I wish she were not coming. I will have a nervous sensation for fear she will see something in my face that will make her not care for me and I shall avoid her in every possible way. Unless she approaches me it is very probable that I shall go home without speaking to her. She knows I care for her although I have not told her in so many words.

Last summer she wanted to give me a ring. I said, "No, I am not worthy of it." I felt unworthy because I had masturbated and injured myself by so doing. In the winter, however, when she asked me again to take it, and keep it as long as I loved her, I thought "I can do that conscientiously," but I did not say in so many words, "I love you." She is a brilliant girl in company, a wonderful girl, and she is very fond of me.

She has written between forty and fifty letters to me, but I have only written one to her. I cannot bring myself to write because I feel that some time the written letter might be used to my disadvantage. Sometimes, you see, I am so nervous that I can scarcely sign my name.

If I did not have so much worry about eating, that is if I could give time to anything else, I might get well, but I have fallen away terribly, particularly around my chest, although I am pretty good weight, that is I weigh 145 pounds and I am only 5 feet 5 inches high, but I am sure that my body has fallen away a great deal. It is always harder for me to eat dinner than any other meal, and particularly if I have seen a great many people all day or have been excited in any way.

I have had to give up going to church and to entertainments. Occasionally I go alone to the theater, but always I have to have an aisle seat, so that if the impulse to get up and go out comes over me I can do so. Once or twice I have been to the theater and had a seat two or three from the aisle but I perspired so all the time and was so painfully self-conscious that I did not have a moment's enjoyment. As a rule when I am in the theater or a similar place, I am able to forget myself only when the lights are turned low. Then of course I can't go anywhere for amusement like other persons. I can't go into a restaurant, I can't go on excursions, I can't go to parties, for the entertainment of all of these is mixed up with eating and with women.

I like crowds; for instance, there are few things I like better than going to a baseball game; then, with a great many people around me, no one observing me, I am without a trace of nervousness. I can talk to anyone at such times, who speaks to me casually and does not take very much interest in me, just as any normal person can.

I am convinced that I brought this all upon myself, and I know I did myself harm. If I don't get out of it I don't know what is going to happen to me. As I have told you, I am falling away around my chest, as anyone can see who will look at it, and I am sure that one can't go on living the way I do.

Another thing that troubles me is that I don't know what to do about this girl. She seems to me to be the finest thing in the world, but I am not able to conduct myself toward her as a man should. Please help me.

Yours faithfully,

New York, April 23, 1908.

Dear Sir:

The letter which you wrote to me on April 16 I have received. Despite what you say in the beginning of your letter about your inability to write, it seems to me that you have succeeded in this instance in letting me know something of yourself.

Your case is of the greater interest because it seems, even from the brief recitation that you have made of it, that your obsessions and your delusions are founded upon a sexual basis. A well known Austrian writer, Freud, to whom we are indebted for helping us to interpret such disorders as yours, has suggested that most cases of this kind are founded upon such basis.

I do not believe that the cause which you attribute for your ills, namely onanism, is the fundamental one. In fact, I am not at all convinced that it has had anything to do with your present complaint. In the first place, you must know that the majority of boys at some time in their lives do what you did, and which you are now making such a fuss about. And you must likewise know that no injury flows from it, otherwise the world would be filled with human wrecks. Why should you, a vigorous, robust, young boy, who was addicted to it a very brief time, be wrecked and the countless others go entirely free?

I have no doubt that your disorder is upon a sexual basis but it will require a careful investigation by the so-called psychoanalytic method to determine just what feature of sex disturbance is responsible for it.

It will not cure you to be told that the unnatural sexual indulgence of your boyhood is inadequate to have caused your present condition. It will not suffice you to be assured that if you will exert your will power you will overcome your most distressing symptoms. It will not avail even to convince you by logical argumentation that you must be well nourished to weigh 145 pounds when you are but 65 inches tall, and that therefore the belief that you are falling away is a delusion. In fact argument, persuasion, exhortation, assurance, contempt even (that weapon which pierces the shell of the tortoise) are of little utility in such cases until after the patient has been assisted to a psychic state similar to that which existed when the symptoms first manifested themselves. You ask how this is to be accomplished? And I say to you, I profess to do such things, and I shall be glad to try to do it with you.

Such treatment is called psychotherapy. It is a big word, and now that the public, and here and there an enthusiastic cleric have got hold of it, it is likely to have the vogue that appendicitis had a decade or so ago. It is not at all new in the art of medicine. In fact it antedates Esculapius, and a very fair brand of it was in use at the time of the Pharaohs. However, there came a time when it fell into desuetude in Boston, and so it had to be revived. The renaissance was attended with slight raising of the voice on the part of its sponsors. This is the equivalent of a lyric outburst or of a dramatic apostrophe, or even of an impassioned arraignment, in less cultured centers. Naturally advance has been made in the understanding and application of it during these past few years that have revolutionized every art save that of the poet and artist.

You may do a great deal to assist the physician who essays to cure you. You may assume, for instance, that you are in error about the cause of your symptoms. You need not furnish a cause just at present. Assume that you do not know and leave it to others whose lives are devoted to ferreting out the cause of disease to find out. You may read books whose purpose is the instruction of persons such as you in the nature of their symptoms and diseases. For this purpose I recommend a small book recently published by Lippincott, of Philadelphia, entitled "Why Worry?" from the pen of a physician in a neighboring city long known as the Athens of America, sometimes reviled as the cradle and nursery of "Antis" of every description, but universally recognized as the abiding place of the Ancient and Honorable Artillery. Its author, Dr. George L. Walton, has succeeded in putting the facts about psychoneurotics, of which you are one—if you will forgive me for calling you names—so clearly and so intelligibly that any one can grasp and understand them. More than this, he writes with such insight and sympathy, such candor and simplicity, that the reader cannot fail to appreciate that what is said is founded upon experience, knowledge, and wisdom. You will find in it, I have no doubt, much that will aid me in getting you well.

Finally, don't neglect the poets. They are a great adjuvant to medicine. You will not accuse me of disrespect for the cloth or irreverence for that which it represents symbolically when I say that if I had to choose between Emerson and the Emmanuel Church as an aid to the practice of medicine, I shouldn't hesitate a moment. I don't decry prayer while exalting poetry, for I believe with the Epistler James that the effectual fervent prayer of a righteous man availeth much. While I am speaking of poetry I suggest that you commit to memory the following stanza from Cowper and whenever you get wrestling with the idea that your troubles have flown out of youthful folly counteract it with "Truth," which says:

> "Past indiscretion is a venial crime,
> And if the youth, unmellowed yet by time,
> Bore on his branch luxuriant then and rude,
> Fruits of a blighted size, austere and crude,
> Maturer years shall happier stores produce,
> And meliorate the well-concocted juice."

Finally I want to say to you that I am sure that you will recover, and that you and she, "the brilliant girl, the wonderful girl," will live happy together forever afterward.

Yours, very sincerely,

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

SUBSCRIBERS TO CHARITIES—DR. HALL-EDWARDS—LIVINGSTONE COLLEGE—MEMORIAL TO DR. FANDON—ST. MARY'S HOSPITAL—THE BISHOP'S ADDRESS—ROYAL SOCIETY—RESEARCH DEFENSE DISCUSSION—RATS—SIR H. PITMAN.

LONDON, July 3, 1908.

On Friday afternoon, at an influential meeting at the Mansion House, it was resolved to establish an "Association of Subscribers to Charities." The objects of the new organization, as stated by Lord Rothschild in proposing the resolution, are to promote systematized cooperation between and coordination of the charities of London, with a view to the establishment of uniform principles in the administration of relief of distress in the metropolis; to promote systematic interchange of information between metropolitan charities in order to prevent overlapping and the waste of resources, and to strengthen the financial position of those charities which carry out the objects of the association. Lord Rothschild said their object was not to interfere with such funds as the King's Hospital Fund or to induce the Mansion House to depart from its traditional policy of inviting subscriptions for good works. But it was obvious that there must be overlapping in the administration of the Poor Law and the spending of money for charitable purposes. The figures supplied were almost staggering—ten millions in charities and five in Poor Law.

Lord Avebury explained some of the steps which had led to the meeting and Lord Lichfield urged the necessity of preventing overlapping. They had worked together to this end and now came forward with a comprehensive scheme. Their relations to the Charity Organization Society and to the King's Fund were entirely satisfactory. They would not be a destructive force in regard to charities, but would strengthen them and increase their efficiency.

Of course, it is chiefly as it may affect hospitals that this movement is interesting to medical men. It is well known that the Charity Organization has at times interfered in a manner that has caused offense, and its recommendations and criticisms have sometimes provoked intense opposition. But hospitals are a sort of specialty among charities, and their management always requires the assistance of medical men—a point some administrators have too often ignored. It is not, however, to be denied that there is room for pressure from without in the case of some of the competing charities as much as in that of other rival charities. Such pressure has been exercised in the past by the King's and the Sunday Funds, though by the latter not always so wisely as it might have been. The new society will, therefore, need much circumspection.

There are 17,000 or 18,000 charitable institutions of different sorts in London, and the proposal to effect a reversal of their destructive methods of isolation and separation of interests, with a view to strengthening the well-managed is one calling for clear thought. Well may the association announce that it will not concern itself with debatable social problems or questions of State aid. But enough will remain to absorb the energies of an active body. Let us hope that those who are responsible for establishing the new body will not be content to become ornamental advocates of imperfectly digested schemes or the mouthpiece of an official. Lord Lichfield estimated the cost of organization at £1,500 a year. If that is to be spent in an office, a secretary and clerk, can we anticipate much result, unless the committee or council, as they may call themselves, are ardent workers in the cause.

A minimum subscription of £1 1s. is to constitute membership, and this is to secure the representation by the association in any negotiations which the member may enter into with a charity to which he subscribes. This almost suggests leaving the work to those who are at present doing it—each in his own way.

On Sunday afternoon Dr. Hall-Edwards underwent a second operation, his right hand, except the thumb, being amputated. You will remember that in February the left forearm was removed on account of the injuries caused by his work with the Röntgen rays. In spite of the great suffering he has endured during about six years, sleep being only obtained by drugs, he has kept at work. I am told he has kept a careful record of his case and hopes to complete a work on *x*-ray therapeutics which is now far advanced. In that he will, of course, point out the errors in his pioneer efforts, and in which he hopes others may utilize the rays without danger.

Livingstone College, named after the great medical missionary and explorer, celebrated its commemoration day on Monday. The object of the institution is to give an elementary medical training to persons about to engage in missionary work. Dr. C. F. Harford, the principal, said more than 300 students had passed through the college. They are of all denominations. The primary object of the training is to safeguard the health and lives of themselves and their brethren, but they do not pretend to be medical missionaries. They could not do the work of such. Nevertheless, they learn things of immense value to them in strange lands and far from medical aid.

Sir P. Manson delivered an address on the "Importance of a Knowledge of Tropical Medicine by Missionaries, Especially in View of Recent Discoveries." He described the advance of our knowledge in many of these diseases and urged the unfairness of sending men to face avoidable risks. Martyrdom was one thing, suicide another, murder still another. To send a missionary to the tropics without the information needed for saving his life was an act he did not care to characterize. Bishop Molony, a former student of the college, and Bishop Tugwell also addressed the meeting.

An interesting ceremony took place at the Middlesex Hospital on Monday. Dr. Cayley (senior physician) unveiled a bronze medallion in the main corridor of the building in memory of Mr. F. A. Fandon, who was for twenty-eight years resident medical officer. The committee which collected the subscriptions for this memorial also presented to the board medals of gold, silver and bronze, with a portrait of Mr. Fandon, on the obverse, to be awarded yearly to three nurses. The memorial bears the words: "An able administrator, a faithful servant of the hospital, a much-loved friend."

At St. Mary's Hospital the Bishop of London distributed the prizes and told the students his work was connected with theirs, though perhaps his cooperation was not wanted. That, however, did not discourage him. He was often fighting against so-called Christian Scientists, who were excellent but misguided people. They did not appreciate the sacred character of the healing art as carried on by ordinary medical practitioners. He looked on it as God's plan that men should discover His secrets by their brains, and revelations so obtained came from God as much as the Bible. Truth could not contradict itself. He apologized to the doctors for having been ill only once in nineteen years—but then he felt that the doctor came from God as much as a parish priest. There was another link between his hearers and himself in the fact that both served the poor. It ought to be known to the generous public that some of the areas served by St. Mary's Hospital were among the poorest in London and £50,000 would be very welcome to the institution.

The Royal Society gave its second conversazione on Monday, when as many scientific exhibits and curios were shown as usual to a brilliant company. The Egyptian Survey Department attracted great attention. There were plans of predynastic burial places and photographs of crania showing various racial types at different periods. These discoveries were examined by anatomists on the spot. There was a gouty foot, said to be of the sixth century, and a number of feet and hands of which the bones had been interchanged, pointing to carelessness by the embalmers. Stereoscopic radiographs of molluscal shells were exhibited by Dr. Rodman to show that by *x*-rays they can be examined as to both horizontal and vertical appearances without destroying or damaging the specimen.

At a meeting said to have been arranged by the Research Defense Society, Professor Starling read a paper on "The Use of Animals in Experiment." He argued that man's attitude towards animals consisted in allowing them to exist or encouraging their existence in direct proportion as, by their activity or by their bodies, they aided him in the struggle for life. It was therefore difficult to object to their use for acquiring knowledge directly related to the preservation of mankind against disease and death. Cures for diphtheria and other diseases were discovered by experimentation. Pain did not exist in the laboratories of this country. Even discomfort occurred in only an insignificant minority of experiments.

Miss Hageby then spoke for the antis, declaring that ethics forbad torture and that she was not con-

vinced that vivisectors were not merely callous but were guilty of gross cruelty. That is the sort of argument one expects from the female antis. Dr. Hadwen afterwards denounced in an excited manner the moral basis of Prof. Starling's statement. He asked what right had man to inflict pain in order to escape it himself? Then he declared that all the surgical and medical knowledge we have is due to clinical observation and nothing else! This Dr. Hadwen is apt to indulge in positive assertions—some of which provoke incredulity. The other day he said he had verified 100 cases of burial alive and nearly 300 in which persons had narrowly escaped the same fate! "Prodigious!" as Dominie Sampson would have said.

If the hysterical antis are sincere and consistent in their horror of the sufferings of animals, they have lamentations in store for the fate of rats. The Society for Destroying Vermin is about to organize throughout these islands clubs for killing rats and to present prizes for the biggest bags. The society holds that the end justifies the means and cares not what method of slaughter may be adopted. The connection of rats with disease is sufficiently established, but the society is further impressed with the economic loss due to their depredations. It has been estimated that there are as many rats as human beings in the British Isles and each costs about seven shillings and six pence a year. On the island of Degat, off Denmark, a pair of young rats escaped from a cage three years ago and last year the Danish Government announced that the island was swarming with rats, but bird life was ended. The fight of humanity against rats is not a new one. The Romans struck medals to record victories over the vermin. Some of these medals have lately been found by Dr. Sambon. Denmark has voted £5,000 a year towards rat destruction, and other countries are active.

It is intended by the society above named to organize an exhibition in London to represent the plans that have been tried within historical times to meet the danger from vermin. Within the next few weeks the matter will be discussed at the Royal Society of Medicine.

Sir Henry Pitman, many years Registrar of the Royal College of Physicians, attained his 100th birthday on Wednesday, July 1. Numerous congratulatory messages reached him—among the first one from the King. Sir Henry spent the day quietly with his family. His health is good, but his eyesight is failing. Lady Pitman, considerably younger, is also in good health. They were married in 1852. Sir Henry was many years physician to St. George's Hospital and was knighted in 1883. He recollects the rejoicings in Hyde Park after the battle of Waterloo and has many other interesting reminiscences.

HEXAMETHYLENAMINE AS A SPECIFIC IN TYPHOID FEVER.

To the Editor of the Medical Record:

Sir:—Recent publications have shown that medical science is now in possession of a drug which will greatly aid the human system in its struggle against the *B. typhosus*. This drug, hexamethylenamine, U. S. Ph., was first used as a urinary antiseptic, and later was shown to be of the greatest value in urinary infections when the infecting organism was the typhoid bacillus. Because of this fact it has come into almost general use in urinary infections arising during or after typhoid fever, and following the suggestion of Richardson it is administered by many as a prophylactic against these infections. Richardson recommended its use in the latter half of the disease, and in one hospital with whose work I am familiar it was the custom to administer this drug on two days of the week during the whole course of the disease.

Some recent work done by Crowe (Johns Hopkins Hospital Bulletin, 1908, XIX., 109) has greatly extended the field of usefulness of this drug, and has, I believe, made it imperative to give hexamethylenamine in every case of typhoid fever from the beginning to its termination. By his experiments Crowe demonstrated that after administration by mouth hexamethylenamine, or its decomposition product, formaldehyde, was excreted in the bile, and excreted in an amount sufficient to sterilize completely a gall-bladder infected with the typhoid bacillus and other organisms. He has also shown that it is excreted both through the liver and through the gall-bladder. The far-reaching value of this discovery is apparent when we remember the frequency of gall-bladder infections caused by the typhoid bacillus and that the gall-bladder is probably an abiding place for this organism in every case of typhoid fever. He has further proved its excretion by the pancreas, and has demonstrated it in the cerebrospinal fluid, synovial fluid, saliva, pleural effusion, and blood.

We have here, then, a drug which is directly antagonistic to the typhoid bacillus and which, after administration by mouth, permeates every part of the body and is known to be excreted in several of the favored haunts of this organism—the meninges, the bile passages, and the kidneys. If the body could tolerate a sufficient dose, every typhoid bacillus within it might be rendered inactive by hexamethylenamine and typhoid fever aborted. In some, perhaps many, cases it may be able to do this. However, it has been definitely proven that this drug will destroy at least some of the typhoid bacilli present in the body, and if the invading force is diminished only one-eighth the tide may be turned in favor of many and their lives saved, and much suffering and death from complications and sequelæ may be prevented. As to the dosage, Crowe has shown that when 75 grains a day are given the amount in the bile is sufficient for a pronounced bactericidal action, and it should, I believe, be given almost to toleration, a careful watch being kept of the urinary system. My experience is as yet too limited for presentation, and the above is put forth merely as a suggestion.

Heberden Beale, M.D.

Fort Worth, Tex.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 9, 1908.

Obscure Fever in Infancy and Early Childhood.—J. L. Morse says that a daily rise of temperature above 99.5° F. at the age referred to is abnormal, and is a manifestation of some diseased state. Among the conditions which give rise to it he includes endocarditis, typhoid fever and malaria, starvation in the new-born, dentition, toxic absorption from tonsils and adenoids, otitis media (a most common cause), cervical and bronchial adenitis, anemia, rachitis, syphilis, intestinal toxemia, etc. Finally, he says that there is a class of cases of continued fever in infancy and early childhood in which the most careful examination fails to find any cause for the fever, in which no modification of the diet is of any avail, and in which the general condition is unaffected by the child being apparently well and gaining normally in weight. The temperature may remain normal for many weeks, or even months, in such cases, and finally cease, without any cause for it ever being discovered. In these cases the most reasonable explanation is, in the author's view, some obscure disturbance in the bodily metabolism. The history of such a case is thus portrayed: A girl of two years had a slight cold, lasting about a week. The temperature, which was first taken during the cold, did not drop when the child recovered, but continued elevated. To make a long story short, it ranged between 100° F. and 101° F. in the morning and 102° F. and 104° F. in the afternoon for eleven months, finally coming slowly down to normal and remaining there. During this time she appeared perfectly well in every way and gained steadily in weight and height. Repeated physical examinations failed to show anything abnormal. The urine was always normal, and the blood never showed any parasites or abnormalities in the number of red or white corpuscles. She is now, four years later, an exceptionally large, strong and healthy girl. Such cases justify the conclusion that if a careful study and thorough examination of the child does not reveal the cause of the fever, there is, in the vast majority of cases, nothing serious the matter, and no cause for anxiety.

New York Medical Journal, July 11, 1908.

The Treatment of Erysipelas.—D. B. Allen extols the use of carbolic acid in this disease, but claims that the strength of the applications commonly advised is far too weak to obtain satisfactory results. Proceeding on the theory that the affection is an infection of the subcutaneous tissue and lymphatics by the streptococci, he advises the painting of the area involved with the pure acid, extending the operation three-eighths of an inch beyond the line of demarcation. This is allowed to remain until it becomes white, when it is washed off with 95 per cent. alcohol. The penetrating action of the carbolic is a direct germicide to the streptococci already present, and the ring around the area serves as a strong barrier beyond which it is almost impossible for the infection to spread. This line of treatment causes an intense smart-

ing and burning which lasts but a few moments and is quickly relieved by alcohol. In some cases the burning continues for an hour or two in which a cloth saturated with alcohol is laid on the area. In case of extension into the eyelids where it is impossible to use the pure carbolic, a two per cent. carbolic acid solution in unguentum hydrargyri ammoniatum to be applied frequently is ordered. The results in a series of 12 cases thus treated have been more satisfactory. The skin heals without scarring.

The Significance of a Blood Analysis in Appendicitis.—C. C. Sichel asks, "Can we depend upon the leucocyte and distinctive polynuclear counts as a positive indication for or against operating?" He replies, "with the first leucocytosis and increase of the distinctive polynuclear percentage, operate." Histories of three cases of a series are given. All cases showing a leucocytosis and a polynuclear increase were operated on, without finding a single case in which there was a purely catarrhal condition. All interval cases or those not showing a leucocytosis, etc., which were operated on showed that no acute process was in progress. The author strongly advocates operation as indicated by blood findings in all cases of appendicitis. When leucocytosis and polynuclear increase are present, operate at once. When there is no increase in the counts watch the blood picture in repeated examinations and be guided by the findings plus the patient's general symptoms.

The Management of Chronic Endocarditis During the Stage of Compensation.—S. A. Stein emphasizes the necessity of individualizing all these cases, noting that every patient reacts differently to drugs, dosage, to different preparations of the same drug, and to different forms of mechanical stimulation. All compensation is, of course, relative. Alcohol should be dispensed with if possible, as also tobacco, tea and coffee. Superfluous adipose tissue should be gotten rid of, but great care is called for as to diet, exercise, and drugs. Hygienic care is as necessary as in tuberculosis. All emunctories must be kept as nearly normal as possible. Rest in the recumbent position and sleep are all important. In cases with insomnia, hydrotherapy is of great value as a hypnotic and cardiovascular regulator. If drugs are used, sodium and ammonium bromide are less depressing than the potassium salt, while the trional-veronal group are of great service. As nearly all cardiac stimulants act as vasoconstrictors, it is well to combine with them the iodides and nitrites. Codeia is without doubt the safest of the opium preparations when we wish to combine a stimulant and sedative. The method of choice from among all three plans must be influenced by the age, physical condition, and social status of the patient. At both extremes of age, naturally, the severer forms of exercise are excluded. Before the age of puberty there is nearly always present a strong tendency to rapid hypertrophy, and frequently as rapid a degeneration of the hypertrophied muscle, making the prognosis bad in most of these cases, so that the physical activity and restlessness should be curbed rather than added to. At the other extreme, overexertion, being less likely to occur, and activities being naturally lessened, once compensation is established, the natural hygiene of old age will be that of the accompanying endocarditis, which is, as a matter of experience, very well borne.

Journal of the American Medical Association, July 11, 1908.

Muscular Coordination by the Nervous System.—C. E. Beevor analyzes the muscular mechanism of movements, understanding by this term the single movement of one joint, and not the combination of movements as in walking. He classes the muscles, first, into the prime movers, which come into action in a definite order according to the amount of work to be performed. The will does not appear to have any power to alter this order (except, perhaps, by trained exercises); second, we have the synergic muscles, which come into play when the prime movers have an additional action that is not wanted in the particular movement to be executed. For example, the biceps is the chief supinator, but it is also a powerful flexor, and when supination without flexion is done the triceps contracts as a synergic muscle and counteracts the flexion of the elbow by the biceps. The relations between the prime movers and the synergics are very close, and apparently the brain has no power to moderate the impulse sent to the latter to make them act proportionately to the weak prime movers in case of their paresis or paralysis, hence we have in such cases movements other than those desired. Lastly, we have the fixation muscles fixing the joint when such fixation is made necessary by pressure or displacement. A certain amount of stress on the joint is required to call these into action. The antagonists to the prime mover muscles are relaxed under normal conditions, except in case of some unopposed movements which are required to be suddenly stopped, but in certain cases of functional paralysis this inhibition of the antagonists may fail, and Beevor considers their contraction as a symptom of functional as opposed to organic disease. It also occurs, however, in tetanus and from the toxic action of strychnin, which, according to Sherrington, "change the reciprocal inhibitions, normally assured by the central nervous mechanism, into excitations." Beevor considers all the physiologic evidence to be in favor of the location of the linkage of the ultimate co-ordination of movements being in the spinal cord, and that most probably this nervous mechanism is situated in the cells of the posterior cornua, where, as shown by von Monakow and Schafer, the pyramidal fibers end, instead of the anterior horns, as was formerly supposed. Whether this mechanism is the same as that used for reflex movements, he considers uncertain.

Psychiatric Prognosis.—F. X. Dercum discusses the prognosis of insanity. He recognizes the following elements in the problem: First, the clinical type; second, the presence or absence of actual quantitative mental loss; third, the systematization of delusions; fourth, the fixation of symptoms; fifth, age; sixth, sex; seventh, the presence of morphologic or somatic stigmata; eighth, the significance of heredity; ninth, the bearing of social status. He takes up these points *seriatim* in the forms commonly grouped under the name of dementia præcox, a designation which, he points out, is misleading, since confusion and not dementia dominates the clinical picture. The points on which he lays special stress as influencing the prognosis in mental disorders are: First, the presence or absence of actual dementia; second, the presence of systematization of delusions; third, the presence of fixation, and, fourth, the social status of the patient as favoring the necessary measures and conditions favoring recovery. Heredity is, of course, important, but it influences the prognosis of a given attack only in a general way; it cannot, Dercum says, give a definite clue as to either outcome or duration. Other factors of the prognosis are the bodily condition and the significance of visceral complications. In a general way, we may say that marked physical without mental improvement, and the converse, the less frequent condition in which there is mental without physical improvement, are both to be regarded as unfavorable. The marked persistence also of hypochondriacal ideas, especially those of psychic or somatic negation, are not infrequently found associated with chronic and unrecoverable conditions. Special factors, such as interruption and cessation of progress, also influence prognosis unfavorably, and an incomplete recovery renders recurrence more probable. Among favorable features may be mentioned regularity, of course, concomitant physical and mental improvement, and the realization by the patient that he has been ill. It is, of course, to be understood that attacks due to extraneous causes, as in toxic and exhaustional cases, have generally a better prognosis than those that are essentially neuropathic, and that marked degenerative stigmata may have a certain significance.

Antigonococcic Serum.—A. A. Uhle and W. H. Mackinney report results of the use of antigonococcic serum in twenty-three cases of the various types of gonorrheal infection. They find that, so far as their observations indicate, the serum has little if any curative action on the urethral condition, the improvement observed in some patients being more attributable to rest and hygienic treatment than to any specific action of the serum. None of the patients with gonorrheal prostatitis was cured; of seven with epididymitis, improvement was observed in three, but the authors are inclined to credit this as much to other measures employed, rest in bed and elevation of the scrotum, as to the serum. "If conclusions," they say, "can be drawn from this limited number of cases, it appears that neither the number of injections nor the time elapsing between injections has any influence on the results of the treatment, as in no case was there what might be termed a prompt improvement, which is to be expected from an antitoxin treatment." Possibly, they suggest, better results might have been obtained with larger doses than the 2 cc. employed. The best results were obtained in gonorrheal arthritis. Three patients were promptly relieved and all local evidences of inflammation had subsided in less than two weeks. In one of these Bier's treatment was also used. Considering the usual obstinacy of this condition, the results are encouraging; with no other treatment except opsonotherapy and Bier's method have such good results been obtained. One patient with gonorrheal myositis showed little improvement from the serum, but responded promptly when the Bier treatment was used in addition. A general urticarial eruption following the use of the serum was observed in seven patients. Besides

this and the itching it caused, and a slight pain at the site of the injection, no general or local toxic symptoms were observed.

The Eye in Multiple Sclerosis.—W. A. Holden publishes reports of cases illustrating the ophthalmoscopic and visual changes occurring in multiple sclerosis. The pathologic changes seem to affect mainly the medullary sheaths, the axis cylinders and ganglion cells remaining long intact. The visual disturbances fall chiefly into three groups: (1) Concentric contraction of the field of vision; (2) central scotoma with normal peripheral limits of the field, and (3) a combination of central scotoma and concentric contraction of the field. There may be variations of these types and the visual disorders are apt to precede the other symptoms, sometimes for years, are often of sudden onset, and if excessive, usually improve. Thus all the changes differ radically from the slow, progressive atrophy of tabes. The ophthalmoscopic appearances are, therefore, of value in the early diagnosis, especially in excluding hysteria and early paresis. Holden reports one case which he is inclined to consider multiple sclerosis from the eye symptoms alone, corroborating symptoms having as yet failed to appear, and he expresses an opinion that "a non-toxic retrobulbar neuritis, if not due to a sinusitis or directly to syphilis, diabetes, a neoplasm or trauma, is, as a rule, a manifestation of multiple sclerosis, although no other symptoms of the disease may be present." More than half the patients with multiple sclerosis who complain of failing sight have a central scotoma and the diagnosis is retrobulbar neuritis.

The Lancet, July 4, 1908.

Latent Dysentery in Central Africa.—H. S. Stannus refers to the case of a man of thirty years, admitted to hospital after a fortnight of fever, headache, malaise and loose bowels. He had taken quinine and Dover's powders with a diet of goats' milk. There were no nausea, vomiting, or cough. He had had two or three pasty stools, but without mucus or blood. He had previously had malaria. Two ring-form parasites were seen in the blood specimens. Urine was normal. He was placed on quinine, but no effect was produced on the fever. He continued to have two daily stools, watery, with little fecal matter, but neither mucus nor blood except on the second day after admission, when what appeared to be a small old blood clot was passed. No improvement was effected by twenty-grain doses of bismuth three times a day for three days. Microscopical examination of the stools proved negative as regards amœbæ. The tongue was thickly furred and the patient complained of weakness, headache, and profuse sweats in the evening. The spleen could just be felt; the liver showed no enlargement to percussion or tenderness to palpation; there were no other physical signs in the chest or abdomen. At the end of the week, during which time no other malarial parasites had been found, quinine was discontinued and it was determined to try ipecacuanha. It was given in wafer, in twenty-grain doses, on two consecutive days on an empty stomach, twenty minutes after a twenty-minim dose of tincture of opium, as recommended by Manson. The result was immediate: the temperature commenced to fall, reaching normal in four days, and thereafter not rising again; the stools became more and more formed, being normal in three days; the tongue cleaned, and the patient expressed himself as feeling much better. The convalescence was uneventful, full diet being attained by the end of a week of normal temperature.

Endemic Funiculitis.—Under this title A. Castellani describes a peculiar form of acute suppurative inflammation of the spermatic cord occurring in Ceylon. He has examined the pus in five cases and in all located a diplostreptococcus, the culture reactions of which he describes, as also the symptomatology of an attack. The condition on examination might be easily mistaken, he says, for a strangulated hernia. As a rule the disease has no tendency to spontaneous recovery. The only effective treatment is orchiotomy, cutting the inflamed cord as high up as possible. Unless this is done general sepsis sets in. The author's conclusions are thus expressed: (1) There is endemic in Ceylon, and probably in other parts of the tropics, a peculiar affection of the cord which it seems to me has sufficiently characteristic symptoms to be ranked as a separate disease. This affection might be named "endemic funiculitis." (2) A diplostreptococcus is constantly found in the pus. Further investigation is needed to decide whether this diplostreptococcus is the primary cause of the disease or, as the author is inclined to believe, is merely a secondary agent playing a rôle only in the suppurative stage of the malady.

Some Rare but Important Surgical Injuries Brought on by Violent Exercise.—P. Haglund refers to a series of cases in which diagnosis was obscure until the introduction of the *x*-ray. The most common lesion is one of the tuberosities of the tibial or "Schlatter's Disease." It is frequently seen among athletic boys who have presented a tender spot just where ligamentum patellæ is attached to the tibial tuberosity, a condition which, although it does not ordinarily necessitate absolute rest in bed, yet is capable of causing much inconvenience and pain and of preventing the sufferer from taking part in games of any kind. Every movement which puts a strain on the ligamentum patellæ gives rise to acute pain. Something has affected the attachment of the ligamentum patellæ to the tibial tuberosity. It is often impossible for the patient to tell just when he began to have trouble. Sometimes it is referable to a sudden athletic exertion, but symptoms are not necessarily so severe as to prevent the patient from continuing his exercises for some time. That the injury is productive of so little discomfort at the time depends no doubt upon the fact that the fracture of the trunk-like projection takes place without involving the perichondrium which covers it. And as cartilage just as little as bone is provided with nerves of sensation, it is easy to understand how such a lesion can occur without any pain at all. Meanwhile a serious weakness has been caused at the point of insertion of the ligamentum patellæ and each contraction of the extensors of the knee aggravates the condition. In this way an irritation is constantly operating which leads to an increase of the inflammatory symptoms. The patient becomes more and more an invalid. The lesion is, though not serious, very troublesome. It usually lasts six months, but two years may elapse before the patient gets a useful limb again. Much depends on the amount of anatomical disturbance and on how far the patient is careful not to irritate the injured cartilage. A similar lesion may also occur at the epiphyseal center of ossification of the calcaneum, just at the attachment of the tendo Achillis. There may be a separation or fracture of this center from some great strain involving the calf muscles. A third injury of this nature takes place at the tip or tubercle of the os naviculare of the foot. It sometimes happens that the ossifying center becomes fractured without any injury to the perichondrium and, therefore, without giving rise to any pain. The injury is caused by severe strain to the instep involving violent stretching of ligaments which spring from this point. Games, *e.g.*, lawn-tennis and football, are responsible for the lesion, as is also strenuous dancing. This explains why girls exhibit this particular injury more often than the two preceding ones. The condition may be compared with certain troubles caused by the presence of what has received the name of "os tibiale externum," a small adventitious bone occasionally met with at the tip of the os naviculare pedis. It may be questioned whether these ossa tibialia externa do not derive their origin from fractures of the scaphoid tubercle in early life.

Thoracostomy in Heart Disease.—A. Morison refers to a previous communication from himself in which he suggested the severing of pericardial adhesions for the relief of cor bovinum, but adds that more recently the conviction has been growing in his mind that it is less the tethering of the heart than its bulk and force of systole which are the determining factors in the situation, and what was desired was an operation to afford adequate room for the free action of the enlarged organ. Brauer of Heidelberg had already suggested that the adhesions in adhesive pericarditis should best be left alone and the incarcerated heart freed from its bony encasement. From all these considerations has come the term "thoracostomy," and reports are given of several cases operated on. In the present paper the author adds records of another case successfully treated by operation and six months' hospital residence. A shield was worn over the chest, corresponding to the area from which the ribs had been removed. The perpendicular measurement of the gap was seven centimeters. Exploratory puncture should be made through the fifth rib cartilage. If the intrapleural area is free, we are able to settle in a few minutes the diagnosis of adherent pericardium, and on that ground alone the operation is considered justifiable. If we are unable to feel the intrapleural spaces we know that there are adhesions. The presence of such costopericardial adhesions, with which in the case of enlarged heart it may be assumed that visceropericardial adhesions are associated, may indicate the removal of a portion of the sternum in addition to the ribs, as practised by Simon in two of Brauer's cases. But if the clinical phenomena can exclude such adhesion, which, it will be admitted, is often a difficult matter, and, especially in aortic cases, in which the character and direction of hypertrophy usually displace the volume of the left ventricle downwards and to the left, it will probably be found that

the best guide in most cases to the amount of thoracostomy necessary will be the area of forcible cardiac impulse, and that the removal of ribs and cartilages without interference with the sternum will fulfill every purpose. It may be unwise to give the heart too much room to act in; it is certainly quite possible to give it too little.

British Medical Journal, July 4, 1908.

Surgical Emphysema.—A. S. Woodwork was called to see a man who, in stepping from an omnibus before it had stopped, fell upon his face, giving his neck a severe jerk, and causing his nose to bleed. He walked home, and an hour and a half later, the epistaxis having ceased, partook of dinner, consisting of cutlets, vegetables, etc., and a glass of soda water. His wife then noticed that his face and neck were beginning to swell, and he also felt that his collar was tight. An examination showed extensive surgical emphysema, surrounding his neck and reaching from his eyes to the fourth rib on each side. There were two or three superficial abrasions upon the nose. No facial bones or ribs were broken, and he complained only of a slight stiffness of the neck. At the back of his palate was a clot of blood, and the removal of this disclosed a black object sticking into his nasopharynx just above the pillars of the fauces of the right side. This was detached with some difficulty, and proved to be the vulcanite mouthpiece of his pipe, measuring 2¼ inches in length. Until then the author had heard no mention of a pipe, but the patient now produced the bowl, to which the mouthpiece, with the exception of a minute portion, fitted exactly. He had had two whiskies and a soda during the day, and was not under the influence of drink. The fact that he had eaten his dinner with only the slight discomfort of a stiff neck is extraordinary. A day or two later there was a small collection of pus in the region of the injury, but this, with fomentations and a spray of glycothymoline, soon cleared up, and he made an otherwise uninterrupted recovery.

The Etiology of Rickets.—L. Findlay refers to the various current theories as to the cause of rickets and passes on to consider especially the results following in animals from deprivation of exercise. His general conclusions are as follows: (1) Not one of the many theories which have been elaborated to explain the cause of rickets has been universally accepted, and they all lack, not only from the clinical but also from the experimental aspect, unequivocal proof. (2) It is some error in feeding which, in England and America, is commonly believed to bring about the disease, but it is doubtful, however, if feeding plays any important part in the etiology of rickets. Experimentally the author, like several other observers, has been unable to cause the conditions by improper feeding. (3) By confining young dogs and depriving them of exercise, rickets has been invariably induced, as in the experiments detailed, and that although their diet was beyond suspicion, the air which they breathed pure, and their kennels were kept scrupulously clean, whereas controlled animals allowed exercise, but otherwise similarly treated, did not become affected. (4) Examination of the conditions under which rachitic children are reared reveals one constant and invariable factor in their lives, namely, confinement. Alike, then, on clinical and experimental grounds the author concludes that confinement, with consequent lack of exercise, is the main factor in causing the disease.

Causes of Peritonitis During Pregnancy.—Clinical notes of a series of cases are given by A. Cuff. They present as causative factors appendicitis, with and without perforation, the pyelonephritis of pregnancy due to the infection of the upper urinary tracts by the colon bacillus, lead colic, etc. Other causes are torsion of an ovarian pedicle, red degeneration of uterine fibroids, etc. With reference to the appendix cases the author says that in view of the extreme likelihood of the disease running a dangerous course and the rapidity with which its stages are passed through, the appendix should be removed as soon as the diagnosis can be made in any case of pregnancy. If this be done in an early stage, the risk to the patient is slight and the prospect of the pregnancy being undisturbed is good. In no case should any attempt be made to empty the uterus with a view of influencing the appendicitis.

The Mental Nerve Area and Its Relation to Grayness of Hair.—G. L. Cheath says that this area is unique in that it is the nerve area which can be completely covered with hair, and in which, at the same time, there is so little overlap from other nerves. All other nerve areas are either more overlapped by neighboring nerves or they are not completely covered with hair. Hence the mental nerve area is the most interesting and instructive nerve area in the human body in which to study the incidence and spread of the hair's grayness or whiteness. The author then presents a series of photographs showing patches of grayness in the hair and beard. The points of incidence and the area of spread of grayness demonstrate to a certainty in his mind a neurotrophic cause for both. He adds that with regard to the incidence of neurotrophic diseases of the lower lip he has seen leucoderma, scleroderma, herpes zoster, etc., and he regards the blackish-yellow patches of pigmentation which appear on the skin and mucous membrane of people comparatively advanced in years as a neurotrophic lesion also. Such patches he has seen on the lower lip as well as on the temples, face, and the back of the hands. Occasionally cancer of the lip begins at the same time and at the same place as the lesions referred to, and this fact the author regards as favoring the view that the genesis of cancer is not due to the local action of an external organism, and that if it is due to the action of an organism it cannot be the sole cause.

Berliner klinische Wochenschrift, June 29, 1908.

Preparation of Diphtheria Antitoxin.—Blumenthal says that three factors are present in the preparation of antitoxins: the toxin, the technique, and the animal. The latter is not in our power to modify and the first two factors are to be so regulated as to nullify as much as possible the varying peculiarities of the third factor. It has been decided that the use of pure toxin is best in the production of antitoxin, the various chemical and physical methods of changing it before injection into the animal having been proved useless. Two elements are present in the technique of injections: the quantity of the toxin used and the site of injection. The conservative method consists in the use of progressively increasing doses of toxin, beginning with very small quantities and rising very gradually to the higher values. Such method gives most play to the individual peculiarities of the animal and is to be condemned. The heroic method consists in preparing the animal in a short time by small injections and then rapidly increasing the dosage to high figures. This has given best results in Blumenthal's hands. As to the site of the injections, the intravenous route has proved to be least adapted for the purpose; the subcutaneous and the intramuscular injections are most widely used and give good results. Still better results were obtained by the author with intrapulmonary injections of the toxin, by way of the intercostal spaces, the lung tissue being rich in makrophages (Mechnikoff), that have the power of absorbing toxins and producing antitoxins. Larger doses could be used by this method; the resulting antitoxins were more uniform in strength, thus showing that the varying factor, the individual peculiarity of the horse, was lessened, and the antitoxic value of the product was very high. The animals bore this method of injection better than other methods, the reactions being very slight and the loss of weight not large. The author gives two instances of such production of antitoxin, and says that his method is not at all comparable to intratracheal injections. In the latter the toxins are rapidly absorbed by the lymph vessels and transferred to the blood. Its value therefore is little more than that of the intravenous method.

Münchener medizinische Wochenschrift, June 30, 1908.

The Ophthalmoreaction.—Fehsenfeld has tried the Calmette test in 168 patients, twenty-five of whom came to autopsy. The findings agreed with the results of the test in 60 per cent. of the cases; in nine patients the results of the test did not agree with the condition as found post mortem. The ophthalmoreaction, accordingly, can only be looked upon as one corroborative sign of tuberculosis, but in no wise a deciding one. In the same number of the weekly, Hörrmann reports the results of his tests in cases of tuberculosis of the genitourinary system and warns against too early an enthusiasm in reference to the test. Goerlich reports cases of serious damage to the eyes caused by the application of the test, and concludes that the reaction should never be tried in the presence of any disease of the eyes, however light in character. Nursing infants and "scrofulous" children should also be exempted, while great care is necessary in the presence of inflammatory disease of the pharynx. He also warns against the use of the test in hypochondriac and hysterical subjects, in whom the positive result, which they can so easily observe and may know how to interpret, may have serious psychic effect. In conclusion, Goerlich says that, in general, the test cannot be recommended to the practical physician.

Suture of the Lung After Gunshot Injury.—Schütte says that conservative treatment in cases of severe

hemorrhage from the lungs due to trauma has had 40 per cent. mortality. Of the twelve cases treated by operation only three died. He reports a personal case of attempted suicide in which, in addition to two wounds of the head and brain, there was a bullet wound of the left chest, with very severe pulmonary hemorrhage. Immediate operation was performed, the lung being sutured with catgut, which stopped the bleeding immediately, though in the short time of its duration there escaped 1 1-2 to 1 3-4 liters of blood into the pleural cavity. Several hours later counter-incisions into the same pleural cavity were made and the skull and brain injury treated in the usual manner. Convalescence was slow, but at the end of six weeks the patient recovered; the injured lung seemed to have expanded completely. Schütte thinks that in such apparently hopeless cases of pulmonary hemorrhage due to trauma operation is indicated in preference to conservative treatment; paracentesis and aspiration alone cannot insure from a new hemorrhage or the continuation of the primary one.

V. Pirquet's Test in Nursing Infants.—Morgenroth has tried the v. Pirquet test in 200 nursing children brought for treatment to a clinic. Ten of them, that is 5 per cent., gave a positive reaction; eight came to autopsy and showed tubercular disease; in two others the diagnosis was assured clinically, though the autopsy was not allowed. No doubtful reactions were observed. The test was performed with the old tuberculin, proved to be free of all danger, and was not followed by any unpleasant consequences. It should be used, according to the author, in every case in which the history of exposure to tuberculosis of a nursing child brought for treatment is obtained. It ought to replace completely the subcutaneous test at this age.

Deütsche medizinische Wochenschrift, June 25, 1908.

Resection of Joints.—Müller says that formerly the technique of joint resections was eagerly discussed, but now simple asepsis answers all demands in this respect, and the questions under consideration involve indications for the operation. The following are the indications for partial or complete operation: Joint tuberculosis; total or partial ankylosis of the joint, including the forms due to fractures or dislocations; acute suppurative destruction of the joint with necrosis of bone; orthopedic conditions, including flail joints; some forms of acute osteomyelitis involving the ends of bones; cases of arthritis deformans, "chronic rheumatism" and the destructive forms of gonorrheal arthritis; primary resections following injury; tumors of the bones in case of very early diagnosis and comparative benign character of the new growth. The end always to be kept in view is the attainment of a movable joint and the means employed should consist in conservative operations, the smallest possible interference with the muscle apparatus, asepsis, and careful after-treatment. In the author's opinion complete suture of the wound is preferable to drainage in all aseptic cases including closed tuberculous abscesses. The risk taken is worth while, for the frequent primary union that takes place leads quickest to the attainment of a serviceable joint. A special point in technique is the use of instruments, not fingers, for all manipulations; operators using gloves need not change the technique in this respect.

Chronic Conjunctivitis.—Elsching says that the following causes are usually named in the etiology of chronic conjunctivitis: infection with specific microorganisms, the effect of toxins generated elsewhere in the body, eczema and seborrhea of the lids, inflammation of the lachrymal sac, affections of the nose and of the accessory cavities, various mechanical and chemical injuries, and the effect of bad light. The other well-defined forms of conjunctivitis are usually left out. One of them is usually confined to the conjunctiva of the lids and is caused by the inflammation of the Meibomian glands, out of which a great deal of purulent material may be obtained by pressure. The regular and frequent emptying of the glands by such pressure and light massage is the only procedure that offers a cure of the coexistent conjunctivitis, which is very chronic in character and proves quite obstinate under the usual methods of treatment. The second form of conjunctivitis is caused by the absolute or the relative insufficiency of the eyelids, which leave a portion of the eyeballs exposed in sleep. This condition is often responsible for a dry and thickened state of the conjunctiva, which is very apt to become inflamed on the least provocation. The use of a protective ointment or the application of a light bandage over the eyes at night hastens the recovery from the affection. In both forms of conjunctivitis described above compresses and various instillations are of little use; only the etiological therapy is successful.

Treatment of Puerperal Septicemia.—Otto v. Herff comes to the following conclusions at the end of an exhaustive article on the above subject: At the present time we are unable to destroy directly or indirectly the microorganisms that have entered the body in cases of "puerperal fever." The only internal medical treatment consists of general dietetic and hygienic measures. In the face of this condition of affairs the operative treatment ought to be more frequently resorted to, and such procedures as the ligation of the pelvic veins in order to prevent the spread of the bacteremia should be tried. Operative treatment is likewise indicated in cases of spreading peritonitis. The best procedure is the removal of the uterus if it is done early enough; the operation of choice consists in the supravaginal amputation of the uterus with thorough cauterization of the stump. Out of sixteen patients operated upon by this method eight recovered, the deaths occurring in late cases or where the complete operation advised by the author was refused.

French and Italian Journals.

A Case of Cerebral Traumatism.—Colucci describes the case of a peasant who received a blow on the head with a spade, causing a fracture of the right superior parietal region, with depression of the fragments. The injury resulted in insomnia, faintness, and attacks of Jacksonian epilepsy. The disturbances of cutaneous sensibility were remarkable. There was tactile hypoesthesia and lessened pain sense over one-half of the trunk, of the head and arm of the same side. There was a syndrome of cerebral localization that is unmistakable, the lesions of sensation remaining constant and proportional to the other disturbances. The Jacksonian epilepsy showed that the condition was not hysterical. The hypoesthesia increased and extended to the limbs in which the epileptic movements were found. This case is unique in literature. The author took the radial pulse and the cerebral pulse at the same time. He found that at the time of the Jacksonian attacks and before and after them there was a vasoparesis and probably cerebral congestion. In the radial pulse there was vasoconstriction.—*La Riforma Medica,* May 4, 1908.

Observations and Experiments on Serodiagnosis of Syphilis.—F. Micheli and L. Borelli have experimented on serodiagnosis of syphilis by means of an alcoholic extract of various body substances; the reaction has given 88 per cent. of positive results in florid syphilis of all conditions and degrees; in primary syphilis 83.3 per cent.; in secondary syphilis 96 per cent; in tertiary syphilis 77 per cent., and in tabes and paresis 79 per cent. In latent syphilis, recent or late, the reaction was positive in only 45 per cent. of cases. The results demonstrate that whatever be the nature of the reactive substance in luetic serum they are in direct relation to the quantity and activity of the syphilitic virus. The reaction is founded upon the disappearance of the complements which follows the mixture of an extract of luetic organs with the serum of a syphilitic. The alcoholic extract is to be preferred to a watery one because of its permanency. The examinations were made on 200 individuals, of whom 120 were certainly syphilitic or were suspected of it, and the rest were convalescents or affected by various forms of disease nonsyphilitic. These cases are tabulated. Negative results with the serum reaction do not exclude syphilis absolutely. Under energetic specific treatment the reaction may be seen to disappear in from thirty to forty days. Hence specific treatment seems to be effective in removing the conditions which render it positive.—*Rivista Critica di Clinica Medica,* May 9 and 16, 1908.

A Family Epidemic of Rubeola.—P. Aubert describes an epidemic of rubeola which was propagated in a single family to ten of its members, residing at a distance from one another, the beginning of the epidemic being involved in mystery. It attacked five persons who were in contact with the initial case; three remained in the country and two went to the city of Lyons. These two cases carried the contagion to five other persons. Of the ten patients four were adults and they had the disease more severely than the children. The affection was slight, accompanied by a low fever, and a slight sore throat. The glands of the neck were swollen. The eruption was diffuse, of a rose color, and appeared in red points that were separated by clear areas of skin, but not in crescents like measles. The eruption is difficult to differentiate from that of measles, but there is no cough or running of the nose; the prodromal period was from fifteen to twenty days. The chief differential signs from measles are the short prodromal period, absence of nasal and ocular catarrh, and the less intensity of the fever. This disease is somewhat rare in France.—*Lyon Médical,* May 10, 1908.

Book Reviews.

Religion and Medicine. The Moral Control of Nervous Disorders. By Elwood Worcester, D.D., Ph.D., Samuel McComb, M.A., D.D., Emmanuel Church, Boston, and Isador H. Coriat, M.D. New York: Moffat, Yard & Company, 1908.

Much has been said and written of the Emmanuel movement, of the attempt of the clergymen of that church in Boston to cure functional nervous diseases by means of suggestion, and several imitators or followers of these Episcopal clergymen have already arisen among ministers of their own and other sects in other cities. Some of these followers have grasped the meaning and aim of the movement and are imitating the methods of the Boston clergymen and observing the limitations which they have set to their therapeutic endeavors; others, unfortunately, seem to see in it only a modified Christian Science or faith cure, and are throwing out their drag-net to bring in the halt, the maim, and the blind, and those possessed of demons, professing to make the maim to walk and the blind to see, and casting out devils in the name of the Lord. This is the great danger and the evil of a movement such as the one initiated by Dr. Worcester. Laymen, in medicine and in religion, are often more logical according to their lights than the professed; but their lights are less, and they fail to see the limitations to reason which faith imposes in the one case and the limitations to healing which science imposes in the other. In medicine they reason, with apparent logicality, that if constipation and insomnia and the drink habit can be cured by suggestion, equally ileus and insanity and other organic diseases should be amenable to mental treatment. For such as these, therefore, an authoritative description of the Emmanuel movement will be of service, and the book will be welcomed also by physicians who have been doubtful of the motives of its originators and have suspected them of encroaching upon the functions of the medical man. We are not sure that a perusal of the book will entirely disabuse their minds of this suspicion, but it will at least convince them of the sincerity of the writers. Dr. Worcester states that the work from the beginning has been done in association with physicians, and that everything that has been done has been with their cooperation and advice. The basis of the work is suggestion and a training in the practice of autosuggestion, and as yet only those patients are treated who are pronounced by the medical associates in the work to be suffering from purely functional diseases. The cures are attributed to Divine action, but to the objection that God's power is not limited and that if He can cure functional nervous diseases He can equally cure organic affections, the very sane reply is made that God has power to cure all diseases, but He does not cure all disease in the same way. The authors of the movement therefore content themselves with invoking His aid in only one class of diseases, and leave the management of disorders having a material basis to those whose knowledge and training qualify them for the application of physical remedies.

The chapters on Prayer and on the Healing Wonders of Christ are interesting in a popular theological sense. Prayer, in the view of the writer, a clergyman of the Episcopal Church, is in the nature of suggestion, working upon the Divine mind in such a way as to direct it more powerfully and more constantly to the object prayed for. Concerning the miracles of Christ, we are led to believe that they were effected through suggestion, and that the diseases cured were nervous and not organic affections at all. Christ Himself, however, it is implied, did not know they were purely functional nervous diseases, and so was deceived in regarding Himself as possessed of greater healing powers than He had or at least than He exercised. This is surely not Episcopal teaching, but it is interesting.

To return to the medical aspect of the book, however much we may disapprove of the Emmanuel movement we can but welcome its apologia as presented in this volume. We believe it would be better for medicine and better for theology if the practitioners of each confined themselves each to his own field of usefulness. Nevertheless it is good for medicine to get a jolt occasionally by witnessing cures obtained in an entirely unauthorized way. The bone-setters, the Christian Scientists, the hydropaths, the osteopaths, the nature healers have all taught us that man does not get well by drugs alone, and a repetition of this lesson given by the sincere, modest, and sane authors of the Emmanuel movement will be good for us. "Religion and Medicine" should be read and studied by every medical practitioner. He will be interested and he will be instructed, and if he takes its lessons to heart he not only will have increased his therapeutic horizon, but will have got a hint regarding his own improvement—mental, moral, and physical.

Borderland Studies. Miscellaneous Addresses and Essays Pertaining to Medicine and the Medical Profession, and Their Relation to General Science and Thought. Volume II. By George M. Gould, M.D., formerly Editor of the *Medical News*, the *Philadelphia Medical Journal*, *American Medicine;* Author of a Series of Medical Dictionaries, "Biographic Clinics," "Concerning Lafcadio Hearn," "Righthandedness," etc. Philadelphia: P. Blakiston's Son & Co., 1908.

This is a collection of essays on various subjects, medical and sociological, most of which have been published in medical and other journals and are now brought together in permanent form for convenience of reference and study. One of the most interesting chapters is that entitled "The History of the House," in which the erudite author traces the development of our present form of dwelling from the rude shelter for cattle and the bent sappling tent from which man got his idea of a convenient habitation for himself, and several of the features of which are to be traced in the architecture of to-day. In "The Seven Deadly Sins of Civilization" Dr. Gould treats of the consumption of tobacco, alcohol, sugar, tea and coffee, venereal diseases, the modern house, and eyestrain, which he contends act much more injuriously upon all classs of the population than they did in ancient times and to the effects of which he attributes many of the diseases of modern man. Among the other topics entertainingly discussed are "Child Fetiches," "King Arthur's Medicine," "History and Psychology in Words," and "Vocation or Avocation," all of which in varying degree command the attention of the reader, whether or not he agrees in all particulars with the author's statements and conclusions. The book is one that will well repay reading in one's leisure moments, and will provide food for thought without taxing the brain with too serious problems.

Concerning Lafcadio Hearn. By George M. Gould, M.D., with a Bibliography by Laura Stedman. Philadelphia: George W. Jacobs & Company, 1908.

In this book Dr. Gould has brought to bear upon the baffling personality of its subjects a quite unique equipment for the purposes of elucidation. In the first place he had a close personal acquaintance with Lafcadio Hearn, gained in the months when they lived together in the relation of guest and host, and to have a man under one's rooftree is surely the only royal road to knowledge of him. In the next place Dr. Gould brings to his task a native gift of psychological insight, and that the psychology of Lafcadio Hearn presented a hard nut to crack is proven by the storm of conflicting claims for him and statements about him since his death, from friends and enemies alike. Last, but not least, the great value of this book to the medical profession is its close analytical exposition of the connection between Hearn's physical disabilities and his genius as a writer. Dr. Gould has given the world five volumes of his carefully reasoned out Biographic Clinics, he has drawn the web of his close and seemingly incontrovertible argument around so many of the mentally great, around musicians, writers, poets, men and women who have achieved much, and whose names will never be forgotten, and yet who accomplished their lifework under one bitter handicap common to them all—the handicap of eyestrain. In "Concerning Lafcadio Hearn" he has written one chapter, "The Poet of Myopia," which must surely be of interest even to those unprepared to grant its entire claim. "Intellect," says Dr. Gould, "is largely, almost entirely, the product of vision—especially the esthetic part of intellect." Is it? one wonders, and wondering, one reads on, only to become helplessly beguiled by the spell of Dr. Gould's single-hearted faith in his theory and by his wonderful style. The book is intensely interesting, and the chapter on "Appreciation and Epitomes" and the Bibliography are of enormous value to anyone desiring to know Hearn the writer, and to study the development of his wonderful literary genius which triumphed so signally over the fearful obstacle of almost complete blindness.

An Aid to Materia Medica. By Robert H. M. Dawbarn, M.D., Professor of Surgery and Surgical Anatomy, New York Polyclinic Medical School. Tenth Edition, Revised and Enlarged by Eden V. Delphey, M.D. New York: The Macmillan Company, 1908.

The aim of this little work is said to be the presentation, in brief space and tabular form, of all the drugs and preparations recognized by the present Pharmacopœia, with their doses expressed in both apothecaries' and metric systems; also the exact composition and strength of all preparations. Synonyms, pronunciation, and, in the case of drugs of vegetable origin, the derivation and habitat are given. The description of a number of the more commonly used nonofficial preparations is also given. As a work for ready reference and for refreshing one's knowledge of materia medica we can recommend this book.

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held March 16, 1908.

The President, Dr. Robert T. Morris, in the Chair.

Report of the Committee on the Death of Dr. F. Ferguson.—Dr. Hubert Arrowsmith, chairman.

A Case of Fracture of the Ischium from Indirect Violence.—Dr. A. W. Jagger of Flushing, L. I., showed this case, together with *x*-ray pictures. The patient was a man of fifty, who in the summer of 1907 had a fall which gave rise to a good deal of pain in the gluteal region, and which incapacitated him for three days. After that he was apparently as well as ever. In January, 1908, while walking on the street, he stumbled, and, despite a violent effort to regain his balance, he fell prone at full length. Upon rising, he experienced a sharp pain in the upper and inner aspect of the left thigh and gluteal region, which compelled him, when he reached his destination, to sit on the edge of a chair. When Dr. Jagger saw him on the following morning, the thigh was partially flexed and very painful. Upon grasping the muscles on the inner aspect of the upper thigh, and making pressure over the insertion of the adductor magnus, distinct crepitus was obtained, and an *x*-ray picture confirmed the diagnosis of fracture of the ischium. The patient remained in bed for two weeks, and made a good recovery without further treatment.

The Relations of Tabes and Paresis.—Dr. J. Ramsay Hunt presented this paper, which was the first of a series on progressive locomotor ataxia. The writer stated that in the whole chapter of locomotor ataxia there was no question of greater importance than the relation which this affection bore to the general paralysis of the insane. The importance of this relation was not merely a clinical one, but had a much deeper significance as touching upon the underlying nature and etiology of the two diseases. As was well known, tabes dorsalis was a disease characterized by degenerative changes in the posterior roots and posterior columns of the spinal cord. The essential etiological factor in the production of this degeneration of nerve structure was antecedent syphilis, a history of which was present, as variously estimated, in from sixty to ninety per cent. of the cases. This was not syphilis in the ordinary acceptation of the term, but was presumably a toxic state following in its wake—the so-called parasyphilis, or metasyphilis. Paresis, on the other hand, was a degenerative affection of the cerebral cortex; of the association and projection neurons of the brain. It bore the same etiological relation to antecedent syphilis as did tabes, a specific history being present, according to Mendel, in seventy-five per cent. of the cases. This relation to syphilis constituted an important bond of union between the two affections. So close had this relation appeared to Moebius that he termed paresis the tabes of the brain, and no less an authority than Fournier had said of tabes that it was not an affection of the spinal cord alone, but one of the cerebrospinal axis. The clinical course of events in the development of tabes and paresis might be as follows: Symptoms of locomotor ataxia might appear first, the affection running its usual course, and the symptoms of paresis supervening. Such paretic symptoms might develop within a few months, or might not appear until after the lapse of many years. In rare instances as long a period as twenty years had elapsed between the onset of the tabes and the first symptoms of dementia paralytica. On the other hand, the case might begin as one of paresis, the tabetic symptoms developing subsequently. In not a few of the cases paresis and tabes began simultaneously, and ran their course together. Taboparesis occurred so frequently that the combination could not be regarded as an accidental one, or as a mere coincidence. Nageotte found that two-thirds of his cases of paresis presented signs of locomotor ataxia; Shaffer found the same complication in three-fourths of his cases. Binswanger, who was somewhat stricter in his interpretation of what constituted a tabes with paresis, recorded the complication in one-fifth of his cases. These statistics were not based upon tabetics who developed paresis, but referred to cases of paresis in which symptoms of locomotor ataxia were present. The proportion of cases of tabetics developing paresis was certainly very much smaller. In the Nervous Clinic of the Cornell University Medical College, during the past six years, there had been treated 164 cases of locomotor ataxia; of this number only sixteen presented the mental or somatic symptoms of general paresis. The pathology of taboparesis had been the subject of much investigation and considerable controversy. After reviewing this at some length, the author concluded with the statement that tabes, paresis, and taboparesis did not differ essentially in etiology, nature, or pathology, and that all possible transitions and combinations of the spinal cord and cortical localization were found clinically.

Laryngeal Involvement in Tabes.—Dr. Wolff Freudenthal, in this paper, said that for the past three years he had been examining the throats of all the cases of locomotor ataxia at the Montefiore Home and elsewhere, and as the result of his experience he had come to the conclusion that laryngeal disturbances were much more frequent in tabes than had been heretofore believed.

The Bladder in Tabes.—Dr. J. Bentley Squier, Jr., said that the importance of a thorough appreciation of the rôle which motor or sensory irregularities of the urinary vesical function played in the diagnosis, course, and termination of posterior spinal sclerosis could not be overestimated. A certain percentage of tabetic patients had their attention directed to disturbances in their urinary function as the primary discomfort. The percentage was not particularly large, but the number was sufficient to emphasize the fact that the possibility of tabes should be kept in mind in diagnosticating any case of unusual functional disturbance of the bladder. If in 80 per cent. (Starr) of tabetic patients bladder symptoms were present, and in 30 per cent. (Erb) of these they formed the initial symptoms, the value of this statement was manifest. It was not uncommon for the genitourinary surgeon to have a case of tabes brought to him for diagnosis or treatment where, from the symptoms only an organic bladder or prostatic lesion had been suspected. The differential diagnosis being often difficult, such an error was easily explained. Even though the patient had tabes, he might also have a local lesion which was in part or wholly responsible for the bladder symptoms. *Vice versa*, if the cord lesion was present, but unrecognized, one might inadvertently propose some radical surgical measure for the relief of the urinary symptoms, presumably due to local causes, but which were in reality due to a central lesion, thus leaving the patient in a more distressing condition than he would have been if no operation had been performed. Bladder symptoms in tabes, when present, usually presented themselves as (*a*) varying degrees of retention of urine, or (*b*) varying degrees of incontinence of urine, in accordance with the degree of interference in the reception of sensation to the mucous membrane, or of the muscle of the bladder. The vesical symptoms might be so slight as to escape the patient's notice, or he might have some hesitancy in commencing micturition. When the desire to urinate occurred, he might be unable to control it, and a few drops might escape before he could reach the toilet. In laughing, coughing, or during sleep there might be slight incontinence, or he might have absolute incontinence or absolute retention. Any of these symptoms might be wholly due to the central lesion. On the

other hand, if infection of the urinary tract took place from septic instrumentation or autoinoculation, all the other symptoms of cystitis, prostatitis, vesical calculus, and pyelitis might be added. Having eliminated all other pathological conditions which might be present in a tabetic bladder or adnexa, the question of treatment resolved itself into a two-fold proposition: First and most vital, to keep the viscus in an absolutely sterile condition. Second, to reestablish, by motor reeducation, its lost function. The first proposition was a surgical probability; the second, an experimental possibility. The patient should be taught the value of making efforts of urination at stated times and always to try to evacuate the bladder to the last drop. Sometimes instillations of silver nitrate solution could be used in the prostatic urethra with beneficial results. If it became necessary to put the patient on catheter life, no detail in his instruction in sterile catheterization should be overlooked, as upon that might depend the extent of his lease of life.

Present Methods of Treatment of Locomotor Ataxia.—Dr. S. Wachsmann discussed this phase of the subject. He said that, starting from the overwhelming frequency of clearly syphilitic cases of tabes, we had been in the habit of repeating an antisyphilitic course of treatment, and even in those cases without a decided syphilitic history, we usually gave the patient what we called "the benefit of the doubt," but we would be obliged to admit that the "benefit" was mostly imaginary, and, so far as the speaker's experience in the Montefiore Home went, he was not prepared to state with any degree of accuracy that mercury or atoxyl had ever stayed the process or produced an appreciable improvement in the patient's condition. Besides the antisyphilitic cure, there were very few means of attacking the process, and those were mostly of a nature that tended to tone up or strengthen the constitution, and in that way enable the system to stave off the progress of the disease. The methods the speaker had in mind were the hydriatic and the electric treatment. Of all the electric applications, it seemed to him that sparks of the static machine were followed by the best results, and he thought there was no doubt that both the hydriatic and the electric treatment had repeatedly given at least temporary relief and the process became stationary for a considerable number of years. Massage was contraindicated in all cases of locomotor ataxia, and when given by the strenuous advocates of that art it had produced tears in the muscles and other accidents. The trophic lesions were either ulcers or changes in the joints, and they required either surgical or orthopedic treatment. For the shooting pains the coal tar products, antiyprin and acetanilid, in combination with caffein, seemed to be the most efficacious. For the girdle pains, the sensation of bands or the vise-like pains and the various neuralgias as well as intercostal pains, the salicylates were apparently most satisfactory. Heat and cold usually had the best effect when used in the form of hydriatic applications; some patients were more relieved by hot water; others by cold. The gastric crises were treated with the best success by giving repeated doses of cerium oxalate, two or three grains, with external applications of heat, and, if possible, by lavage. For the explosive diarrhea occurring in the course of the intestinal crises, opium in the shape of suppositories gave the best results, but the liberal use of opiates should be avoided in a chronic disease of this nature. The very troublesome urinary incontinence the speaker had seen improved in one or two instances by lumbar puncture. The eye symptoms, muscular palsies, and optic atrophy, were usually treated by strychnine and large doses of iodides. The ataxia or incoordination could not be treated by drugs, but was beneficially influenced by total abstinence from tobacco and alcohol. The actual treatment of this symptom was a systematic development of what was left of the deep muscular and articular sensibility. Efforts in that direction had been made by various authors, but the best results had been obtained by an elaborate and very ingenious system of reeducation which had become known under the name of its originator as the Frenkel (Heiden) method.

Dr. Edward A. Fruchthandler showed two patients from the Montefiore Home who were suffering from advanced tabes, and whose ataxic symptoms had markedly improved under the Frenkel method of teaching.

Dr. A. D. Rockwell said that the Frenkel method of treating the ataxic symptoms of tabes was undoubtedly the brightest spot in the therapeutics of that affection; aside from that, the results of other methods of treatment could not be regarded with any degree of enthusiasm. In speaking of the causation of the disease, Dr. Rockwell said it must be conceded that the chief causative factor was syphilis, and in an analysis of a large number of cases made by him more than twenty years ago he had found that between 80 and 90 per cent. of the patients gave a syphilitic history, and since that time he had scarcely seen a case in which such a history was not obtainable. In fact, he felt almost like agreeing with Gowers and others that syphilis was the invariable cause of tabes, and yet he did not care to go quite so far, for he had seen cases in women in whom it was practically impossible to associate the disease with syphilis. However, if we could subject all our syphilitic patients to a thorough and early course of antisyphilitic treatment by modern methods, we would doubtless see much less locomotor ataxia. While we were unable to do much in the way of curing these patients, or even retarding the progress of the disease, we could in many cases relieve their symptoms. The use of the static spark, to which one of the speakers had referred, Dr. Rockwell regarded as utterly useless in the way of retarding or greatly benefiting the disease, or even for the relief of pain. The two physical methods that he had found particularly beneficial in these cases were the use of the galvanic current, and the application of light and heat, especially the latter. By this he referred to the use of the incandescent or arc light, which apparently exerted a distinct influence on the circulatory apparatus. Some patients received more benefit from the galvanic current; others from the effect of the arc light. Suspension was another method which in some cases he had found distinctly beneficial. Some years ago, the speaker said, he was induced to try ultraviolet rays in a few cases of long-standing locomotor ataxia, but with absolutely no benefit.

Dr. W. B. Pritchard said that, while it was difficult to completely cover in one evening's discussion a subject which was so protean in its aspect as locomotor ataxia, he was inclined to agree with the exceedingly conservative, and, at the same time, very complete presentation made by Dr. Hunt, whose paper embraced an accurate epitome of the consensus of views that prevailed among neurologists and syphilologists to-day. In medical literature to-day the question was frequently raised whether paresis was ever a curable disease. Whether it was curable or not, there was no doubt of the fact that the clinical picture of paresis was changing; that the duration of the disease was in many instances longer, and that the grandiose ideas with which it was formerly invariably associated were often wanting. If these changes were occurring in the clinical story of paresis, why could not the same be true of tabes? If we occasionally met with bizarre and aberrant types of paresis, the same was true with much greater frequency of its first cousin, tabes. Dr. Pritchard said he was absolutely sure that he had seen cases of tabes dorsalis in which the theory of syphilis, as an etiological factor, was untenable, and he strongly wished to dissent from the assertion which had been made that if the story of syphilis had never been written, that of tabes dorsalis would never have been read. In reference to Dr. Freuden-

thal's paper, the speaker said that, in his experience, laryngeal crisis was an exceedingly rare occurrence in tabes, and he could recall only three cases in which distinct laryngeal crises had occurred. Perhaps a more systematic and thorough examination of the throat in these cases would result in finding a larger proportion in which such a complication occurred. In the general treatment of tabes dorsalis, he wished to emphasize the importance of the personal equation; the same remedy did not apply to all cases. The Frenkel method, while a monumental piece of constructive work, especially in its careful attention to details, was too elaborate and scientific to be followed in routine practice.

Dr. H. G. Piffard said the static spark, while it sometimes relieved pain, might in itself give rise to considerable pain. The speaker said that in the *New York Medical Journal* for June 16, 1906, he had reported two cases of locomotor ataxia treated by high frequency currents, and described in detail their methods of application. The first case was that of a man fifty-three years old, in whom the disease had advanced to such a degree that he had been obliged to give up business, both on account of his ataxia and mental failure. When treatment was begun, he was unable to walk unassisted, and he was brought from his home in a cab, although he lived but two blocks away. At the end of two months' treatment with the high frequency currents, his pains were markedly ameliorated, he could walk to and from his house with the assistance of one cane, and was able to close up his business affairs. He subsequently went to Europe, where he was advised to go to Switzerland and consult Frenkel. Besides the electricity, he took thirty grains of sodium iodide daily for a short time. The second case was in a man about forty years old, whose ataxic gait was scarcely noticeable, excepting to himself. The tendon reflex was absent; no Argyll-Robertson; there was marked hypotonia of the muscles of the lower limbs, and Babinski reflex; occasional but not very severe pains. He received three treatments a week for two months, at the end of which time the ataxic gait had greatly improved, the pains had for some time been absent, his general health was much better, and he was able to give better attention to his business. The treatment was by autocondensation. In this case, iodide was not well borne, and had to be discontinued after two weeks. Dr. Piffard said that in view of the superficial action exerted by the ultraviolet rays, to which one of the speakers had referred, it was hardly credible that they could influence the tissues of the spinal cord, even when given with the aid of adrenalin.

Dr. William M. Leszynsky, referring to the diagnosis of locomotor ataxia, thought that any general practitioner who had ever seen a well-developed case could scarcely fail to recognize the disease thereafter. There were borderline cases, however, in which the diagnosis was not so simple, and in those instances where cures had been reported by electricity or other means after the disease had existed for years he had always been inclined to doubt the correctness of the diagnosis. The speaker referred to the futility of putting these patients through repeated courses of antisyphilitic treatment, and called attention to the fact that mercury and the iodides did not influence the antibodies in the syphilitic poison which were regarded as an etiological factor in tabes. Dr. Leszynsky said that tabetics were very susceptible to suggestion, and he emphasized the importance of that factor in the treatment. The digestive tract should also receive careful attention, especially in connection with the tabetic pains. The Frenkel method of treating the ataxia was excellent, but could not always be satisfactorily carried out excepting in institutions.

Dr. Fruchthandler said he had treated several patients alone with excellent results. All that was necessary was a large room and a good working knowledge of the method.

Dr. Hunt, in closing, emphasized the occurrence of syphilitic pseudotabes and pseudoparesis forms, which very closely resemble the true tabes and true paresis; so closely, in fact, that sometimes an absolute diagnosis could only be made by observing the effects of antisyphilitic treatment. This fact may explain the cases of tabes that respond to antisyphilitic treatment. We must recognize parasyphilis, and the more active form of syphilis of the central nervous system; the latter would respond to antisyphilitic treatment, whereas parasyphilis would not. The speaker said he was quite in accord with Dr. Pritchard that there were cases of tabes in which no history and no symptoms of an antecedent syphilis could be obtained, yet we could never be absolutely certain on that point, in view of the often insignificant nature of the primary lesion and the latter signs, and the nature of the disease itself, which naturally made many persons very secretive regarding it.

Dr. Wachmann, in closing, said that many tabetic patients in the course of time became more or less neurasthenic, and were perhaps inclined to exaggerate their pain. In those cases, especially, the shocks from the static machine had proved very serviceable. While the galvanic current was usually given preference in the treatment of locomotor ataxia, no reliable results had been obtained from it. The speaker said he did not employ electricity in these cases to stay the process, but only as a symptomatic remedy. With the static machine it was not necessary for the patients to undress, which was a time-saving factor in handling a large number of cases. In many cases it certainly relieved the patient's pain, perhaps through its psychic influence, as the patient was doubtless somewhat impressed by the size of the machine, and the sound and sight of the spark.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held March 6, 1908.

Dr. Charles H. Peck in the Chair.

The meeting was held in Hosack Hall, and was devoted to a symposium on aneurysm.

Treatment of Popliteal Aneurysm by the Reconstructive Method.—Dr. J. F. Binnie of Kansas City said that since Matas' paper on endoaneurysmorrhaphy was read in 1902 before the American Medical Association much attention had been devoted to this subject. He did not intend to attempt to cover the whole field of the subject of aneurysm, but confined himself to a consideration of the possibility of obliterating the aneurysm and at the same time reconstructing the artery in such a fashion that the circulation through it might be restored. If a fusiform aneurysm was ever the result of direct injury to the vessel without there being preexistent disease of the wall, it must be extremely rare. The development of an aneurysm was generally to be referred to some series of strains acting on a vessel whose strength had been diminished by preexisting disease. Laboring men were the usual victims, and in about 80 per cent. of the cases a history of syphilis was present. Atheroma was commonly and vaguely accused of being a predisposing cause of aneurysm, but atheroma was most marked in the aged while aneurysm seemed to prefer victims of from 30 to 50 years. While the popliteal artery was a favorite site of aneurysm, it was not a common site of atheroma. Pierre Delbet with Eppinger believed that the cause of aneurysm was mechanical injury causing rupture, especially of the middle coat. It seemed that while an artery as a whole might be diseased and somewhat weakened, yet one very limited area thereof was so much more affected either by the disease or by concomitant injury that it gave way while the rest of the vessel remained capable of discharging its functions satisfactorily. If these arguments were in accordance with

fact, then it was reasonable to suppose that if sufficient arterial wall was left to reestablish the arterial tube and this arterial wall, though probably diseased, was not too much degenerated, then it might be possible safely to close with suture the communication between the artery and sac. In the case of a fusiform aneurysm nothing short of excision of the diseased segment of artery and end-to-end anastomosis of the more or less healthy arterial stump, or the implantation of a suitable segment of vein, could be of any conceivable value. The reconstructive operation of Matas seemed to him to be out of the question under such circumstances. In the sacculated aneurysm, provided the opening between the vessel and the sac was not too wide, a reconstructive operation might give good hope of success. He said he had used the method originally outlined by Matas in two cases. In the first he did not recognize at the time that he was doing a so-called reconstructive operation. He closed the single small opening into the sac with catgut and then obliterated the sac by rows of sutures. The second case was one of ruptured traumatic aneurysm, in which he obliterated the sac by means of continuous catgut sutures, the communication between the artery and sac having been closed by iodized catgut sutures. In both of these cases and in a similar one he saw with Dr. Frick, the results as regards cure of the aneurysm was good, but in none could it be proved that the circulation was reestablished through the vessel. Each of these cases seemed suitable for attempts at reconstruction, but the technique employed outraged every one of the principles elaborated by Carrel and was foredoomed to failure. In a third case he endeavored to utilize the principles of modern arterial surgery. In this case the operative technique used differed from Carrel's in that freshly cut arterial wall was not approximated, but two endothelial lined surfaces were brought together as in Dorrance's method of arteriorrhaphy by eversion. The artery as a whole was very seriously diseased. The result of the operation was a failure but a failure which came near being a success. The closure persisted for two weeks and then only about one-third of the line of union gave way. The case was most unfavorable; the arterial wall was markedly degenerated; the line of suture was absolutely unsupported by surrounding structure and laid exposed in the cavity of a false aneurysm, and yet apparently success was nearly attained. This failure encouraged one to hope that under more favorable circumstances success might be confidently expected and that perhaps in some cases of sacculated aneurysm of the abdominal aorta, it might be possible to open the sac, close the opening in the aorta, support the line of suture by obliterating the sac by means of sutures, and so make the weakest point in a weak aorta as strong as the rest of the vessel.

Personal Experience with the Modern Method of Treating Aneurysm.—Dr. Robert Abbe read this paper. Thirty odd years ago it was considered safest to cure an aneurysm by arresting the blood current by digital compression for a sufficient time to fill it with solid clot. Subsequently, antiseptic ligation held the field almost exclusively. The one idea that dominated the whole teaching of treatment was the successful filling of the sac by clot, which subsequently organized and shrank. Ten years later the theory of stiffening and thickening the resisting wall of the sac by induced inflammation and cell proliferation was advocated. The theory of building up and fortifying the wall from within soon became accepted as an available method. In 1886 and 1887 the introduction into the sac of silver and steel wire was advocated to induce clotting and to irritate the sac lining. About the same date puncture of the wall by electrolytic needles had many advocates. Proliferation of the endarterial coats was the keynote of success in these methods. Two facts were demonstrated by these contributions to the surgical knowledge of aneurysm: (1) That the sac wall, if irritated, could be made the important factor in curing aneurysm; (2) that where the tumor was large, the endarterial lining was considerably replaced by cellular tissue wall, and the thinned out lining was too far gone to be available, and failure by such method was sure. Loreta's case of aneurysm of the abdominal aorta prepared the surgical world to receive the new method of Matas which Dr. Abbe first employed in May, 1905, in a popliteal aneurysm of considerable size. This patient was perfectly cured without the slightest peril to the circulation of the foot. The second case was that of a young Russian of twenty-four years who had had for three months right sciatic neuralgia with disability in walking and some swelling of the foot. A pulsating tumor of the right gluteal region prevented his lying on that side. Examination revealed a spherical, pulsating tumor, three inches in diameter, beneath the gluteus muscle at the sciatic notch, where its pressure had caught the sciatic nerve, and held it tightly against the bone, causing the neuralgia. This was a particularly good case for operation by the plastic method. The patient made an immediate recovery after operation. This was a beautiful illustration of the reliance to be placed on the plastic union of opposing walls of an artery held in contact and irritated by the needle puncture and thread. The patient had no recurrence of tumor or sciatic pain up to three months after operation. It was his conviction that this method could be applied to any artery up to the size of the innominate.

A Case of Popliteal Aneurysm Presenting Unusual Difficulties to the Application of the Matas Operation.—Dr. Joseph A. Blake reported this case in detail. The operation was considered as a partially obliterative and restorative one, in that the proximal communication with the aneurysm was closed while the continuity of the vessel below that point was restored. He said it was a question whether a typical restorative or reconstructive operation was indicated for popliteal aneurysms since the constant flexing of the joint submitted the vessel to much traumatism. It seemed to him on theoretical grounds that the obliterative operation was better.

The Serous Coat of Blood-Vessels Compared with the Peritoneum.—Dr. Robert T. Morris said that the new work in the field of aneurysm brought prominently before them the fact that the serous coats of blood-vessels acted very much like the peritoneum. They adhered promptly when brought into close apposition; they poured out plastic lymph which quickly became replaced by connective tissue, and covered by new endothelium, just as the same process occurred in peritoneal reparative processes. The quick response of the serous coats made successful suturing of blood-vessels possible; and septic processes of these coats acted very much like septic processes of the peritoneum. From a practical standpoint he said it might be assumed that endothelial proliferation was quite as important in carrying on repair in blood-vessels as it was in the peritoneum. Silver wire and other substances introduced into the cavity of an aneurysm probably acted precisely as they would in the peritoneal cavity, by causing an exudation of coagulable lymph from the serous coat, leading to adherence of the endothelial walls. Manual pressure upon the walls of an aneurysm probably did the same thing, and the coagula which occurred probably began as lymph coagula, formed in response to irritation of the serous surfaces. It was this new conception of the serous coats of the blood-vessels acting like the peritoneum that had led surgeons to apply to this work the older principles which they had obtained from their work with the peritoneum.

Dr. Robert F. Weir said that he had had no experience in this reconstructive method of treating aneurysms. It seemed to be a fascinating department in surgery. From the time of Hunter, the ligature treatment of popliteal aneurysms was one of the most noted in surgery. From that time on the treatment of popliteal aneurysms received very marked attention. During the latter part of the last

century Esmarch's method was brought forward, making compression on the artery with the foot elevated, and with notable success. For awhile the ligature method was thrust aside, but resumed its sway under the antiseptic methods, and had remained in force up to the present. One of the most notable procedures was the extirpation of popliteal aneurysm, and Curtis of New York did this with the most happy results. He said that all operations for the cure of aneurysms, including the Matas method, were full of errors, and he always believed that the Matas operation was not likely to hold a place against the ligature method. However, it might be used with benefit in aneurysms at the root of the neck.

Dr. B. Farquhar Curtis said he had never tried the Matas operation, and he only consented to join the discussion because it appeared to him that we were in danger of trying to do experimental work without having much regard for the real cure of the patient. Patients wished to have their aneurysms cured. The majority of the cases of popliteal aneurysm could be cured safely and simply by ligation of the superficial femoral; gangrene or relapses were not common following this operation. If he felt that recourse must be had to a more extensive operation, he preferred extirpating the sac. In the ordinary soft-walled popliteal aneurysm this procedure did not seem to him to be indicated. Dr. Curtis said he had extirpated the sac in popliteal aneurysm on three occasions, once an aneurysm in the axillary space and once when the aneurysm involved the femoral. In many cases extirpation of the sac was quite as easy an operation as opening the sac and suturing the openings on the inside of the sac. The reconstructive method he thought to be worthy of trial in certain cases.

Dr. Arpad G. Gerster believed that we already had a good method of treating these aneurysms. As this reconstructive method was still *sub judice*, he thought it wise to employ it only in cases in which it was strictly indicated; he advised against its indiscriminate employment. Dr. Gerster brought forward a very curious fact. Twenty-five years or more ago aneurysms occurred in his hospital experience with comparative frequency, while now they had become rarer and more rare. And this was particularly true in the hospital with which he was connected, the Mount Sinai. It was certainly curious that within the last five years he had seen but one case of aneurysm. A gypsy violinist was shot when in flight from a wedding; a traumatic aneurysm of the gluteal artery was the result. In the Hebrew race aneurysms were extremely rare, and he believed this to be due to the fact that this race had early marriages, and so lessened the chance of syphilitic infection. Then, too, the rite of circumcision caused a toughened glans penis, thus making the danger of syphilitic infection less than in those not circumcised. The majority of the people of this race were employed in trades and occupations which did not require much physical exercise. This probably explained why so few aneurysms were met with at the Mount Sinai Hospital. Dr. Gerster had treated two cases of thoracic aneurysm by introducing long pieces of piano wire. Both of the patients died, not in consequence, but in spite, of the operation. One patient survived for a period of three months, the other for six months. The autopsy was consented to in only one; the wire formed a loose ball, and in the meshes was found a rudimentary coagulum.

Dr. John A. Wyeth said that aneurysm of single arteries was one of the gravest surgical lesions, and the gravity was in general proportion to the nearness of the tumor to the heart. When either the brachial, femoral, or popliteal artery was involved, the procedure of Matas would in many instances be found to be an ideal procedure. Reconstructive arteriorrhaphy might find its place in dealing with axillary or subclavico-axillary aneurysms, when only the third part of the subclavian was involved, but if possible less dangerous methods should be first essayed. In right subclavian aneurysm it was better to treat by distal ligation of the right carotid as a primary operation, to be followed by distal ligation of the subclavian in its third division or lower down in the axilla if the subclavian was diseased, and later, if necessary, by excision of the inner half of the clavicle. The ligature of the right carotid not only aided coagulation by throwing the retarded current back upon the innominate, but guarded against the accident of embolism. Aneurysm of the innominate should be treated in the same manner. Aneurysm of the carotid artery should, when possible, be treated by ligation upon both sides of the tumor, the distal ligature being first tightened to prevent the possibility of clot being carried to the brain. Aneurysm of the primitive carotid near the innominate or near the arch of the aorta, must of necessity be treated by distal ligature. Aneurysms of the internal carotid he had treated successfully by tying the common trunk at the birfurcation, and the external carotid artery at the same point. This insured stagnation between the ligature and the circle of Willis. Aneurysms of the external carotid he had treated successfully by ligating this trunk at its origin from the primitive carotid. Aneurysms of the ascending segment of the aortic arch offered great difficulties in treatment. He had tied simultaneously the right carotid and the right subclavian, with the result of solidification in a large spherical aneurysm over three inches in diameter. This patient died a year later of another disease, and the autopsy demonstrated the success of the surgical procedure. Aneurysms of the abdominal aorta seemed to be almost beyond the pale of surgery. Interrupted digital compression in large aneurysms occupying the pelvic vessels might be entertained. Dr. Wyeth had submitted a synopsis of 22 cases of subclavian aneurysm in which no treatment whatever was undertaken, with 18 deaths and four spontaneous cures. He had also reported 14 cases treated by rest in bed, nutritious diet, restricted fluids, and judicious medication, in which 7 were cured, 2 were improved, and 3 died; also he had reported 6 cases treated by direct pressure upon the sac, in which 4 were cured and 1 died.

Dr. Willy Meyer said the fact that Matas has been able to report at the Boston meeting of the American Medical Association no more than 34 American operations, to which number were added 6 foreign operations, made him believe that every case should be reported. He had had but one experience with the Matas operation. The patient was a boy of eleven years. He was on his summer vacation and in the woods cutting a stick with his knife; the knife slipped and struck his knee. His comrades carried him to the nearest hotel where a tourniquet was improvised, and later a doctor sutured the wound. After twelve days the boy was removed to the city. His knee was stiff. Active and passive movements were advised. The boy noticed that something gave way suddenly in the knee joint. When Dr. Meyer saw him there was a distinct aneurysm present in the popliteal space; it was the size of a fist. This was incised, the blood clots removed, and the sac cleared. The sac seemed to be the shape of a pear. In view of the fact that he had to suture obliquely he introduced a probe with a small curve into the popliteal artery; this was pressed down by an assistant, and so he was enabled to make a continuous suture. When the Esmarch bandage was removed the hemorrhage was absolutely controlled. After eight days the first dressing was removed and the patient was shown later with a perfect result, with good pulsation in the arteries below. Dr. Meyer believed that the indications for the Matas operation were going to be widened as years went by.

Dr. George E. Brewer asked Dr. Binnie what his reasons were for not using absorbable catgut. He also asked if he used any particular form of needle.

Dr. Binnie replied that he used the ordinary curved round needle. The ordinary catgut was not used in these cases, but the iodized.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Burdett's Hospitals and Charities, 1908. 12mo, 932 pages; cloth, 7s. 6d. net. The Scientific Press Ltd., London.

Examination of the Ear. By Selden Spencer, A.B., M.D. 12mo, 66 pages, cloth, illustrated. C. V. Mosby, St. Louis.

School Reports and School Efficiency. By D. S. Snedden, M.D., and W. H. Allen, Ph.D. 8vo, 183 pages; cloth. The Macmillan Company, New York.

Bier's Hyperemic Treatment. By Willy Meyer, M.D., and Prof. Dr. Victor Schmieden. Large 8vo, 209 pages, illustrated; cloth, $3.00 net. A. B. Saunders Company, Philadelphia.

Operations-Kursus. By v. Bergmann, Bier u. Rochs. 12mo, 463 pages, illustrated; cloth, 8 marks. August Hirschwald, Berlin.

Transactions of the American Climatological Association for the Year 1907. Vol. XXIII. 8vo, 330 pages, illustrated; cloth. William J. Dornan, Philadelphia.

Index of Treatment. By Various Writers. 8vo, 888 pages, illustrated; cloth. William Wood & Company, New York.

The International Medical Annual. 8vo, 700 pages, illustrated; $3.50 net; cloth. E. B. Treat & Company, New York.

Diets in Tuberculosis. By Noel Dean Bardswell and John Ellis Chapman. 12mo, 184 pages; half morocco, $2.50. Oxford University Press, New York.

Nervous and Mental Diseases. By Charles S. Potts, M.D. 8vo, 570 pages, illustrated; cloth. Lea & Febiger, Philadelphia.

Annual Report of the Bureau of Health of the Philippine Islands, for the Fiscal Year Ended June 30, 1907. Victor G. Heiser, M.D., Director of Health, Passed Assistant Surgeon, United States Public Health and Marine-Hospital Service. Bureau of Printing, Manila.

Second Annual Report, Saint Louis Skin and Cancer Hospital, 1907. 410 North Jefferson avenue, St. Louis, Mo.

Forty-third Annual Report of the Trustees of the Boston City Hospital. February 1, 1906, to January 31, 1907, inclusive. Municipal Printing Office, Boston.

Das Gedächtnis. Festrede, gehalten am Stiftungstage der Kaiser Wilhelms-Akademie für das Militärärztliche Bildungswesen, 2 Dezember, 1907. Von Th. Ziehen. Berlin: Verlag von August Hirschwald, 1908.

Anything, even a fragment, from the pen of Ziehen is interesting and more or less valuable. This is a pamphlet comprising thirty pages, covering the original address, and twenty pages of explanatory notes. The subject is discussed clearly and interestingly from a physiological rather than a psychological standpoint.

Penna. Report of the Commissioner of Health, 1905-06. 8vo, 510 pages, cloth, illustrated. Harrisburg Publishing Co., Harrisburg, Pa.

Ergebnisse der Inneren Medizin und Kinderheilkunde. Erster Band. 4to, 620 pages, paper, illustrated; M. 18. G. E. Stechert & Co., New York.

Seventh Annual Report of the Metropolitan Water and Sewerage Board. 8vo, 255 pages, illustrated, cloth. Wright & Potter Printing Co., State Printers, Boston.

Subcutaneous Hydrocarbon Protheses. By F. Strange Kolle, M.D. 8vo, 153 pages, illustrated, cloth; $2.50. The Grafton Press, New York.

Progressive Medicine. Edited by Hobart Amory Hare, M.D. 8vo, 352 pages, illustrated, paper; $6.00 per annum. Lea & Febiger, New York.

A Short Practice of Midwifery. By Henry Jellett, B.A., M.D. (Dublin Univ.), F.R.C.P.I. 12mo, 654 pages, illustrated, cloth; $4.20 net. P. Blakiston's Son & Co., Philadelphia.

Electrical Treatment. By Wilfred Harris, M.D., F.R.C.P. 12mo, 384 pages, cloth, illustrated; $2.25 net. W. T. Keener & Co., Chicago.

Diseases of the Nervous System. By H. Campbell Thomson, M.D. (Lond.), F.R.C.P. 12mo, 480 pages, cloth, illustrated; $2.75 net. W. T. Keener & Co., Chicago.

Insomnia and Nerve Strain. By H. S. Upson, M.D. 12mo, 142 pages, illustrated, cloth; $1.50 net. G. P. Putnam's Sons, New York.

Leçons de Clinique Obstetricale. Par le Dr. Queirel. 8vo, 219 pages, paper; 6 francs. G. Steinheil, Paris.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 18, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	481	173
Diphtheria	203	22
Measles	312	13
Scarlet Fever	156	14
Smallpox	—	—
Varicella	35	—
Typhoid Fever	50	8
Whooping Cough	25	6
Cerebrospinal Meningitis	7	7
Malarial Fever	—	—
Totals	1269	243

Health Report.—The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 17, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Los Angeles	June 20–27	2	..
San Francisco	June 20–27	6	..
Washington, District of Columbia	June 20–27	1	.
Illinois, Chicago	June 20–27	2	.
Jacksonville	June 1–30	10	..
Springfield	June 18–July 2	3	..
Indiana, Fort Wayne	June 14–29	3	.
Indianapolis	June 21–28	3	1
Lafayette	June 30–July 6	1	..
South Bend	June 30–July 4	1	..
Terre Haute	June 20–27	1	..
Iowa, Cedar Rapids	June 1–30	4	..
Louisiana, New Orleans	June 29–July 4	5	..
Michigan, Saginaw	June 20–27	1	..
Minnesota, Winona	June 20–27	1	..
Missouri, Kansas City	June 27–July 4	1	..
St. Joseph	June 20–27	2	..
North Carolina, Charlotte	June 20–27	1	..
Ohio, Cincinnati	June 26–July 3	1	..
Dayton	June 27–July 4	3	..
Toledo	June 13–20	4	..
Topeka	June 13 20	3	..
Tennessee, Knoxville	June 20–27	1	..
Texas, San Antonio	June 27–July	2	..
Washington, Spokane	June 20–27	6	.
Wisconsin, La Crosse	June 13–July 4	7	.
Milwaukee	June 13–July 4	8	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	May 9–23	29	21

SMALLPOX—FOREIGN.

Brazil, Bahia	May 1–31	114	5
Rio de Janeiro	May 24–June 14	717	266
China, Hongkong	May 16–23	8	5
Shanghai	May 24–June 14	..	3
Ecuador, Guayaquil	June 6–13	..	1
Egypt, Cairo	June 3–17	16	21
France, Paris	June 13–20	2	..
Toulon	May 1–31	1	..
Germany, General	June 6–20	10	..
Bremen	May 23–June 6	3	..
India, Bombay	May 25–June 9	..	45
Calcutta	May 14–23	..	12
Madras	May 23–29	..	1
Italy, General	June 14–21	20	..
Naples	June 6–20	12	..
Japan, Kobe	May 31–June 6	4	..
Osaka	May 16–30	46	28
Mexico, Aguas Calientes	June 14–27	..	4
Portugal, Lisbon	June 20–27	4, 2 imp't'd	
Russia, Batoum	May 1–31	1	..
Moscow	June 6–13	17	11
Riga	June 20–27	1	..
St. Petersburg	June 6–13	54	11
Warsaw	May 9–16	..	4
Siberia, Vladivostok	May 21–June 4	4	..
Spain, Valencia	June 6–20	25	1
Straits Settlements, Singapore	May 16–23	..	1
Turkey, Constantinople	June 7–21	..	7

YELLOW FEVER.

Brazil, Manaos	May 31–June 13	3	3
Para	June 6–20	5	5
Rio de Janeiro	May 31–June 7	2	2
Cuba, Daiquiri	July 11–13	4	..
Ecuador, Guayaquil	June 6–13	..	2
Mexico, Frontera	July 12	1	..
Vera Cruz	July 12	2	1
Philippine Islands, Provinces—			
Capiz	May 9–23	100	..
Pangasinan	May 9–23	100	..

CHOLERA.

India, Bombay	May 25–June 2	..	1
Calcutta	May 16–23	..	71
Madras	May 23–29	..	5
Rangoon	May 16–30	..	21

PLAGUE.

Brazil, Rio de Janeiro	May 24–June 14	1	..
China, Hongkong	May 16–23	114	95
Ecuador, Guayaquil	June 6–13	..	5
Egypt, General	June 11–25	102	45
Alexandria	June 11–25	7	3

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Original Articles.

TUBERCULOSIS IN CONNECTICUT, ESPECIALLY IN RURAL CONNECTICUT.*

BY STEPHEN J. MAHER, M.D.,

NEW HAVEN, CONN.

IT seems to be the general belief nowadays that the first consumptives in Connecticut as in all New England and in all America were white men. But were they? Here are the answers of the few authorities I have been able to find.

Daniel Gookin, himself one of the earlier settlers of New England, says in his Historical Collections of the Indians of New England: "Of this disease of the consumption sundry of those Indian youths died that were bred up to school among the English. The truth is, this disease is frequent among the Indians; and sundry die of it that live not with the English. A hectick fever issuing in a consumption is a common and mortal disease among them." (Collections of the Massachusetts Historical Society, Vol. 1, page 173.)

On page 140 of the same volume, an Indian authority is given for the following statement: "Before the English came among the Indians, there were two disorders from which they most generally died, viz., the consumption and the yellow fever."

In Vol. 7 of the Massachusetts Historical Collections General Lincoln says in Observations of the Indians of North America: "Their tender lungs are greatly affected by colds which bring on consumptive habits, from which disorder, if my information is right, a large proportion of them die."

Francis, in his Life of John Eliot, the Apostle of the Indians, gives as his own opinion: "Consumption seems to have been a common malady among the New England natives."

De Forest on page 20 of his History of the Indians of Connecticut says: "The diseases of the Indians were quinsies, pleurisies, rheumatisms, quick consumption, and such others as would be naturally produced by their exposure and hardships, and by their irregular mode of life."

In a notable series of papers in the MEDICAL RECORD in August and September, 1892, on Diseases Among Indians, Dr. A. B. Holder, at one time Agency Physician at the Crow Reservation in Montana, says: "I do not believe that at any time in their history they (the Indians of North America) have been free from consumption and scrofula. In the Peabody Museum (specimen 17,-223) is a part of a vertebral column badly affected with caries-tuberculous, among prehistoric remains. (See illustration in "Orthopedic Surgery," by Bradford & Lovett, p. 2.)

"Tuberculosis is coextensive with the Indian race. The single tribe that may be said to be free from this disease, I have been unable to find after diligent search. Those who inhabit the torrid swamp of Arizona, and those in the frozen northwest territory of Canada, along the western seaboard and in the Atlantic States, all tribes suffer more or less from consumption and scrofula."

Addison in the *Canadian Journal of Medicine and Surgery* for May, 1902, tells of finding in an ossuary near Big Bay Point in Simcoe County, Ontario, several skeletons of Huron Indians that had suffered from Pott's Disease. These skeletons had been under ground for more than two centuries. He concludes that these bones are proof that not only the Indians suffered from tuberculosis before the European invasion, but also that it was a very common disease among them before the white men came.

In view of the well-known facts that the red man had no cattle, no horses, no swine, no goats, and knew not the taste of cow's milk, butter, cheese, or alcohol, it is, I think, important to remember the point that I have tried to develop in the preceding paragraphs.

After the White Man Came.—The proper registration of the causes of deaths is of very recent establishment everywhere, and there are no statistics available before 1849 for showing the proportion of deaths in Connecticut that were caused by tuberculosis. The fact that it was very prevalent during Colonial times and during the first half of the last century, is evident from letters and local histories, but figures are not to be had. Through the kindness of Dr. Joseph H. Townsend, Secretary of the State Board of Health, I am able to furnish the accompanying chart, showing as near as is possible from the records in his office, the tuberculosis death rate per 1,000, and the general death rate per 10,000, since 1849.

Of course one remarkable fact about this chart is the great decrease that it shows in the tuberculosis death rate,—somewhat irregular until 1882, but steady and impressive since that year. The average tuberculosis death rate for the past five years has been therefore 14.3 per 10,000 of population, and the death rate for all diseases has been 160 per 10,000.

Another remarkable fact about this table is that it corresponds very closely to the now famous table published last winter in Dr. H. Timbrel Bulstrode's English Governmental "Report on Sanatoria for Consumption, and Certain Other Aspects of the Tuberculosis Question." In Dr. Bulstrode's table it is shown that the phthisis death rate for England and Wales fell steadily from 27 for the 10,000 living in 1851 to 12 for the 10,000 living in 1904. And the decline in our Connecticut table is from 27 per 10,000 in 1849 to 14 per 10,000 in 1907.

Dr. Bulstrode's comment on the English table must be almost equally applicable to the Connecticut table: "The main point," he says, "which may be insisted on at this juncture, is that so far as can be gathered from the mortality returns, pulmonary

*Report made June 10, 1908, to the Connecticut State Commission for the Investigation of Tuberculosis.

tuberculosis (consumption) is tending to decrease in England and Wales, and that this decrease had been apparently taking place at a high rate prior to the belief in the communicability of the disease, to the introduction of the Public Health Act, 1875, and to the discovery of the tubercle bacillus in 1882. This fact is of great importance in relation to a proper comprehension of the tuberculosis problem.

"In so far therefore as England and Wales are concerned, it would appear that the decline in the phthisis death rate which has now been manifesting itself for over half a century, may, if continued, result ere long in the total extinction of the malady; that the malady may indeed follow the course taken by such diseases as leprosy, relapsing fever, typhus fever, malaria, etc., all of which diseases have, at least for the time being, practically disappeared from the country."

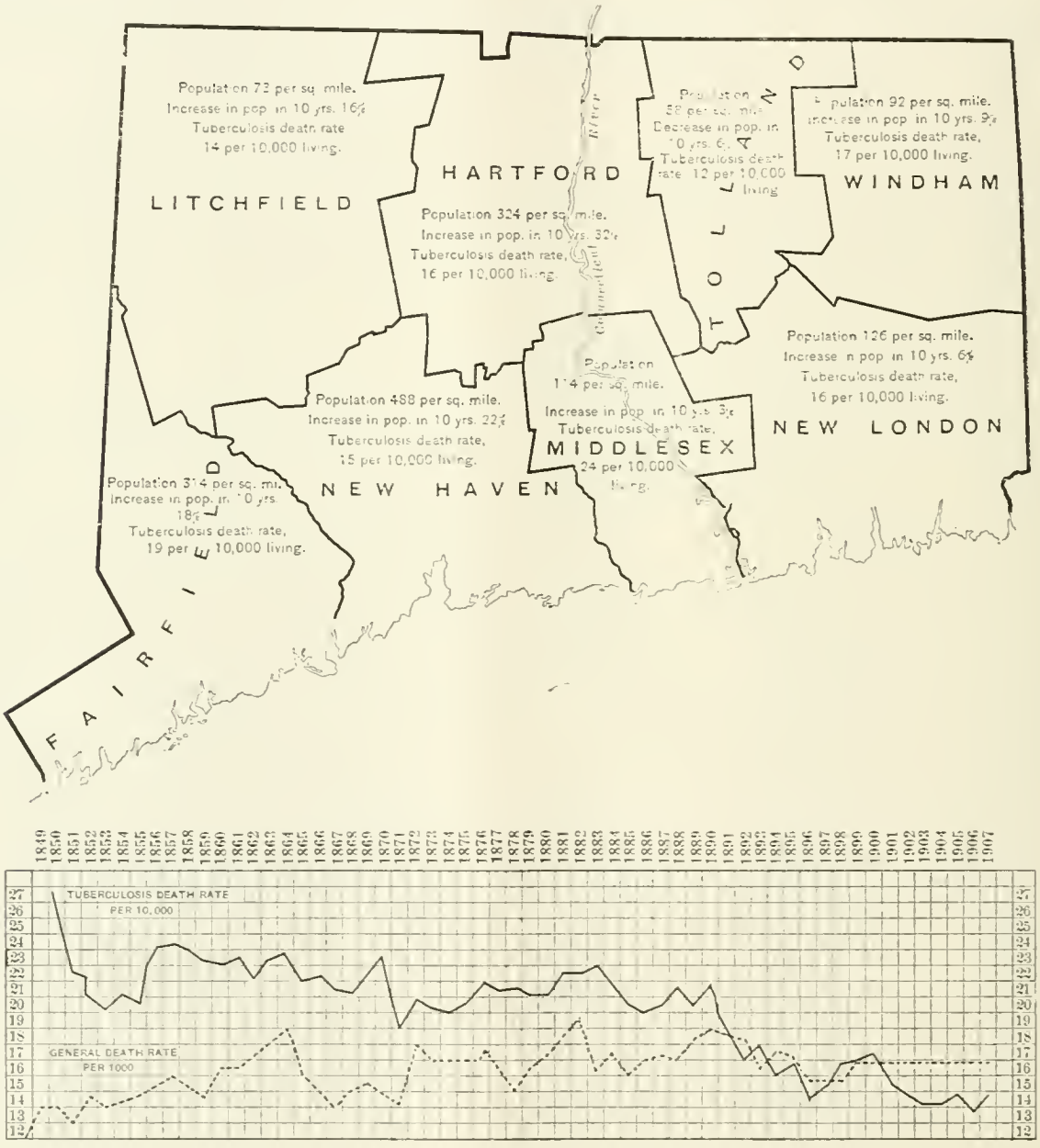
Still another interesting feature of the Connecticut table is its proof that the decrease in the tuberculosis death rate is coincident with an increase in the death rate from all causes which was only 140 per 10,000 in 1849, and was 160 per 10,000 in 1907, explainable by the incompleteness of returns in the first registration years.

Density of Population and Insanitary Environment.—We now come to the very interesting questions of the localization of these cases of tuberculosis, and the relation of the tuberculosis death rate to density of population and insanitary environment.

The State of Connecticut has an average of about 200 people to the square mile. New Haven County has 488 to the square mile; Hartford County, 324; Fairfield County, 314; New London County, 126; Middlesex County, 114; Windham County, 92; Litchfield County, 73; Tolland County, 58.

During the past ten years the population of Connecticut has increased about 20 per cent.; the population of New Haven County has increased 22 per cent.; Hartford County, 32 per cent.; Fairfield County, 18 per cent.; New London County, 6 per cent.; Middlesex County, 3 per cent.; Windham County, 9 per cent.; Litchfield County, 16 per cent., while the population of Tolland County has decreased 6 per cent.

In the statistical year, 1905-6, the death rate from tuberculosis of all kinds in the different counties was as follows: New Haven, 15 per 10,000; Hartford, 16; Fairfield, 19; New London, 16; Middlesex, 24; Windham, 17; Litchfield, 14; Tolland, 12.


Population 73 per sq. mile.
Increase in pop. in 10 yrs. 16%
Tuberculosis death rate
14 per 10,000 living.
LITCHFIELD
HARTFORD
Population 324 per sq. mile.
Increase in pop. in 10 yrs. 32%
Tuberculosis death rate,
16 per 10,000 living.
Population 58 per sq. mile.
Decrease in pop. in 10 yrs. 6%
Tuberculosis death rate 12 per 10,000 living
TOLLAND
Population 92 per sq. mile.
Increase in pop. in 10 yrs. 9%
Tuberculosis death rate,
17 per 10,000 living.
WINDHAM
Population 126 per sq. mile.
Increase in pop. in 10 yrs. 6%
Tuberculosis death rate,
16 per 10,000 living.
NEW LONDON
Population 114 per sq. mile.
Increase in pop. in 10 yrs. 3%
Tuberculosis death rate,
MIDDLESEX
24 per 10,000 living.
Population 488 per sq. mile.
Increase in pop. in 10 yrs. 22%
Tuberculosis death rate,
15 per 10,000 living.
NEW HAVEN
Population 314 per sq. mile.
Increase in pop. in 10 yrs. 18%
Tuberculosis death rate,
19 per 10,000 living.
FAIRFIELD
TUBERCULOSIS DEATH RATE
PER 10,000
GENERAL DEATH RATE
PER 1000

These figures do not represent an exceptional year. They are approximately representative of the statistics from the different counties for the past ten years as may be seen by consulting the appended tables.

The death rate from tuberculosis in the ten largest cities of this state was as follows:

City.	Population.	Tuberculosis Death Rate
New Haven	121,216	18 per 10,000
Hartford	95,822	16 " "
Bridgeport	84,274	21 " "
Waterbury	61,000	15 " "
New Britain	33,720	15 " "
Meriden	30,658	16 " "
Norwich	25,620	16 " "
Norwalk	21,243	16 " "
Stamford	20,720	16 " "
New London	19,822	16 " "

Of course it can be maintained in relation to these statistics that they are not accurate; that many cases of consumption are returned as deaths from bronchitis or pneumonia or other diseases that neither suggest a family taint nor interfere with the full payment of life insurance. But there is no reason to assume that such false returns are more frequent in one county than in another. Several of my reporters from the smaller towns complain of these illegal efforts of physicians to keep the word "Tuberculosis" out of death certificates. As Dr. Bulstrode says, "It must, too, be recognized that whether reliable or not reliable, statistical records are the only tests which we possess for ascertaining the behavior of any given disease at any given time," and that, as Dr. Strauss observes on page 6 of his "La Tuberculose et son Bacille": "La statistique, malgré ses imperfections, demeure encore le meilleur élément d'enquête."

Because the conditions in the cities have been investigated by the sub-committees on Tenements and Factories, I shall confine myself in the rest of my report to a consideration of the disease among the people of the State who do not live in the larger cities. Many of the small towns of the State offer an exceedingly attractive field for the study of the subject of tuberculosis, first, because of the isolation of many of these communities, and second, because of the knowledge of local conditions possessed by keen philosophic country physicians, and third, because of the general cultivation of that useful scientific faculty, the New England conscience.

Early in April I sent the following circular letter to all the small towns of the State, addressed to resident physicians, the town clerk and the town health officer:

"I have been delegated by the Commission to prepare a report on Tuberculosis in Connecticut. The bare statistics on the subject are of course to be had at the office of the State Board of Health, but the proper interpretation of these statistics is usually possible only to one who knows local conditions. Therefore, I appeal to you for answers to the following questions and for such other help as you can give me in arriving at the truth as to the origin and spread of tuberculosis in your community.

"1. Have the cases of consumption occurred frequently in certain houses?

"2. Have these houses harbored cases of consumption only when tenanted by certain families?

"3. Have the houses in which cases of consumption occurred, been especially damp or dark, or near to unhygienic barns or coops?

"4. Have the cases of consumption been limited to one particular part of the town, or have they occurred in all parts of the town?"

The replies have been surprisingly numerous. Up to date I have heard from all but 11 of the 163 towns to which the circular was sent. Most of the men who were courteous enough to answer were satisfied with saying Yes or No to the different queries. A few of the town clerks instead of answering the questions, simply said that there was little of the disease in their towns. As a rule, the most valuable replies were from the physicians, but some of the lay officials showed a remarkably intelligent and sympathetic interest in the investigation.

To the first question, "Have the cases of consumption occurred frequently in certain houses?" —the great majority of the answers as will be seen by the table, were in the negative. Yet in the 33 affirmative replies some interesting facts were developed. Of these, sixteen only reported that the houses in which frequent cases of consumption occurred, harbored cases after a first consumptive family moved out.

Only about one-fourth of the reporters say that insanitary environment was usual in the houses in which consumption occurred, and of this one-fourth, a majority lay emphasis on a damp cellar as a common finding in the house of the consumptive.

With practical unanimity, the reporters state that the cases of consumption have occurred in all parts of the towns.

The 240 answers received from the 150 towns may be tabulated as follows:

Q. 1.—Have the cases of consumption occurred frequently in certain houses? No, 181; Yes, 33; No answer, 44.

Q. 2.—Have these houses harbored cases of consumption only when tenanted by certain families? No, 8; Yes, 16; doubtful, 1; No answer, ——.

Q. 3.—Have the houses in which cases of consumption occurred been especially damp or dark or near to unhygienic barns or coops? No, 173; Yes, 32; No answer, 48.

Q. 4.—Have the cases of consumption been limited to one part of the town, or have they occurred in all parts of the town? All parts, 202; two parts, 1; one particular part, 2; no answer, 51.

I think the Commission may be interested in a few quotations from the letters I have received in answer to my circular.

Dr. R. B. Cox of Collinsville, relates the following history: "To illustrate from my practice, a farmer and wife, apparently healthy, came from Kentucky with a family of four children, and bought a farm. As the children came to adolescence, they died of consumption until all but one are gone, and she has spent years in a sanatorium. They sold the place, but not before they had adopted two children, and moved to another. One of the adopted children is phthisical and father has active focus on lung. No family history. No signs before coming to that house. I can get no history of there having been any in the house, yet where did it come from? They are good, nice, clean, religious people."

Dr. William R. Munson of Simsbury says: "As far as my experience has qualified me to speak, there have not been two cases in the same family. The period covered by the observation is nine years, and as health officer, I covered the territory very thoroughly.

Dr. W. R. Miller, Southington, gives the following illustrations: "Three girls have died of con-

sumption in one family; four brothers alive and well. In a second family two brothers have died of consumption, two sisters alive and well. In a third family two sisters have died of consumption, one brother alive and well, but with the characteristic deformity of Pott's disease."

Dr. J. G. Adams of Canaan reports among others the following interesting case: "F. M., aged 14; no case of tuberculosis in house for years, if at any time; members of family healthy; two aunts died of tuberculosis two years ago living a half mile away, but this girl seldom saw them and never lived with them. Girl was very healthy until six months ago; since then has rapidly developed pulmonary tuberculosis. The house is very damp and unhygienic. No other cases anywhere about the country; no one has been near the girl to infect her."

Dr. W. S. Cooper, Seymour, says regarding the suggestion in question 3: "The opposite is the rule: I have had no cases of consumption but in sanitary places," while Dr. Gould A. Shelton of Shelton replies in answer to the same question: "Yes, in low localities, in dark bedrooms, and near streams and canals."

Mr. Stephen H. Mason, Town Clerk of Bristol, reports all the cases occurring in the town since January 1, 1904,—forty-three in number, and concerning them he makes the following comments: "Nearly all the cases are widely separated from each other, and no two in the same house except in two instances. I am well acquainted with the location of all the houses, and except one on Williams avenue and one on Pequabuck street, they are all high and dry."

The reporter from Broad Brook, Dr. Howard O. Allen, says in answer to question 4: "No particular part of town; though I am of the opinion that the larger number of our cases are in the near vicinity of the Connecticut River."

Dr. Lewis of Collinsville, says: "Cases have not been limited to one particular part of the town. They have been general and as frequent in the farming sections (if not more) than in the manufacturing sections."

The following interesting letter is from William Marvin, Judge of Probate and Town Clerk of Lyme: "I am deeply interested in the work of your Commission, and am glad to be of any assistance. I have examined the records of deaths in this town since October, 1896, at which time I assumed the duties of Registrar, and have taken the names of all persons who have died from tuberculosis during the eleven and one-half years which have elapsed since that date. Fourteen deaths have occurred during the period, but I shall exclude one in answering inquiries because of the fact that in that case the person came into town in the last stages of the disease, living but a few weeks.

"I am surprised to find, on looking over this list, that every death occurred within a mile of the Connecticut River, or its tributary, Eight-Mile River. This may be a mere chance, and I had never thought of the disease being at all confined to certain localities, but you will further see that nine, or nearly three-quarters of the deaths were in one very small corner as shown by the inclosed map.

"In the house marked '4' the first death occurred in June, 1897, the victim being a lady of 36, who had up to a few months before been very strong and healthy. In December, 1898, a brother died aged 29, and in May, 1903, another sister was taken at the age of thirty, after a long illness which she endeavored to overcome by out-door life here and in the West. In January, 1906, the father died at the age of about 80. The house occupied by this family has been the home of their ancestors since before the Revolution, and I am informed that no other cases have ever been known there. Although near the water, the house stands in a sunny, well-drained location.

"The house marked '2' is not as well situated but is near a large marsh, and built into a bank on the rear. The first case was that of a girl of 16, the second that of her mother, two years later, the mother having taken all the care of her daughter, and beginning to fail in health soon after her death. With the exception of two, all of the persons dying from tuberculosis since 1896 have been native Americans, and all but one have lived in this locality most of their lives. All of the homes are on a par with the average country home, and with two or three exceptions, the locations would appear to be healthful. More than half of the victims were past middle life, and only two were under twenty-five.

"In the past tuberculosis has been by no means confined to one section of the town, and a general examination of the records for fifty years back seems to show that the average death rate from this cause forty or fifty years ago was thirty to fifty per cent. greater than at present.

"I hope I have not gone into details too much, but knowing the people of my town and their condition personally, I thought these facts might be of interest.

"There have been no deaths in this town from tuberculosis for more than two years, and so far as I know, there are no clearly defined cases here at present."

Dr. George H. Wright of New Milford says that most of the cases in the neighborhood of New Milford occur among men grinding silica, and he suggests that the State find a way to do away with the dangers of the present methods of grinding, either wet or dry.

Dr. William H. Wakelee, the Town Health Officer of Southbury, in his report says: "We have in our town two houses in which the people who have occupied them for the last fifty years have died with tuberculosis.

"Taking up the matter of the first house I would say that the old residents were of New England stock, and with one exception died with said disease. About fifteen or twenty years ago, a family from Sweden, who were apparently well and strong when they arrived, lost four of the family, who died with the same disease in this house.

"The house is free from tenants at the present time, in fact has not been occupied for three or four years. The other house history shows the death of the old New England farmer, his first wife, second wife and himself, who died of consumption. Another family moved in; the father old New England stock, the mother Irish. They raised seven children, five of whom died with tuberculosis. One daughter, despondent because of her condition of health, and having been told by physicians that she would die of consumption, drowned herself. The other, a son, was drowned. Then a family from Canada, French people, moved into the house and the mother has just died with consumption. In fairness to the history I will say, when the woman came from Canada, the physician told her she had a bronchial trouble, but never told her she had tuberculosis. However, after living there a short time, she was taken with the same disease and died.

"Neither of the houses are damp or dark, nor

have barns or coops near enough to be insanitary. The cases of consumption have not been limited to any part of the town, but occurred occasionally in various sections of the town."

Dr. Stanton of Stonington reports as follows: "The percentage of deaths from this disease is next to nothing compared with thirty-five or forty years ago. The weakly ones have died off, leaving 'the survival of the fittest.'"

Dr. Walter S. Munger, Watertown, says: "In one house built by the father forty years ago, and no other family occupying it, when the youngest of the children was about twelve years old, she died with consumption; in about two years the next oldest died, and in about two years the next died,—all girls and apparently healthy until the first developed the disease. There are two older sisters still living and in fairly good health. The house is in a good situation and well cared for.

"In house No. 3, built about twenty years ago, there was a case of tuberculosis in the first family residing in it; this family moved away and another family came, and in a few years three of the second family died. When this family removed to another house another member of the family died in a few months, and then another was taken ill with the disease but was sent to the Wallingford Home and returned very much improved, and still seems to be improving. This house is on low, wet ground with damp cellar."

Mr. James R. Lanyon of Cheshire writes: "I find upon examination of the records of this town that in the last fifty years, which is as far back as the records are accurate in the matter of deaths, there were 176 deaths from tuberculosis, an average of about 3 1-2 each year. Dividing this into two periods of twenty-five years each, it shows that during the first period there were 116 deaths, a little over 4 3-5 per year; in the second period from 1882 to date, there were sixty deaths, an average of 2 2-5 per year.

"Again taking up the period from 1888 to 1898, 33 deaths, and from 1898 to 1908, 17 deaths,—which shows a remarkable decrease. I cannot find any locality where the disease has appeared for any length of time. The cases are scattered over all sections of the town, and in the majority of cases, isolated. I find that in some families there have been several deaths in one house, no cases having appeared in that locality or house either before or after the removal of that family from that particular house or locality."

Dr. Myron P. Robinson of Windsor Locks, says concerning that town: "For a manufacturing town with its mixed population, exceedingly unhygienic tenements, and no general sewer system, we have very little consumption. Our freedom from it has been ascribed to the fact that so many are employed in the paper mills which use large quantities of chloride lime; also that the chloride not only disinfects those who work in the mills, but tends to disinfect the air of the town. This would hardly seem to explain the comparative immunity from tuberculosis, for we certainly have enough other infectious and contagious diseases, except typhoid.

"In Terryville, Litchfield County, where I practised six years, we had a good many cases of consumption, and there were many houses, old, damp, and poorly lighted, where several successive families had developed tuberculosis, often two, three, and even five members of the same family dying one after the other.

"I cannot say that unhygienic barns or coops were a factor, but dampness, filth, and failure to paint and whitewash, after the house had been infected, were nearly always factors."

Dr. William E. Reynolds says that in Woodbury the cases have occurred "In the valley, and on the mountain top; in all parts of the town."

Dr. C. E. Brayton of Stonington reports: "Many of the houses are very old, many over the century mark, and more from fifty to ninety years of age. In many, no doubt, there has been more than one case of tuberculosis, but I do not recall any marked case.

"Regarding this place, we have had considerable tuberculosis during the thirty-five years of my practice, but I believe not as much as in many towns of like size. It has been among all classes, rich and poor, native and foreign born, and, I must confess, with a good many cases in the same family.

"In years past it is of record that whole families like the Y.'s, a family of six, and the H.'s, a family of seven, were taken one by one, until all are gone, or maybe one left to grow old."

Mr. R. C. Usher, Registrar of Vital Statistics in Plainville, gives the following succinct data: "In one house, same family, six deaths; one house same family, four deaths; three houses, same family, three deaths; one family three deaths in two houses; one family four deaths in three houses; nine families two deaths each in nine houses."

He says that 125 cases have been reported since they organized as a town in 1869—forty-four cases in sixteen families, and eighty-one cases in as many families, scattered.

The following history is from a town in Litchfield County:

"James and Margaret, now each ninety years old, were the parents of seven children, five girls and two boys. The children all died of tuberculosis and the parents still live. The last child died four years ago last fall. All were born and raised on the farm, and all were well developed and well nourished. All but two of them died on the farm. The farmhouse was low studded, a short roof on one side and a long roof on the other side reaching to the ground. The barn was fifty feet away. In it were usually kept twelve to fifteen cows and horses,—no goats or sheep. This barn was unhealthy and located between three swamps, which were an eighth, a tenth, and a sixth of a mile distant. Most of the children assisted in the milking of the cows. The milk was used on the place and made into butter and cheese. The girls usually left home about sixteen years of age to work in hotels and families as servants, and usually returned home sick, where they lasted from six months to four years."

Conclusions.—1. Tuberculosis was a disease of the Indians of Connecticut before the white man came.

2. Human tuberculosis has occurred in all parts of rural Connecticut,—highland and lowland and plain.

3. There is considerable evidence to show that in rural Connecticut human tuberculosis occurs most frequently in badly drained districts, and in houses with damp cellars.

4. The reports received do not support the view that in rural Connecticut cases of consumption occur frequently in close proximity to insanitary barns or coops.

5. While the preponderance of testimony is that in rural Connecticut only a minority of cases of consumption have been followed by other cases in the same house or the same family, the evidence in favor of the hypothesis of "consumption houses"

and "consumptive families" is often very striking and is deserving of careful consideration.

6. The density of the population of the counties of Connecticut bears no relation to the tuberculosis death rate of said counties.

7. There has been a very marked decline in the tuberculosis death rate for the past fifty years, and this decline was as steep but not as regular before the discovery of the turbercle bacillus as it has been since.

212 Orange Street.

AUTOCHTHONOUS URETHRAL CALCULI; REPORT OF A CASE.

By HARRY ATWOOD FOWLER, M.D.,

WASHINGTON, D.C.

Cases of urethral calculus, while not very rare, are yet relatively uncommon. Probably the number of such cases is much greater than is indicated by the literature, as only those which present unusual and interesting features are generally reported. When we consider the relative frequency of renal and vesical calculi and the frequent occurrence of pathological and physiological narrowing of the urethra, it is not remarkable that a stone should be frequently found lodged behind such obstructions.

The great majority of cases belong to this group of secondary urethral calculi; that is, the calculus is formed at a higher level in the urinary tract, kidney, or bladder, and passes into the urethra where its further progress is arrested by some obstruction, either a normal or an abnormal narrowing of the canal. Owing to the fact that the caliber of the urethra is not uniform throughout, there are certain points at which a calculus which has escaped into the urethra from the bladder is most likely to lodge. Thus they are most often found in the fossa navicularis, in the bulbous, membranous, or prostatic portions of the urethra. In those cases where the calculus is associated with a stricture, the location of the stricture will determine the position of the calculus.

We can divide the cases of secondary urethral calculi into several groups or classes, depending upon the fate of the calculus or the changes produced by it after reaching the urethra. In some cases, as soon as the calculus escapes into the urethra from the bladder, it produces such violent symptoms as to make its immediate removal imperative. Not infrequently the presence of a stone in the bladder may not have been suspected, it may not have given rise to any symptoms whatever, or produced only moderate discomfort, when it suddenly slips into the urethra and produces such extreme pain and distress that its early removal is demanded. In other cases the urethra is more tolerant of the foreign body, and the calculus may remain in the canal for long periods without undergoing further change itself or producing any marked change in the surrounding tissues.

In a third group of cases, the calculus continues to grow after reaching the urethra, by the deposition of new material on its surface. Such stones remain in the urethra sometimes for years, increasing slowly in size, until they attain relatively enormous dimensions and produce a marked dilatation of the urethra. Cases of this kind are recorded in which the calculus, gradually increasing in size, filled almost the entire anterior urethra. Such a case is briefly reported by Fisher. This patient, forty-nine years old, a Western cattleman, had all his life ridden the range. At ten years of age his urethra was obstructed by a "growth." Several ineffectual attempts were made to pass a catheter. A fistula formed behind the "growth," and through this practically all the urine was voided. The pain on riding in the saddle was almost unbearable. At the operation a stone was removed from the anterior urethra which extended from the bulb to the glans. It measured two and five-eighths inches and five and one-fourth inches in diameter, seven and three-fourths inches and thirteen inches in circumference, and weighed nineteen and one-half ounces. This case is interesting, not only on account of the large size of the calculus, but as illustrating how long a patient will sometimes suffer a stone to remain in the urethra and continue to lead an active life.

In still another group of cases, the calculus, which at first lodges in the urethra and obstructs the lumen, slowly migrates into the periurethral tissues, and may eventually come to lie entirely outside the lumen of the urethra. The cavity so formed may communicate with the urethra by a wide or narrow mouth, or it may become completely shut off, and at operation the calculus is removed from a paraurethral pouch without opening into the urethral canal. This migration of the calculus probably takes place somewhat as follows: largely as a result of pressure by the calculus, the wall of the urethra gradually gives way, and a pouch is formed. This increases slowly with the increase in size of the calculus, the distention probably being aided by the pressure of urine at each urination. When a pouching of the urethra occurs, its further development is not unlike that which occurs in esophageal diverticula. The calculus sinks deeper and deeper into the periurethral tissues, the connection with the lumen of the urethra becomes smaller and smaller, until finally the opening may be entirely closed, and the stone then lies outside the canal. Cases illustrating the various stages in the migration of a urethral calculus from the urethra into a paraurethral pouch have been reported.

Fig. 1.—Lateral view of calculus. Natural size. Vesical end toward the left. The groove made by the external sphincter is seen on the upper (anterior) surface. The dark areas are due to staining with permanganate of potash after removal. The surface on removal was perfectly smooth and ashy gray in color. Weight, 106 grams.

Thus we can divide the cases of secondary urethral calculi into at least four groups according to the ultimate fate of the calculus, or the changes which it undergoes after reaching the urethra. In all of these cases, the calculus is formed at a higher level in the urinary tract, and only secondarily reaches the urethra.

In a smaller and more interesting group of cases, the calculus develops *primarily* within the urethra. These are much less frequently observed. There are, in fact, writers who hold that a calculus

never develops primarily in the urethra. Indeed, widely different views have been expressed as to the origin of urethral calculi. Legueu, for example, has said that in every case the calculus is formed in the kidney or bladder, and only secondarily becomes urethral. Gräfe, on the other hand, considers that

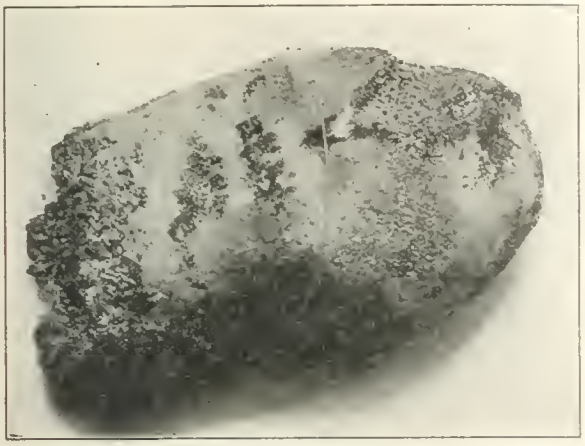


Fig. 2.—Lower (posterior) surface. Vesical end to the left is very rough, due to projecting crystals of phosphate of lime. Remainder of calculus smooth. The rough area at the upper right corner is due to abrasion with forceps during removal.

all calculi which have remained in the urethra for any length of time, are formed primarily within the urethra, since any calculus which is arrested in its passage through the urethra gives rise to such urgent symptoms as to demand its immediate removal. The truth undoubtedly lies between these two extremes; while in the mapority of cases the calculus is formed in the kidney or bladder, and lodges in the urethra, there are undoubted cases reported by competent observers, in which the calculus is of primary urethral origin.

That a calculus may form in the urethra is abundantly proven by clinical experience. One not infrequently finds phosphatic incrustations along fistulous tracts and the walls of abscess cavities communicating with the urethra. The remarkable case of Dupraz, quoted by Suter, offers convincing proof that primary deposition of salts may occur in the urethra. A man treated himself for urethritis for eight months with injections of a "water" recommended by a comrade. This "water" was carbonated. The symptoms were relieved, but a stricture developed, and examination showed that the entire anterior urethra was lined by an incrustation of carbonates. Friedländer, also quoted by Suter, observed a patient with stricture who had incrustations of phosphates in the urethra which were removed in splinters with a pair of forceps.

The conditions which are essential to the formation of a calculus in any part of the urinary tract are present in the urethra, associated with a variety of pathological conditions, such, for example, as stricture, inflammation of the glands with the formation of minute abscesses, diverticula of the urethra, and in fact in any case of solution of continuity of the uethral wall, such as occurs in incised wounds, injury, rupture, etc. Any obstruction to the escape of urine tends to produce a dilatation of the urethra behind this point, and favors the retention of urine. Such stagnant urine readily undergoes alkaline decomposition, which is an important factor in hastening the precipitation of the urinary salts, particularly the phosphates. The organic material, so essential to the formation of a calculus in any part of the urinary tract, is abundantly furnished by the desquamated epithelium, pus, blood, and mucus. Unquestionably the most important factor is obstruction with resulting retention.

Primary urethral calculi develop either (1) in the lumen, or (2) in a diverticulum of the urethra. When in the lumen, there is probably always some change in the urethral wall, either with or without resulting stenosis and dilatation behind the obstruction. Bazy has raised the question whether or not a calculus can form in a healthy urethra. He states that while this is improbable, yet a personal observation seems to favor this view. That a calculus sometimes develops at the site of a lithotomy wound has long been known. The symptoms develop, in some cases, only after an interval of years after the determining cause. Thus, following trauma, cases have been recorded where an interval of 17, 20, 26, and even 31 years elapsed before the appearance of symptoms of stone.

When a calculus, either primary or secondary, continues to grow in the lumen of the urethra, marked dilatation of the canal may result. Cases of unusual dilatation of the urethra have been reported by Kurbatow, Tesjakow, Rörig, and Fisher. In our own case, the urethra was enormously dilated.

In Kurbatow's patient, aged forty-three years, symptoms of stone had been present for six years. Two years before, a urethral fistula had formed, and a small stone escaped. A stone was felt by a sound in the urethra and by a probe in the fistula. At operation two stones were removed from the urethra, one measured 9 by 9.5 cm., and weighed, when moist, 390 grams; the second weighed 11.25 grams.

Rörig's patient, aged forty-five years, had suffered with dysuria and "paralysis of the sphincter" since his nineteenth year. A swelling in the perineum, extending from the scrotum backward, was felt externally and through the rectum. A stone 8 cm. long, 6 cm. in its anterior and 3 cm. in its posterior diameter, and 17 and 23 cm. in circumference was removed, weighing 250 grams. It lay in the bulbous, membranous, and prostatic portions of the urethra. In removing the stone the rectum was injured and the patient died on the twentieth day.

Tesjakow's patient, eighteen years of age, com-

Fig. 3.—Cut surface of the same, slightly enlarged. The nucleus lies in the center of the calculus in the same plane as the groove made by the external sphincter. The arrangement into indistinct concentric layers, especially in the outer portions, can be made out.

plained of pain on urination. He had passed several stones through a scrotal fistula. A stone was felt through this fistula and by a probe in the urethra, 2 cm. from the meatus. Twenty stones were found in the urethra, the largest weighing 67 grams. The total weight was 106 grams. The dilatation

of the urethra extended from the membranous urethra to a point 2 cm. from the meatus. Fisher's case has been cited above.

The history of our own case is as follows: R. W., colored, aged thirty-three years, was admitted to the hospital complaining of incontinence of urine and pain in the perineum. Ten years ago, while working on an elevator in Chicago, he fell down a shaft, a distance of 95 feet, sustaining a fracture of the pelvis. Following the accident, he was unable to void urine and a catheter could not be passed to the bladder. A perineal section was done at once. The patient remained in the hospital three months, at the end of which time he was discharged perfectly well. One year afterward an abscess developed in the left testicle which was removed. He now began to suffer with frequent urination, accompanied by severe cutting pain in the perineum, and associated with the escape of pus and blood from the meatus and in the urine. During the next two years he was treated at one of the local dispensaries. He was told that his trouble was evidently from a stone, but nothing was ever found on repeated soundings. Operation was advised and refused. He then returned to his home in Virginia, where he has since been working on a farm. During the past six years he has not consulted a physician, and has taken no treatment save large quantities of water and patent medicines. During this time he has worn a rubber urinal constantly. While moving about, if the urine was not escaping constantly, he suffered great pain in the urethra. To keep the urine flowing freely he drank "gallons of water every day." When sitting quietly he could hold his water for fifteen minutes. Finally, the suffering became so intense that he sought relief, and entered Freedmen's Hospital in February, 1907. He has complete loss of sexual power which came on two years after the accident.

Healthy young colored man, presents the facies of a constant sufferer. Examination of chest and abdomen negative. There is double inguinal hernia which, he states, has developed since his present trouble began. He is wearing a rubber urinal and there is constant dribbling of urine when standing. A distinct depression can be felt in the pubic arch in the midline, as though the bone had been driven downwards and backwards by a blow delivered from above and in front.

In the perineum is a rounded swelling along the course of the urethra, extending from the scrotal margin behind, backward nearly to the anus. This swelling is very prominent, rounded from side to side; the examining finger can be pushed up into a deep sulcus between the mass and the ramus of the ischium on either side. The mass is very hard, tender, and immovable, as though attached to the bone above.

Rectal examination is very painful; the introduction of the finger is followed by the escape of a quantity of pus and urine from the meatus. A rounded, very hard mass can be felt in the position of the prostate, regular in outline, and very tender. The bladder wall is easily reached above and appears normal. The region of the vesicles is free.

Urethra.—A small silk catheter passed easily a distance of 7 cm. where an obstruction was met against which the catheter grated. A small silver catheter was then used and the distinct, characteristic click of a stone was obtained. The silk catheter was again used and passed to the bladder. The urine was light in color, turbid, very foul smelling, and contained pus and bacilli in abundance.

Operation.—The membranous urethra was exposed by using the same incision as for perineal prostatectomy. We seemed to be behind the most prominent part of the mass, which extended forward in the bulbous urethra. The incision into the urethra was made through the bulb and at once the large, rounded, smooth, posterior surface of the stone was brought into view. In order to expose the anterior end of the calculus, the urethra had to be freely opened as far as the scrotal margin. Lateral incisions through the dilated bulb were necessary to free this portion of the calculus, and permit us to get around it and dislodge it from its bed. The incision was carried backward through the membranous urethra. It was impossible to tell, at this point, how far the calculus extended posteriorly, or to ascertain its shape or size. It was firmly fixed in position, wedged in between the rami of the ischium. Wishing to remove it entire, the outer end was grasped by a pair of stone forceps, by working one blade of the forceps between the calculus and the anterior wall of the urethra. By firm, steady traction with both hands, wrenching carefully from side to side, the stone was finally dislodged without injuring the soft parts, and removed entire. After the removal of the stone, the interior of the bladder could be inspected through the dilated membranous and prostatic urethra, which formed a circular opening approximately 5 cm. in diameter. The incisions in the bulbous urethra were sutured and the wound was packed lightly with iodoform gauze. No drainage tube was used. There was no attempt made to reduce the size of the greatly dilated urethra. The wound healed promptly.

The shape and size of the calculus are shown in the accompanying illustrations from photographs. When removed, the surface was smooth, except the vesical end, which was markedly rough and jagged The color is a pale ash gray. The measurements are as follows: length, 7.4 cm.; width, vesical end, 3.5 cm., urethral end, 4.7 cm.; circumference, 19.8 cm., vesical end, 14.2 cm., urethral end, 13.7 cm. When perfectly dry the stone weighs 106 grams. It is composed chiefly of calcium phosphate with a small amount of ammoniomagnesium phosphate. There is no uric acid, urates, or oxalate of lime.

The structure of the cut surface is well shown in the illustration. It will be seen in this view that the nucleus lies in the same horizontal plane as the groove made by the external sphincter muscle. That is to say, the nucleus of the calculus was formed in the membranous urethra, and it lies in the center of the stone. Growth occurred in both directions, toward the bladder and toward the anterior urethra. It is stated that in urethral calculi the nucleus will generally be found in the outer end, and that growth takes place chiefly toward the bladder. It is apparent that such was not the case in our specimen.

As to the origin of the calculus, it is evident that it is of primary urethral formation. We assume this from the history of the case, and the structure and composition of the calculus. There was no history of urinary trouble previous to the accident. At that time there was an injury to the urethra, making it necessary to open the bladder through the perineum. Following the injury, there was no urinary disturbance for a period of a year. Then began those symptoms which continued for nine years and finally compelled the patient to seek relief. The abscess of the testicle, which was removed, was evidently associated with the urethral condition and due to a descending infection. At no time did the symptoms become suddenly worse or change in

character, as when a stone enters the urethra from the bladder. No stricture of the urethra in front of the calculus was found at the operation. It is evident, therefore, that the formation of the calculus was intraurethral, and was associated with or depended upon, injury of the urethra. The extent and nature of this injury we do not know, but it must have been severe as the patient could not void urine and it was impossible to reach the bladder with a catheter. We have, then, in this case an example of trauma of the urethra followed by the development of a calculus.

The size of the stone is noteworthy. A relatively small number of similar cases have been reported in which the calculus was as large or larger. In recent literature only four cases similar to ours are found in which the stone was larger. In three of these the stone was removed by operation; two patients recovered and one died twenty days afterward from an injury to the rectum during the operation. In the fourth case the stone passed spontaneously through a fistula.

Our specimen belongs to the large group of phosphate of lime calculi. Triple phosphates are present only as an impurity. Calculi composed entirely or chiefly of triple phosphates are exceedingly rare. Suter reports one such case.

Calculi formed in diverticula of the urethra sometimes attain enormous size. The largest urethral calculus recorded belongs to this group. This case was reported by Bourdillat, the weight of the calculus being 1,450 grams! A calculus may form in a diverticulum and, vice versa, a diverticulum may result from the growth of a calculus. It is sometimes difficult to say which is primary, the calculus or the diverticulum. Urethral diverticula are either (1) true or (2) false. A true diverticulum is one in which all the layers of the wall of the urethra are present. While it is easy, theoretically, to distinguish between these two, in practice it is often difficult, and sometimes impossible. The inner lining of a true diverticulum may be completely destroyed by a stone or inflammation, and the wall changed into fibrous tissue indistinguishable from that of a false diverticulum. It is claimed, furthermore, that a false diverticulum may be lined by epithelium which grows in from the adjacent epithelial lining of the urethra.

True diverticula may be either (1) congenital or (2) acquired. Congenital diverticula are very rare. Watts, in 1907, was able to collect but sixteen cases, to which he added one. They occur most commonly in children; the pouch is formed, usually, in the anterior urethra. In adults it is extremely difficult to say whether a diverticulum is congenital or not. The occurrence of stones in this form is very unusual. Not more than three or four cases have been reported.

Acquired diverticula of the urethra are more common. They arise from either (1) dilatation of the urethra by a stone or stricture or (2) perforation of the urethra from injury or the rupture of a cyst or an abscess. As distinguished from the congenital form, they occur most commonly in adults, and the membranous urethra is the favorite site, although they may occur at any point.

The occurrence of stone in acquired diverticula is not at all common. The number of cases reported does not exceed twenty-five.

There is at present no generally adopted system of nomenclature, by which one can conveniently indicate to which class any particular case of urethral calculus belongs. Indeed, there is no uniformity of opinion among writers on this subject, as to what cases should properly be included under the term "urethral" calculus. The term is used in a widely different sense by various writers. As generally employed, it was made to include all cases in which a calculus occurs in the urethra, without reference to its origin. In his paper in 1896 Lieblein contends that this use of the term is too broad. He holds that only those cases should be included where the calculus forms primarily within the urethra, or undergoes further growth by the deposition of new layers on the surface after reaching the urethra. In this restricted use of the term the number of cases would be greatly reduced. In a review of the literature Lieblein could find only fifty-four out of over two hundred cases which could be properly admitted in the narrow sense in which he used the term. This view has been adopted by others, notably by Kaufman and Urstadt.

In this restricted use of the term we must exclude those cases where a calculus forms in the kidney or bladder, lodges in the urethra, and there produces such acute symptoms as to demand operative interference for its removal. It may be that such a stone, while in the kidney or bladder, gave no discomfort calling attention to its presence. Only after reaching the urethra did it make its presence felt and, as a stone in the urethra, produced the symptoms which led to its detection and removal. How are we to designate such a calculus? We term any calculus, occurring in the bladder and producing symptoms, a vesical calculus, without reference to its origin, be it of primary formation in the bladder, or a kidney stone which has passed into the bladder. In the same way it would seem that any calculus found in the urethra should be called a urethral calculus, whether primary or secondary.

We recognize the necessity of some means of properly designating these cases. We should be able to differentiate, by some appropriate term, a calculus which has its origin in the urethra from one which forms at a higher level and becomes lodged in the urethra, with or without undergoing further development.

Suter has proposed the following system of nomenclature which, while not novel, appears to us to be very satisfactory. All calculi occuring in the urethra are to be designated as urethral calculi, whether primary or not. The term indicates where the calculus is found, without reference to its origin. To indicate its origin, we may employ modifying terms, indicating whether the stone arises within the urethra itself, or wholly, or in part outside. The terms proposed are autochthonous, heterochthonous, and amphichthonous. Autochthonous urethral calculi are formed in the urethra; heterochthonous urethral calculi are formed wholly outside the urethra; amphichthonous urethral calculi have their origin outside the urethra, but increase in size, by the deposition of new layers, after reaching the urethra. If we know the origin of the calculus in any given case, as for example, a vesical calculus which slips into and is arrested in the urethra, without undergoing any increase in size, then it may be called a vesicourethral calculus. If such a stone continues to grow after reaching the urethra, then we may call it a vesicourethral-urethral calculus, etc. The three main groups are sufficiently described by the modifying terms autochthonous, heterochthonous, and amphichthonous. It is apparent that those cases belonging to the second group, the heterochthonous urethral calculi, cannot be included under the term "urethral" calculi in the restricted meaning of the term employed by Lieblein. The suggestion of Suter seems to us very satisfactory in that it permits

us to readily and accurately classify all cases of this kind, and we can indicate by the use of a single modifying term whether the calculus is of primary urethral origin, or reached this point secondarily.

The symptoms produced by a urethral calculus depend upon several factors, such, for example, as the size and shape of the calculus; its position in the urethra; its etiology, whether primary or secondary; the presence of infection, etc. Relatively large calculi may pass the urethra when there is no pathological obstruction present. If the stone is rough and angular the pain is severe, and hemorrhage may be profuse. On the other hand, a very small calculus may lodge behind a tight stricture and cause most distressing and alarming symptoms. (McGuire's case, calculus the size of a buckshot.) In one of my own cases, operated upon during the past year, a small stone impacted behind a tight stricture of the membranous urethra, caused most intense suffering. A brief report is given as this case illustrates not only the severe symptoms sometimes produced by such small stones, but also the difficulty sometimes experienced in detecting and removing such a stone.

G. B., aged sixty-two years, was seen in consultation in June, 1906. He complained of frequent and painful urination. He had gonorrhea at eighteen years of age which lasted five or six months. The discharge has recurred three times. He has had internal urethrotomy performed three times for stricture, each time followed by profuse hemorrhage. He has taken chloroform eleven times to have the stricture dilated. Two years ago, following a debauch of several days' duration, he had marked hematuria lasting twenty-four hours. Once since he has passed a considerable number of blood clots. There has never been any pain in the region of either kidney or along the ureters. The only urinary trouble, aside from the hematuria, has been the difficulty of voiding due to the stricture.

Present Illness.—In February, 1906, following a sudden violent exertion, he noticed something slip into the urethra. He then first noticed that he passed his urine in a smaller stream than usual and at frequent intervals. And after urinating he had severe pain, sharp and cutting in character, located in the root of the penis and radiating along the left side of the urethra to the glans. Just previous to this he had passed his urine much more freely, at normal intervals, and without pain. His symptoms became more marked, the suffering with each urination was intense, and the pain in the urethra on walking about became so great that he was compelled to take to his bed.

When first seen, he was emaciated and extremely nervous. In urinating he assumed a peculiar posture. He would squat down with the thighs strongly flexed on the abdomen and the knees bent. In this position he would wait for a considerable time for the urine to flow. As the stream started, he would raise himself by straightening the legs, keeping the body bent forward, and swaying backward and forward by rising himself on his tiptoes. The urine was voided in a fine stream. The act was followed by severe, cutting pain along the left side of the urethra, extending from the root of the penis to the glans.

The urine was turbid, very foul smelling, alkaline, sp. gr. 1010, albumin present. There were no casts, few pus cells, red blood cells, abundant crystals of triple phosphates, and bacteria. The patient was so nervous that no local examination, not even rectal was possible. Suspecting a urethral calculus associated with a stricture, the patient was sent to the hospital for examination and operation. Under an anesthetic we found a stricture, 5 cm. from the meatus, which was readily dilated. In the membranous urethra there was a second very tight stricture which permitted only a filiform to pass. This was dilated by using a filiform and a Le Fort follower until a No. 19 F. sound could be passed easily to the bladder. No stone could be felt in the bladder and nothing was felt at first in the urethra. Withdrawing and introducing the sound repeatedly and searching the urethra carefully, a stone was finally detected lying behind the stricture. Opening the urethra in the perineum a small oval calculus was found lying in a pouch behind a tight stricture of the membranous urethra. After dilating the stricture further some difficulty was experienced in grasping the calculus. It was finally pushed back into the bladder where it was readily grasped and removed. The patient made a good recovery. He is now perfectly well, urinates at normal intervals and without pain. His urethra admits a Kollman dilator which can be opened to No. 36 F. with ease.

The calculus is egg shaped, light cream in color, with a smooth, polished surface, and measures 1.3 by 0.9 cm. It is composed of pure phosphate of lime.

In children the sudden blocking of the urethra by a stone causes most violent symptoms. Acute retention often results. This is rare in adults, except in association with stricture. There is more often in adults a sudden stoppage of the steam, followed by a diminution in its size, with dribbling of urine. Pain is always a prominent symptom. It is usually localized in the urethra, either at the site of the calculus, or referred to the anterior urethra and the glans penis. Cases in which the reflex pain was referred to the back, abdomen, and pelvis have been reported. Dysuria is usually marked. When the calculus is lodged in the prostatic or membranous urethra, or when associated with a tight stricture, incontinence of urine is a distressing symptom.

These symptoms are all due to the presence of a foreign body in the urethra, and the mechanical obstruction to urination produced by it. There is usually only slight hematuria due to the fact that the stone is fixed and immovable. When infection occurs the picture changes completely. The symptoms become aggravated, the pain is greatly increased, and suppuration sooner or later occurs with abscess formation and fistula. A patient will tolerate a calculus in the urethra, sometimes for years, being able to endure the discomfort to which it gives rise as a result of the mechanical irritation, but if infection occurs the symptoms become so severe as usually to require active interference.

As a rule autochthonous urethral calculi produce much less acute symptoms than the secondary variety. The urethra is apparently more tolerant. Exceptionally a patient may carry a very large stone in the urethra for years without suffering any inconvenience and without a suspicion of its presence. Such a case is reported by Wolf. A man, aged fifty years, died of cellulitis of the leg, cirrhosis of the liver, etc. At the post mortem a calculus was found in the urethra weighing 23.62 grams and measuring 4.6 by 3.3 cm., and lying 5 cm. behind the meatus. The urethra over the calculus was crescentic, the latter lay in a pouch composed of all the layers of the urethra. This diverticulum is supposed to have been congenital, and contained, besides the large calculus, about 130 millet seed calculi. There had been no symptoms during life referable to the

urethra. In the case recorded by Jawitzki, a stone was present in the urethra for thirty-five years, during which time the patient had led an active life.

The diagnosis is usually simple; sometimes it is very difficult. If the stone lies in the lumen of the urethra, it is readily detected by a metal instrument, and a positive diagnosis made. When a fistula has formed the stone, if present, can often be felt by a probe introduced into the fistula. In those cases where the calculus lies in a diverticulum, the diagnosis is not so readily made. Urethral instrumentation in these cases may be negative. A tumor in the line of the urethra can usually be palpated externally, it may be hard and very tender, but unless crepitation is elicited, which is rare, one cannot always differentiate between a stone and a mass of scar tissue so often found in the scrotal and perineal urethra surrounding an old fistulous tract. In some cases the true nature of this swelling is determined only by incision. In an interesting case reported by Chevassu, three urethral calculi were detected in a pouch of the urethra by the *x*-rays. This sac held 40 c.c. and was distended with each urination, the urine dribbling away after the act.

When a small calculus is impacted behind a tight stricture its detection is difficult; it may be overlooked altogether. In our own case, recorded above, it was only by repeated and careful search of the urethra after the stricture had been dilated that the stone was felt. In Recoviceano's case there was a calculus in the prostatic urethra associated with a stricture. Examination with a sound did not reveal a calculus. An internal urethrotomy was performed without a suspicion of the presence of a calculus. Three weeks later septic symptoms appeared. Exploration of the urethra was again negative for stone. A hard mass was found in the perineum. An opening was made and a calculus extracted.

Treatment.—A small calculus in the penile urethra can sometimes be removed with the urethral forceps. In one such case, where the stone was freely movable behind a narrow point of the canal, I was able to fix the calculus by pressure on the urethra behind it, and remove it with the urethral forceps. Great care must be taken to avoid injury to the urethral wall, particularly in the presence of infection. In one such case reported gangreme and extensive sloughing of the urethra followed the removal of a small calculus impacted in the penile urethra. Attempts to crush the stone by pressure from without should never be made. If the stone cannot be readily removed by the forceps, it is safer to do an external perineal urethrotomy and remove the stone by displacing it backward. If this does not succeed one should then cut down on the stone, remove it, dilate the urethra, and suture, leaving the perineal wound open for drainage until the wound in the penile urethra has completely healed. For all large stones in the deeper urethra external perineal urethrotomy is the operation of choice. It will rarely be necessary to open the bladder above the pubes. In some cases of a small stone in the prostatic urethra it is possible to push it back into the bladder and remove it with a lithotrite.

In a large proportion of cases, nearly one-third, multiple calculi are present. In Grobe's case 183 calculi were removed. Karajew removed 85 stones from a sac behind the prostate and during convalescence 415 more were passed. Silthorpe removed 80 stones from a pouch behind a stricture of the scrotal urethra. These were palpable externally.

In some cases of multiple calculi of the urethra the separate stones present facets by which they articulate with each other. In the most common variety of faciculated calculi, the whole mass is lozenge-shaped, conforming to the shape of the urethra. The individual, disc-like pieces articulate with each other by flat surfaces. In other forms the individual calculi may present very irregular, bizarre outlines, the whole forming a more or less spherical mass. Such a case is described and figured by Desnos.

The largest urethral calculus I have found reported in recent literature is the one recorded by Fisher, weighing nineteen and a half ounces. This case is unusually interesting in that the calculus was limited to the anterior urethra. The calculus in Kurbatow's case weighed 390 grams, and in Rörig's, 250 grams. Kapsammer removed a calculus, weighing 162 grams, from a vaginal sac situated between the prostate and rectum. Naguera reports a case of a urethral calculus, weighing 130 grams and measuring 14 cm. by 8 cm., which was passed spontaneously through a fistula.

The great majority of urethral calculi are composed of phosphates, the phosphate of lime predominating. Ammoniomagnesium phosphate is usually present as an impurity, or it may form a large part of the calculus. In only one case reported was this substance present in a pure state. Heterochthonous urethral calculi may be composed of uric acid, urates, oxalate of lime, cystin, etc. In the amphichthonous forms these substances may form the nucleus while the outer layers are composed of phosphates. According to Kaufman, all urethral calculi composed of uric acid, urates, oxalate of lime, and cystin are of secondary urethral origin. Lieblein, however, reports a case of a primary urethral calculus composed of uric acid. Hence we must modify this view of Kaufman, and admit the possibility of the primary deposition of these substances, at least uric acid, in the urethra.

THE ESOPHAGOSCOPE AS A DIAGNOSTIC AND THERAPEUTIC AID IN ESOPHAGEAL OBSTRUCTION—REPORT OF CASES.*

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PRACTICALLY all diseases of the esophagus manifest themselves through an interference with the peristaltic waves. Dysphagia is the first and chief symptom of esophageal obstruction, regardless of the character of the pathological lesion. There is, therefore, no class of cases which gives both physician and patient greater anxiety than do obstructions of the esophagus, because in their incipiency, at least, there is always grave doubt as to the malignancy of the affection. It is not so important from a therapeutic standpoint that the presence of carcinoma should be determined early, for there can be no more unfavorable location for surgical interference than the lower two-thirds of the esophagus, but it is important with reference to both prognosis and treatment, that one should be able to exclude carcinoma as soon as possible.

In view of the paucity of symptoms in esophageal diseases in general, and the prominence of one symptom in practically all of these diseases, a definite diagnosis based upon symptomatology alone is difficult—in fact, often impossible. The location of the

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esophagus renders the physical examination practically resultless, and until recently esophageal sounds and the *x*-ray were practically the only appliances which were of aid. The esophagus, therefore, is the organ par excellence in which the sense of sight could prove, and has proven, of inestimable value. The use of the esophagoscope then is the logical method for determining at the earliest moment the true character of esophageal obstructions. Only in the last decade, however, may it be said to have found its own as a diagnostic and therapeutic aid.

Prior to 1896 comparatively little had been done in the direct examination of the esophagus through the aid of the eye. Diagnoses were based largely upon the symptomatology and the use of esophageal sounds, and, while these methods are of great value, there is scant doubt that esophagoscopy will become quite as indispensable in the study of diseases of the esophagus as is the proctoscope in diseases of the rectum, and the cystoscope in diseases of the bladder.

The first practical work was done by v. Mikulicz in 1881, with a perfectly straight tube, though the way had already been paved by Stoerk (1866), Waldenburg (1870), and McKenzie (1880). These authors employed devices with laryngeal mirrors attached, and thus obtained a reflected image of a portion of the esophagus. v. Mikulicz employed a long, straight tube—long enough, in fact, to be passed into the stomach, with the light at the distal end. His researches along this line were of the same value that always characterized his work. He added much to our knowledge of both the physiology and pathology of the esophagus. His instrument, however, was used almost entirely for purposes of observation, being of little value from a therapeutic standpoint, because of the position of the light within the tube.

Von Hacker, in 1889, began his work, using the instrument of Mikulicz with the light reflected into the tube by means of an incandescent lamp at the proximal end. This was the beginning of the method used at the present time. He, too, was able to make most valuable contributions to our knowledge on this subject. Rosenheim, in 1896, added his ingenuity to that of his predecessors in the work, and succeeded in perfecting an instrumentarium which has been improved upon but little up to the present time. He used the tubes of various lengths, just as they are used at present, with a hard rubber obturator, having a soft rubber tip instead of bougies, such as are employed by Killian and others in their work. Kelling, Kraus, Gottstein, Gluecksman, Killian, v. Schroeder, and Jackson of this country, have all added their modifications, many of which are of value, but the principle of the esophagoscope has remained the same since the days of Mikulicz.

All manner of therapeutic appliances have been invented, until now there is a special forceps for the removal of almost every known foreign body, instruments for the application of drugs to ulcerated surfaces, curettes for the removal of sections for microscopic examination, lens attachments for the photographing of pathological lesions, etc. Beautiful photographs have been obtained through the esophagoscope of the various affections that are common to this organ.

Perhaps the most brilliant results that have been accomplished through the use of the esophagoscope, however, are in the diagnosis and abstraction of foreign bodies. It is always a matter of gratification to the internist when a bit of the vast territory that he has gradually been compelled, through force of argument and results, to relinquish to the surgeon, is regained. The removal of foreign bodies from the esophagus, until the esophagoscope came into more general use, was attempted in the dark through the use of long forceps, and if this was unsuccessful, surgery had to be resorted to. If the object remained in the upper part of the esophagus, an external esophagotomy was done, and prior to 1896 this was not an uncommon operation. If, on the other hand, one of the lower points of location was chosen by the object, namely, the level of the bifurcation of the bronchi or the hiatus esophageus, then one of the most difficult operations known to surgery had to be done. Now these objects may be removed with equal ease, regardless of their location, without surgical interference.

During the past year three cases of foreign bodies in the esophagus have come into my hands, and in each case the object was successsfully removed by the aid of this instrument. In a fourth case, in which a foreign body or ulcer was suspected because of the symptoms manifested by the patient, an examination through the esophagoscope revealed the absence of either foreign body or ulcer, as far down as the cardiac orifice of the stomach.

Before turning to these cases, permit me to recall a few points concerning the anatomy of the esophagus which are necessary in the consideration of the technique of introduction of the esophagoscope. In its upper third it lies between the vertebral column and trachea, and then crosses the left bronchus, coming into direct contact with the aorta, passing slightly to the left of the vertebral column and then through the hiatus esophageus in the diaphragm, and for a length of 2½ cm. runs intraabdominally. Its length from the cricoid cartilage, where the esophagus may be said to begin, to the cardia, is 25 cm. From the teeth to the cricoid cartilage the length varies from 14 to 17 cm., making the total length of the esophagus in a straight line from the teeth to the cardiac orifice of the stomach 40 cm. The cervical portion of the esophagus is closed, the thoracic portion remains open and enlarges with each inspiration. The portion between the diaphragm and the cardiac orifice is closed. The width at different portions varies from 12 to 20 mm. The narrowest portions, above which foreign bodies usually lodge, are at the cricoid cartilage, 12 mm., at the hiatus esophageus, 12 to 14 mm., and at the crossing of the bronchus, 17 mm.

The patient often gives misleading statements as to the location of the object, because of his inability to interpret his sensations. This is due, firstly, to the poor supply of nerves of sensation to the esophagus, and, secondly, to the reflex contractions which take place at points above the location of the object. The chief symptoms in all of these cases are the dysphagia, pain caused thereby, and a feeling of indescribable discomfort and pressure. In the cases, which I here report, the patients were able to locate rather definitely, with the finger on the sternum, the position of the foreign body.

Case I.—H. M. R., age thirty-five, teacher. While at dinner on May 8, he swallowed a hard object, which first seemed to lodge back of the tongue. The patient thought he could feel it with his fingers. On the advice of his physician, he endeavored to carry it down with soft food, and was of the impression that he could feel it pass down to a certain point, beyond which he was unable to move it. The pain was not great in the beginning, but he was unable to swallow anything but liquids and very soft foods. Twenty-four hours later he was examined by a laryngologist, who was unable to see anything

with the laryngeal mirror. The symptoms increased, the discomfort daily growing worse, until on May 12, four days later, the patient was sent to me. He was a very intelligent man, possessing none of the stigmata of hysteria. The pharynx of the patient was anesthetized with a 10 per cent. solution of cocaine, and with little difficulty the esophagoscope was introduced. At a point about 25 cm. from the teeth, there was on the posterior surface of the esophagus an ulcerated area, as large as the diameter of a split pea, in the center of which there was a white, glistening object. This object was removed by means of forceps, and was found to be a piece of cellulose, a half inch in length, roled up into a little quill, pointed at one end. The patient was advised, on account of the ulceration, to remain on a liquid or soft diet for a period of a week. He experienced considerable soreness upon swallowing for at least a week after the removal of this object, but the condition gradually improved until within a period of ten days he was able to eat without any discomfort whatever. In this case it must be borne in mind that the foreign body had been in the esophagus for a period of four days, and had succeeded in producing considerable inflammation, with ulceration at the point of lodgment. For this reason the symptoms necessarily persisted longer after the removal of the object than they ordinarily do if removed at once. This object was partially buried in granulations in the posterior wall of the esophagus, just over the bifurcation of the bronchi and in very close proximity to the aorta. It is needless to dwell upon the possible outcome of such a case, had it been permitted to go on indefinitely, or had a more virulent infection occurred as a result of the trauma.

Case II.—Mrs. C. W. S., age sixty, while eating chicken salad, felt an object lodge in her throat, and was unable to expel it through the mouth, or to cause it to pass downward. She endeavored, through swallowing other food, to cause it to go down, but this procedure simply caused greater discomfort and greater pain. She took olive oil and pepsin with no effect. Her "gullet felt very raw," and after twenty-four hours the patient recognized the futility of waiting for the object to pass into the stomach. The throat was carefully examined, but nothing could be seen either in the larynx or pharynx. Because of the patient's definite statements as to the constant location of the pain, which was apparently at, or just below, the cricoid cartilage, a short esophagoscope, 20 cm. in length, was used. After the cocainization of the pharynx, the introduction of the instrument required but a moment with the aid of the esophageal bougie and presented a most interesting picture. What appeared to be a small fish bone was stretched across the esophagus at a point just below the cricoid cartilage. The mucous membrane was considerably reddened and congested but there was apparently no ulceration. To my surprise, the object could not be pulled into the tube by means of the forceps, and after several attempts to withdraw it through the tube, I determined to take a firm hold upon the object and withdraw the tube and forceps simultaneously. This was done. It proved to be a piece of the breast bone of a chicken, triangular in shape, about three-quarters of an inch in diameter. The patient felt instant relief; five days later all discomfort had disappeared.

Great care must be taken in the application of the instrument in such cases as this, in order not to come in contact with the object before the bougie is removed, otherwise the object may be driven deeper into the tissues, or possibly pushed into a lower portion of the esophagus. In cases in which the object lies in the upper part of the esophagus, I feel that it would be better to introduce the instrument under the constant guidance of the eye, rather than with the bougie, but the presence of the bougie makes the introduction easier for the physician and less uncomfortable for the patient. In this case I was unfortunately unable to inspect the area from which the object had been removed, because it would have necessitated the reintroduction of the instrument. This, of course, occurs only when the object cannot be withdrawn through the tube, or if sufficient bleeding occurs after the removal of the foreign body to obstruct the field. While tampons may be used successfully when saliva obstructs the field, they are not very satisfactory when there is a considerable amount of bleeding, because usually before the tampon can be removed through the long instrument, sufficient blood has again collected to obstruct the field. In such a case adrenalin or some other astringent might be tried.

Case III.—Mrs. M. B., age 46, on January 15, at noon, while eating pork, felt a solid body pass into the throat. She made frequent attempts to swallow it, but failed. After a time it passed downward and "seemed to lodge under the upper portion of the breastbone." The patient was absolutely unable to swallow food in an effort to dislodge the object, and all efforts to dislodge it through vomiting, coughing, swallowing, etc., were futile. Her physician made a number of efforts to remove the object, but was unable to do so. The patient was sent to me January 27, about forty-eight hours after the accident. The pharynx, larynx, and upper portion of the esophagus were anesthetized. The instrument was introduced slowly and carefully and the bougie removed as soon as the esophagoscope was passed over the epiglottis. A white mass could be detected diagonally across the lumen of the esophagus, about 27 cm. from the teeth. This was caught at what seemed to be the uppermost end and readily withdrawn under the aid of reflected light. It was found to be a piece of bone, in all probability from pork, about an inch in length and one-eighth to one-quarter inch in width. The patient reported forty-eight hours later, and while she still experienced slight pain and "rawness of the throat" upon swallowing, she was able to take soft food with ease. She was asked to report to me again if the symptoms did not disappear within a few days. Her failure to do so is indicative of the absence of any unpleasant results in her case.

Case IV.—Miss M. M., age 22. Prior to a week ago was in very good health. From time to time, for a year or more, has complained of eructations of gas and occasionally of food. A week ago, after eating some "chile con carne" with a party of friends, she was suddenly attacked with a severe pain, just under the xiphoid process. The pain was so intense and so sharp that she writhed in agony. She described the pain as being of a "sticking, stabbing" character. Several physicians were sent for and hypodermics were resorted to. The attacks came on periodically at short intervals throughout the week, but there was no time when she was entirely free from pain. She was unable to swallow anything without great distress at this point; in fact, was absolutely unable to take anything but liquids. Several times during the week she brought up a small quantity of blood, which she felt sure came up with fluid she had swallowed. It was

not coughed up, and she feels reasonably sure it did not come from the lungs. Excepting for the point of exquisite tenderness over the xiphoid area, which could be very definitely localized with the finger tip, the physical examination was negative. Though somewhat nervous, she could not be considered a hysterical person. A review of the symptoms led to the supposition that either a foreign body had lodged in the esophagus, near the cardiac orifice, or there existed an acute erosion at this point. The esophagoscope was introduced throughout the entire length of the esophagus down to the cardiac orifice and the mucous membrane carefully inspected as the instrument was introduced. The mucous membrane appeared perfectly normal throughout, and nothing that could be interpreted as either a foreign body or ulcer was found. The esophagoscope was then slowly withdrawn and the mucous membranes again inspected and found perfectly normal. In view of the absence of any pathological lesions in the esophagus, I could only interpret her symptoms as that of an ulcer within the stomach, very near the cardiac orifice. The patient was put to bed and given a four weeks' ulcer cure, with good results. I shall not go further into the history of this case, inasmuch as no esophageal lesion was found, but cite the same to show the value of negative findings as well as positive in the use of the esophagoscope.

The following three cases are selected because of the different features of esophagoscopy that they bring out, the first one being a case of a malignant stricture in which the introduction of the esophagoscope was impossible, the second being a case of malignant stenosis in which the diagnosis could be easily made with the esophagoscope, and the third a case of stenosis in an old man in which the diagnosis of a benign stricture could easily be made and the stricture dilated by means of sounds through the esophagoscope.

Case V.—Mr. H., age 54, German. There was nothing of importance in his family or previous history. There was no history of lues, and the patient had been in excellent health all his life. About three months prior to his visit to me he noticed slight difficulty in swallowing. About a month before this he had commenced working in lead paint. This had given alternating spells of constipation and diarrhea and he thought it might have had some effect on his swallowing. The difficulty was at first noticed only when he swallowed large particles of food. They seemed to lodge "just under the end of the breastbone," and he often had to expel them. Liquids, soft foods, and well-masticated particles he was perfectly able to swallow. At this time he was living on soft-boiled eggs, eggnogs, broths, etc., and even liquid seemed to lodge above the pit of the stomach; after a moment he could hear it pass into the stomach with a noise. The patient had lost little if any weight up to this time and felt perfectly strong and well able to do his work. The physical examination revealed nothing of a positive nature, the patient was well nourished, well developed, slightly anemic, but in no sense cachetic. The introduction of bougies showed an almost complete obstruction near the cardiac orifice of the stomach. With great difficulty, a French bougie, size 22, could be introduced. Malignancy was at once suspected because of the suddenness of the onset in a man 54 years of age; he gave no history of trauma and he was in no sense a nervous individual. However, in order to make the diagnosis complete, an effort was made to introduce the esophagoscope. The patient was a very pliable one, willing and anxious that the seat of the trouble should be discovered, and lent us every assistance in our efforts to introduce the esophagoscope. Eight or ten efforts were made, but we were absolutely unable to introduce the instrument. The cervical spinal column was perfectly flexible, and the patient assumed a perfect position. There were, however, two obstacles in the way of the introduction, one being very long incisor teeth, which we did not feel justified in removing because the diagnosis seemed fairly complete without the esophagoscopic examination, and the second a very convex cricoid cartilage. The patient had a large prominent larynx, which protruded posteriorly as well as anteriorly. Small bougies met with partial obstruction here. During the time that the patient was under my observation, he began rapidly to lose weight and strength and was referred back to the surgeon for gastrostomy. This case is recited to show how the most persistent efforts to introduce the esophagoscope in some cases may prove futile. Had there been a reasonable doubt about the diagnosis, two or three of the incisor teeth could have been removed.

Case VI.—Mr. J. C., age 62. Patient had lues thirty years ago, with primary but no secondary lesions. Appendix was removed six years ago. Married at the age of 43, had no children. Until recently he had been an excessive drinker. About six months ago began having a gastric disturbance, characterized by loss of appetite, bloating, eructations of gas; no pain. Began vomiting about two and a half months ago, after almost every meal, sometimes with considerable straining, at other times would regurgitate his food without any effort. Often the food would come up while at the table, when he would return and finish his meal. He found that he had to eat very slowly, chew food thoroughly, and swallow no large particles. In this way he succeeded in taking a fairly hearty meal and retaining it. No blood in the vomitus, no jaundice, no colics. He is thirty pounds lighter than his best weight. Since on a general diet, thinks he has been gaining weight. Patient is very slender, considerably emaciated, bony frame, small, somewhat anemic, no definite cachexia, though the skin is dry. No enlargement of the cervical, or the supraclavicular lymph nodes. Has a typical habitus enteroptoticus. Heart sounds weak, otherwise normal. Lungs negative. Liver dullness displaced downward, beginning at the eighth rib and extending three finger breadths below the free margin of the ribs. One's first impression is that of enlargement of the liver, but the measurements of the outlines show it to be normal in size. The liver is palpable in the epigastrium and somewhat harder than normal liver substance. An effort to introduce the stomach tube met with an obstruction about 40 cm. from the teeth. The smallest sized stomach tube could not be introduced; succeeded, however, in introducing the esophageal bougies 24, 26, and 28 consecutively. A tentative diagnosis of carcinoma of the lower third of the esophagus, or the cardiac orifice of the stomach, was made and the patient was sent to the hospital. Two days later the esophagoscope was introduced and at a distance 38 cm. from the teeth the obstruction was very definitely seen. There extended into the lumen a cauliflower excrescence of a typical granular appearance, seeming to come chiefly from the posterior wall, though the entire circumference was involved. Being 38 cm. from the teeth, it was considered carcinoma of the esophagus. Inasmuch as a total obstruction was imminent, the patient being practically unable to swallow anything, even fluids, a gastrostomy was recommended. Upon opening the abdomen, the lesser curvature and cardia of the stom-

ach were found to be also involved but entirely covered by the ptotic liver which gave the feeling of resistance, spoken of above, in the epigastrium. An enterostomy was done and the patient fed for a period of two weeks into the first loop of the jejunum, after which he died. An autopsy was not obtainable. This was, in all probability, carcinoma of the cardia extending into the esophagus, rather than a carcinoma of the esophagus involving the cardia and lesser curvature.

Case VII.—Mr. S. R., age 50. On January 4, 1907, the patient came to me with the statement that for a period of one year he had had considerable difficulty in swallowing, together with pain in the right hypochondriac region, which was more or less constant and abated for short periods only. Directly over the lower part of the sternum he marked a point where the food seemed to stop. He did not vomit, but belched a great deal of gas. In the beginning there was no pain at the point of apparent obstruction, but he felt as if a stone lay there. After swallowing, and during the passage of the food through the esophagus, he had a "sticky, uncomfortable sensation for a few moments until it entered the stomach." Four months after this condition arose he applied to Dr. Engelbach, who introduced the stomach tube without any difficulty whatever. Two months later, that is six months after the development of the disturbance, he applied to Dr. Rush, who also introduced a stomach tube without the slightest difficulty, and made an analysis of the gastric contents, which showed a mild subacidity. At that time the patient was able to swallow semisolids easily and had swallowing murmurs in 10, 20, and 30 seconds. About a month later, however, both the stomach tube and bougies met with a firm resistance at points from 18 to 20 cm. from the teeth. When the patient applied to me he was still complaining of great difficulty in swallowing, being unable to swallow solid foods, and fluids with difficulty. The pain in the right hypochondriac region, for which no cause could be found, still persisted. When he made an effort to swallow solid food, such as a piece of meat, it would lodge and then through great effort on his part he was able to regurgitate it. Only the small size bougies could be passed and these with considerable difficulty. The esophagoscope was used and was quite readily introduced to a point about 30 cm. from the teeth where a definite stricture was met with, which was to all appearances of a benign character. The mucous membrane was pale and glistening in appearance, showed no evidence of ulceration, granulation, or any neoplasm. Through the esophagoscope it was possible to pass much larger sounds than without. While bougies not larger than French No. 22 could be introduced without the esophagoscope, we were able to introduce Nos. 28 and 30 through the esophagoscope itself. This patient was observed for several months and the diagnosis of benign stricture was confirmed through the continued history. He refused operation and I met with him quite by accident about eight months after his first visit to my office and so far as I could see his condition had in no way changed.

In all of my cases the instruments devised by Killian have been used, with the patient in the sitting posture, as first described by Stoerk, rather than in the reclining posture upon the back or upon the side. The patient sits upon a low stool with someone in a chair behind him, supporting his back, pushing the chest somewhat forward and throwing the head back as far as possible. In this manner the mouth, pharynx, and esophagus are brought into one line. The pharynx was thoroughly anesthetized with a 10 per cent. solution of cocaine. Some recommend 20 per cent., but so far as I can see it has no advantage over the weaker solution and is unquestionably more dangerous. Patients are instructed not to swallow immediately after the applications are made; the esophageal bougie is permitted to extend about six inches beyond the end of the esophagoscope and is introduced with the head dropped forward. As soon as the top of the bougie has passed over the epiglottis, the patient is instructed to throw his head back as far as possible and the instrument is slowly introduced until the end of the esophagoscope is felt to pass over the cricoid cartilage. This sensation is a very definite one to the operator. The bougie is then slowly removed, while the esophagoscope is held in position. The light is then thrown into the instrument through the aid of the panelectroscope, or the Kirstein lamp. It is then slowly introduced under the constant guidance of the eye. In this manner, providing aneurysm has been excluded, there is practically no danger from the introduction.

Though not carried out in all of my cases, I consider the anesthetization of the larynx as well as the pharynx a wise procedure. Otherwise the patient may develop a fit of coughing, which necessitates interrupting the examination, or the withdrawal for the time being of the instrument. A general anesthetic is not necessary, excepting in the case of children, or in adults where a prolonged examination is apt to be necessary. Even in the latter cases, thorough cocainization is usually quite sufficient. When a general anesthetic is used, the patient lies upon his back with the head hanging over the end of the table. The examination is greatly facilitated by the absence of either two or three of the incisor teeth, or the first molars of the superior maxilla, it sometimes being impossible to examine individuals with long incisor teeth. Fortunately, in all but one of my cases I found either upper plates, or two or more teeth absent, which facilitated the introduction of the instrument very much. Two great obstacles in the way of examinations with the esophagoscope are a rigid cervical spine, and a very convex cricoid cartilage. In case No. V the latter condition existed, for the patient had a long, flexible cervical column, was very anxious that the instrument be introduced, and yet despite innumerable attempts we were unable to pass the cricoid cartilage. In the meantime the diagnosis had become so definite that the introduction was unnecessary. After the instrument has been introduced, saliva and mucus are the greatest obstacles in the way of a clear picture. The cocaine stimulates the flow of a viscid mucus, which passes down to the point of stricture and often inserts itself into the end of the esophagoscope, completely clouding the picture. This is not apt to occur except in cases of stenosis of the esophagus or of foreign bodies large enough to prevent the passage of the saliva into the stomach. Until it is removed through the use of tampons or a pump, nothing can be accomplished. I have found a most satisfactory appliance in this dilemma to be a small rubber tube with a bulb at the proximal end. The tube can be dropped into the esophagoscope and slow suction produced withdrawing the saliva. This process may have to be repeated two or three times during a single examination. In other cases this obstacle is not met with at all, and the examination from beginning to end goes along satisfactorily. The success and the usefulness of the esophagoscope depends, as does that of all our mechanical aids in diagnosis, upon the

operator's technique and his ability to interpret his findings. This is true of the cystoscope, the ophthalmoscope, the x-ray, etc., and it is only through constant practice and frequent examinations of the esophagus that such powers may be developed. Those acquainted with the application of the esophagoscope, use it with the same freedom that one does a proctoscope or similar instrument. Though the introduction produces some discomfort to the patient, because of the position assumed, he yields to it readily where the use of the instrument is indicated and suffers no ill consequences as a result. The symptoms produced by obstructions of the esophagus are so unpleasant that patients submit readily to any procedure that promises relief.

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SURGICAL TECHNIQUE WITHOUT THE USE OF ANTISEPTICS: WITH REPORT OF FORTY-ONE CONSECUTIVE SUCCESSFUL ABDOMINAL OPERATIONS.

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One master of surgery of to-day advocates a certain technique in the preparation of his patient and of his hands with the aid and use of certain mercurial antiseptics and the wearing of gloves. Another, his rival, advocates an entirely different technique with the aid and use of different mercurial antiseptics and does not wear gloves. A third, a critic, then comes forward and gives his hands a more thorough scrubbing and washing and does not use any mercurial antiseptics or does not wear gloves and has equally good results. He then makes cultures from scrapings of the hands in each case and proves by bacteriological examination that his hands showed less bacteria and less source of danger to the patient than those of either of the others. This convinced me that antiseptics and gloves were superfluous and I would venture to operate by adopting the latter method. And I will here venture the assertion that the time is not far distant when all surgeons will discard antiseptics as they are used to-day, and will confine the technique to simple, thorough cleanliness, and will wear gloves only in septic cases for self-protection.

The first principle in surgical technique is cleanliness and not antiseptics. And by cleanliness is meant as thorough a cleansing with hot sterile water and soap as can be accomplished. By a thorough cleansing is included the scrubbing and washing of every part considered in connection with the operation. This scrubbing of the patient should be done without undue irritation of the parts and should not be done with a brush as is the custom, but with a succession of sterile gauze sponges and a free use of hot sterile water and sterile soft soap. To properly accomplish this the patient is removed from the bed to the surgery, or, better, to a special cleansing room, warm and comfortable, there laid on a table and washed and cleansed and prepared by a clean nurse as per the following instructions, a copy of which is left with the surgery nurse:

FOR THE SURGERY NURSE.

Please prepare my patient for operation as follows:

1. On entering the hospital, give general warm water tub bath, using plenty of soap.

2. Flush colon and rectum with large enema of soap and warm water. And again at 7 P.M. a second and final flushing with normal saline solution.

3. Wash and scrub vagina with warm sterile water and soft soap, then rinse thoroughly, and every three hours douche with 1 per cent. hot, sterile saline solution (temp. 120°).

4. Shave abdomen and pubes, and with a succession of sterile gauze sponges scrub same with sterile soft soap and hot, sterile water, temp. 120°, and rinse thoroughly; then wash same with equal parts alcohol and ether.

5. Now cover field of operation with a thin poultice of sterile soft soap and leave on one to three hours (according to the sensitiveness of the patient). Then remove the soap by five minutes' thorough scrubbing with a succession of sterile gauze sponges and hot sterile water, and rinse thoroughly with hot sterile normal saline solution.

6. A compress of sterile gauze is now placed over and around the abdomen. Secure same by bandage and leave on until removed in operating room.

7. Immediately before patient is anesthetized, see that the bladder is completely emptied (if necessary, patient should be catheterized by sterile method).

8. After patient is anesthetized and upon the operating table, again, with a succession of sterile gauze sponges, scrub the field of operation with sterile soft soap and hot sterile water; rinse thoroughly, then sponge off with ether, then alcohol, and finally irrigate with hot sterile normal saline solution. Then quickly cover patient from shoulders to feet with sterile cover and towels properly arranged for the operation.

9. Have prepared in operating room a plentiful supply of hot sterile normal saline solution.

Wm. H. Dukeman, Surgeon.

Operation.....
Hour.....Day.....Date.....

In emergency cases of course the technique is varied to meet the exigency of the case. In acute cases demanding operation within the twenty-four hours the above program is carried out, but in all cases where time will permit I like to have my patient in the hospital two or three days for preliminary preparation. This consists in the administration of 30 c.c. of castor oil on an empty stomach in the early morning of the first day in the hospital. If the patient is of a bilious nature then .13 gram of calomel in divided doses of .026 gram each is given dry on the tongue at intervals of a half hour on an empty stomach in the evening preceding the morning administration of the oil. If the patient will not take the oil then a saline aperient is given. Nourishment is not given until the effect of the oil has passed off. Then a cup of good hot coffee is given. This is usually followed by further peristalsis. Then a high saline enema is administered. This generally gives the bowels a very complete cleansing and the patient rests. Liquid nourishment only is now allowed, which consists of a cupful of broth or boiled milk, and only at meal times.

The usual high flushing of saline solution is again given in the early evening preceding the morning of operation. The patient then rests for the night.

In the twenty-four-hour patients the calomel or the oil is given at once and followed by same technique as above. By this method there usually is no nausea following the anesthetic and the patient is in good condition to ward off any possible shock, the result of a prolonged operation.

The disinfection of the patient's mouth is a very important factor in the prevention of post-operative nausea and also in the prevention of post-operative pneumonia. The nasal cavities are cleansed by douching with a one per cent. saline solution, and the teeth are scrubbed with one of the chalk tooth powders, night and morning, and the mouth rinsed freely with saline solution after each meal and before bedtime, both before and after operation.

Several examinations are made of the urine, that the condition of the kidneys may not be overlooked.

By kind words and sympathy the patient is gotten into an easy frame of mind, and getting her full confidence is an important factor in averting shock. Worry and fright cause shock.

The technique of the surgeon's preparations is cleanliness as perfect as can be accomplished. Both myself and my assistant avoid, wherever possible, the handling of any pus cases for at least twenty-four hours preceding an operation, and in the handling of such cases gloves are worn to protect the hands. On the night before operation, my assistant as well as myself give our hands a thorough washing with hot water and soap, and with a clean boiled nail brush the nails and fingers and palms of the hands are thoroughly scrubbed, but we never use the brush on the back of the hands or on the arms, for the reason that scrubbing the back of the hands and arms causes more or less irritation of the more delicate structure of the cuticle of these parts and in many cases this is followed by a weeping of the secreting glands which is conducive to infection. For the same reason the nail scraper is never used, as the cuticle adjoining the nail is very likely to be broken. The hands are again as thoroughly washed in the making of the toilet in the morning.

On entering the hospital the surgeon and assistant immediately go to the dressing-room and there remove all outer garments, including shoes. A sterile operating suit is donned, including slippers or tennis shoes.

In the wash room the nostrils are first thoroughly cleansed and then the hands and arms receive their third and final washing as follows: With a clean boiled nail brush, sterile soft soap and running hot sterile water, they are scrubbed for at least five minutes and longer if necessary to be cleaned, then thoroughly rinsed. The hands and arms are then immersed and washed for a couple of minutes in a hot sterile saline solution contained in deep receptacles, one for the surgeon and another for the assistant, then finally washed in alcohol and again rinsed in clean sterile saline solution which makes them soft and pliable. This completes the toilet of the hands. Formerly the hands and arms were immersed for a couple of minutes in a 1-1000 bichloride solution as a routine method, but when we came to consider the inefficiency of this brief immersion of the hands in the bichloride it was considered superfluous and useless and it was abandoned. No gloves are worn, and in no case has there been any perceptible trace of infection.

Being attired in the surgical sterile gown and a gauze head gear, a gauze respirator being placed over the nose and mouth, we are in readiness to proceed with the operation.

All nurses, after as thoroughly washing the hands as does the surgeon, are obliged to wear sterile gloves, for the reason that nurses' hands are invariably septic, due to the constant handling of infected materials. No unnecessary talking is allowed during an operation. Each nurse has her duty assigned and from this there is no deviation.

An experienced anesthetist is essential in aiding to avoid post-operative vomiting and shock. This is an all-important position and no one should be allowed to administer an anesthetic for a prolonged operation but an expert. He also washes and wears sterile gown and cap.

Throughout the operation the hands of the surgeons are rinsed frequently in hot setrile normal saline solution contained in a sterile basin placed to his left. This keeps the hands clean and pliable. In operating, time is an important factor to the welfare of the patient, but this is not allowed to border on being hasty. Every move is done deliberately but gently and with delicacy, and throughout the operation the utmost delicacy and gentleness are exercised in the handling of every part, so there is no bruising of tissue to be left to slough. And from this more than from any one other thing do I attribute the excellent results obtained. There were no cases of shock in the series even in the most critical cases.

No complicated instruments are used. All instruments and ligatures in the tubes are boiled for ten minutes in a one per cent. bicarbonate of sodium solution. The cutting instruments are wrapped in cotton or gauze to protect the edge from injury. One knife with a keen edge is used to divide the skin and subcutaneous fat, a second one for the deeper structures. Immediately on making the first incision with one stroke of the knife through skin and subcutaneous fat, a hot sponge wrung out of hot sterile normal saline solution is applied and compressed on the wound for a few seconds which usually controls all hemorrhage. The use of artery compression forceps is an unusual occurrence and as a general rule uncalled for. The deeper structures are then divided with a clean knife by a few strokes and by blunt dissection until the peritoneum is exposed. All hemorrhage thus far is usually controlled by hot compresses. Perhaps none, or at the most in plethoric conditions only three or four artery compression forceps have been applied.

The peritoneum now being picked up and opened, the finger is inserted, and acting as a guide the peritoneum is divided the full length of the wound with sharp scissors. The operation is then proceeded with according to the case. Now with flat broad gauze pads wrung out of hot sterile normal saline solution the abdominal cavity around the field of operation is as completely shut off as is possible. Retractors are very seldom used. Compression forceps are used only on parts to be removed so that there is no bruised tissue to be left to slough.

Ligatures are tied snugly but not too tightly. Arteries are ligated without clamping before dividing wherever possible; thus avoiding ligation of tissue *en masse* which would later slough and cause trouble; small catgut ligatures are used in all the cases and none larger than No. 2. Hot moist sponges and compresses wrung out of hot sterile normal saline solutions are used to control oozing and for cleansing and drying the abdominal cavity.

All divided or raw surfaces in the abdomen, peritoneum, etc., are closed by being turned in and overwhipped with No. 0, or No. 1 sterile catgut with round-pointed and round-bodied needle, so that when the operation is completed there are no raw surfaces left exposed for adhesions to form.

The abdomen is closed in layers with No. 2 chromatized catgut for fascia and with through-and-through silkworm gut sutures, including the deep fascia, with Hagadorn needles introduced from within outward. The needles are threaded on both ends so that any skin bacteria may not be carried to the deeper structures. Pains are taken carefully to coaptate all divided tissue. Where the wound is not large and the tension not great the subcuticular stitch with silkworm gut is used in place of the through-and-through sutures. Only dry plain sterile gauze dressings are applied and snugly strapped with sterile adhesive bands, but not too tightly.

There were no antiseptics of any kind used, no matter what was the condition. There were no stitch abscesses and no unlooked-for complications, and all recovered in the shortest possible time. The shortest time in the hospital was seven days,

the longest thirty-five days, average time fifteen days.

After-Treatment.—In weak patients and when the operation is a prolonged one, a high warm (temp. 110°) enema of sterile normal saline solution is administered before the patient leaves the operating table.

Strychnine, adrenalin, or other so-called post-operative stimulants are not used. Should the patient suffer much pain, which is very rare, a hypodermic of .008 gram morphine is administered; a second one is very rarely required.

A faithful and competent nurse is placed in charge with instructions not to leave the patient one moment alone, and after three or four hours to see that the bladder is emptied, and to use the catheter, only when absolutely necessary.

The patient is allowed to drink a few swallows of water soon after awakening from the anesthesia. Hot water is preferable. When there is vomiting of bile, a cupful of hot water is given, which is usually immediately rejected and which washes out the stomach as well as could be done by the use of the stomach tube, and the patient much prefers it. This, with a mustard plaster placed over the pit of the stomach, is all that is required. Vomiting after operation occurred in less than one-third of the cases.

After twelve to twenty-four hours, hot broth (one to two ounces) is given every three hours and only liquid nourishment is allowed for the first three days or until the bowels have been moved. After this the patient is kept on light semi-liquid or soft food given at meal time only for the first week and never in large portions. I do not give milk unless the milk is first boiled and agrees with the patient. I have learned that patients do much better by keeping them a little hungry so they relish their meals, than by crowding their appetites.

If, after twenty-four to thirty-six hours, there is much gaseous distention of the bowels the rectal tube is inserted. Should this not bring relief, an enema consisting of quinine, .65 gram, dissolved in 16 c.c. whiskey with 60 c.c. water, is administered, which is usually sufficient to bring down the gas. The bowels are moved on the third or fourth day by administering .13 gram of calomel in divided doses if the patient is a bilious person, in others by a dose of castor oil followed by a low soap and water enema, or by a high enema consisting of magnesium sulphate, 30 grams, dissolved in a litre of warm sterile water.

The operations were all performed during the past three years at the Pacific and the Good Samaritan Hospitals, and all the patients are alive and in good health to-day except one, who died of pulmonary hemorrhage five months after operation.[1]

The following is a brief résumé of the operations, which for convenience are divided as follows:

4 Hysterectomies: 2 total hysterectomies for carcinoma uteri, 1 for ten-pound fibroid uterus, 1 for two-pound fibroid uterus. 15 Abdominal Sections: 1 for gallstones, 8 for removal of pus tubes, 6 for chronic salpingitis, 2 for cystic and degenerated ovaries, 2 for cysts of broad ligament, 1 for dermoid cyst, 1 for tuberculous peritonitis, 1 for ectopic gestation.[2] More than one pathological condition existed in some of the above which accounts for the surplus in numbers.

Two herniotomies, both right inguinal; one of the hernias was strangulated and was operated on at a farmhouse after midnight by candle light.

Twenty appendectomies. In three cases the appendix was gangrenous, and in two of these there were large abscesses. The appendix, however, was removed in each case, and in these cases only of the whole series was drainage used. In two cases the appendix was adherent and communicated with a pus tube. In six cases the operation was for recurrent appendicitis in the quiescent stage. The others were for acute appendicitis.

The age of the patients varied from 6 years to 59 years.

Thirty-seven of the cases were in my own private practice, three were for Dr. F. R. Frost, one for Dr. A. D. Houghton. One patient only has a ventral hernia. This was in a case in which drainage was used in a very difficult appendectomy on a very large fleshy woman. The hernia appeared about five months after the operation. The patient wears a well fitted bandage and as it does not cause her any trouble and she enjoys the best of health she prefers not to undergo another operation.

Dr. F. D. Bullard administered the anesthetic (ether) to most of the patients, and Dr. Arthur Godin assisted me in nearly all the operations.

March, 1908.

[1] Removal of a Five Months' Gravid Uterus for Carcinoma Uteri, *New York Medical Journal*, May 2, 1908

[2] Ectopic Gestation: Diagnosis and Operation Before Rupture. Medical Record, January 25, 1908.

EPILEPSY IN PRIVATE PRACTICE, ESPECIALLY THAT FROM REFLEX CAUSES.

By CHARLES G. POLK, M.D.,

PENSAUKEN, N. J.

The treatment of epilepsy is ordinarily so unsatisfactory that there exists a tendency on the part of the general practitioner to be content with prescribing the bromides, and there he stops. These, at least, decrease the number of seizures, and as for permanent results from any course of treatment, he is skeptical. He has studied the disease in the text books, or possibly followed the proceedings of the National Association for the Study of Epilepsy, and there has been set before him theories by some authorities which were in turn denied by others. Epileptiform convulsions from reflex causes and idiopathic epilepsy are alike to him. He has been told by equally learned students of the disease that reflex epilepsy exists and that it does not exist.

Little wonder that he fails to search for any underlying defects in his patient that may cause the seizures. Too often an epilepsy, reflex in its nature, becomes permanent when in its earlier stages it would have yielded to treatment with the defects corrected. The writer has searched in the proceedings of the National Society for a single course of treatment that has not been set aside as valueless by other authorities entitled to equal respect and credence. Thus one authority will dwell on the value of hypochlorization, or the withholding of free salt from table food, and another will declare it to be without benefit; one will urge a general diet permitting veal, peas, beans, and coffee, while another will urge abstinence from all of these and insist upon the most rigid dietetics; and even upon the value of the bromides the profession is divided.

One school of students of the disease is so fixed in the belief that epilepsy is never the result of reflex causes that when the evidences are presented, in the words of Dr. S. Weir Mitchell, they exclaim: "I neither believe nor disbelieve," or with Dr. Frederick Peterson they declare that "epilepsy cured by the removal of reflex causes is not usually genuine epilepsy."

It is granted that epilepsy is a disease with which the profession is groping in the dark. This is especially true with idiopathic epilepsy, but there exists an epilepsy, or, more properly speaking, there exist epilepsies, from reflex causes amenable to treatment when the sources of irritation are removed, especially in the early stages of the disease. It is to these that I wish to direct attention, and failure to search for such hidden causes of so grave a disease constitutes almost criminal negligence. It has been truthfully said "epilepsy is not a single prescription disease. The time was, but is no more, when we say 'this patient has epilepsy, give him bromide.'" This view has been held to the extent that some have practically abandoned the bromides, but except in a certain few cases where the bromides do actual harm they will be found useful as a palliative in connection with other medicinal and especially dietetic and hygienic treatment. The bromides alone have probably never effected a cure. In conjunction with other treatment they accomplish results that otherwise could not be secured.

No less an authority than Dr. Spratling has declared that in properly selected cases he believes 25 per cent. of cures can be effected. This is 20 per cent. more cures than shown by the statistics from our epileptic colonies. If Dr. Spratling means cures can be effected in 25 per cent. of cases of idiopathic epilepsy, that would seem rather too large, in view of our present limited knowledge of the disease, but if he includes the cases resulting from reflex causes the expectation is not too great. That there are many such cases I believe is becoming fast recognized.

Epileptiform seizures are frequently the result of uterine troubles, eyestrain, gastrointestinal disturbance, or some other irritation often so hidden as not to be easily discerned. These probably exist in persons of neurotic heredity, otherwise convulsions would not result. It has been truthfully said that thousands have these abnormalities and do not suffer from epilepsy, but that is no reason for denying that they are the source of epileptiform convulsions in others who come from a neurotic root stock, or even if that is not the case; like conditions do not always bring about the same results in different individuals.

Again other authorities will point to the fact that thousands of epileptics have none of these reflex causes to ascribe to their disease. It is not claimed that epilepsy in all or in a majority of patients is due to reflex causes, but there unquestionably exist cases that in all respects resemble idiopathic epilepsy, and when certain sources of irritation are removed, such patients are free from seizures. It may be said that if that be so the patient does not suffer from idiopathic epilepsy, which in all probability is true.

The treatment of epilepsy, with our present limited knowledge of the disease, must be largely experimental, the physician studying each case and noting the results of the several courses of treatment. I say several courses of treatment because he will not do his entire duty in following any particular line and ignoring all others. He will note the result of each and adopt that which promises the best results.

Passing to the hygienic treatment of the patient, it may be said that this is at least of equal importance with the medicinal. A course of treatment along comprehensive lines should be mapped out and the patient be required to give reports as to his adherence to it. A copy of the following rules may be given him. They do not cover every case, but there can be no mistake in the observance of them: Have meals regularly, with the last meal of the day early and light. Do not eat until there is a sense of fullness. Do not eat peas, beans, veal, much meat, or cereals. A vegetable diet is the best. Fish and milk are permissible. Use as little salt in the food as possible and forego tea and coffee. Do not eat much at one sitting. Keep the bowels free and the intestinal tract aseptic by the use of some antifermentative like salol or betanaphthol. Flush the colon frequently. Take warm salt baths, not remaining in the water sufficiently long to fatigue. Sleep with the head high and keep the feet warm at all times and especially at night. See that any defects in the eyes are corrected and do not use the eyes a long time without resting. If glasses are worn, have the frames straightened at regular intervals. Take as much out-door exercise as possible without fatiguing. Spinal douches and massage should be taken regularly. If seizures come early in the day take 15 grains of bromide of sodium before retiring.

Finally, let me strongly recommend that the epileptic or some member of his family keep an accurate record of every seizure, ascribing what he may believe to be the exciting cause. This will serve both as a guide to the physician regarding the value of his treatment and enable him to advise as to the daily habits of his patient.

Chronic Appendicitis in Women.—S. Handley said in a recent paper before the West London Medico-Chirugical Society that the study of chronic appendicitis had been retarded by two causes; first, by the erroneous belief that an appendix free from adhesions is necessarily a healthy appendix; secondly, by the divorce which in England exists between the practice of general surgery and that of gynecology. The most striking symptoms of chronic appendicitis were located in the female pelvic organs. Of these the most constant and important was dysmenorrhea. The history of a painful menstrual period precipitated (or brought back after its cessation) by what appeared to be an attack of acute indigestion, was very characteristic of chronic appendicitis. But the main object of his paper was to show that chronic appendicitis in women was frequently accompanied by a definite physical sign. This sign was an enlargement of the right ovary up to double its normal size, owing to the congestion and lymphatic stasis produced by the near neighborhood of an inflammatory focus in the appendix. In such cases the diagnosis of chronic ovaritis was usually made, and futile gynecological treatment was often carried out for long periods. In one of his own cases appendectomy cured a patient who had submitted without benefit to douching, blisters, tampons, and local applications to the cervical canal, over a period of five years. The appendix was free from adhesions, and its lumen contained a small collection of pus.—*British Medical Journal.*

Arthropathy in Rötheln.—D. A. Alexander has reported the case of a young man of twenty-four years, who, after a few days of sore throat, stiff neck, malaise, and moderate fever, developed a rash having the distribution and appearance of German measles, and accompanied by an enlargement of superficial glands, notably those of the neck. Before the exanthem had faded, the patient began to complain of stiffness and tenderness in the knees and ankles, and soon all the interphalangeal joints of the fingers presented the spindlelike swelling commonly seen in rheumatoid arthritis. There was no exacerbation of temperature, and neither cardiac nor other complication, and a fortnight from the appearance of the rash all the symptoms were subsiding, and in the following six months only an occasional transient stiffness in the fingers reminded the patient of the attack.—*Lancet.*

MEDICAL RECORD.

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ALLERGY.

AN unvaccinated person reacts to the inoculation with the virus of cowpox by a well-known series of phenomena which appear forty-eight hours after the vaccination, the immediate result of the procedure consisting only in the formation of a simple scab at the site of the scarification. An individual who has previously been vaccinated behaves in an altogether different manner; within twenty-four hours the site of the scarification is swollen, red, inflamed, these appearances being accompanied by unpleasant subjective symptoms of itching and slight pain. The previously vaccinated person, accordingly, though immune in one sense, in another has become even hypersensitive to the action of the virus. But while the symptoms and signs in his case disappear in a short time, the person vaccinated for the first time goes through the regular sequence of the phenomena which we call vaccina or cowpox. Both persons, then, react to the virus, only the reaction in the revaccinated individual has undergone a qualitative and a quantitative modification. This is the simple observation which v. Pirquet puts at the head of an exhaustive article on "Allergie," in Vol. I. of the recently published "Ergebnisse der inneren Medizin und Kinderheilkunde." Such changed reaction is observed in many instances of experimental and natural disease; to it belong "serum disease," or the hypersensitiveness to the injections of horse serum; urticarias caused by the repetition of injections of other proteids foreign to the organism; hay-fever, or the accentuated reaction to the pollen of plants; the above-mentioned phenomena of revaccination; the newly studied cutaneous and conjunctival reactions to the local applications of tuberculin, as well as the long-known appearance at the site of puncture in the subcutaneous use of tuberculin; and a host of others of the same general character.

Two substances are probably necessary for the production of the reaction discussed: the one which acts in toxic fashion at the repetition of the inoculation, to which v. Pirquet has given the name "allergen," and the bearer of the hypersensitiveness, "ergin," in the organism affected. The applications of the study of allergy are twofold in character: the reaction may be sought in order to determine the presence of specific "allergens" in the organism, which decides whether a certain pathological process has taken place in the past, or to differentiate the allergens from one another by the differences in the reactions of animal organisms to them. Indeed, Rosenau and Anderson have proposed to differentiate proteids from substances derived by their decomposition by the different manner in which guinea pigs react to these substances. The practical importance of the subject has been especially evident in the recent studies of the local reactions to tuberculin. The scientific interest of it consists in the new insight into the pathological processes which the study of allergy promises. As an instance of this, it may be mentioned that v. Pirquet's studies have led him to the conclusion that the present idea of the period of incubation in infections as caused by the time taken for the multiplication of the infecting organisms is incorrect; according to him, it is determined by the reaction of the infected organism—that is, by the time taken to produce antibodies, the interaction of which with the infecting agents or their products results in the appearance of the phenomena of disease.

It is thus seen that this new development in the study of the general problem of immunity is of interest both to the practical student of disease and to the scientifically trained laboratory worker. The authoritative article of v. Pirquet, only a portion of which we have been able to notice in the above lines, is, therefore, a welcome statement of the general progress in this particular field of scientific medicine.

WHAT DOTH IT PROFIT?

Now that the German Protos and the American Thomas automobiles have reached Paris as the two of the six original contestants to complete a journey of more than twenty thousand miles, one may be allowed to reflect upon the purposes and results of "the race." From a medical standpoint, the test was a matter of human endurance rather than a trying-out of the relative merits of complicated mechanisms. If the winners had not been endowed with the strength of Hercules and the patience of Job, they could never have taken their machines into the French capital at all, no matter how favorable all other conditions might have been. It was entirely a matter of vim, will, and dogged determination to succeed at all hazards.

But while these qualities are excellent in themselves and compel our respect, it is not pleasant to see them utilized in advertising schemes. They are on a par with the restless and dare-devil spirit of the high diver and the leap-the-gap enthusiast. While such feats are being performed we look on somewhat aghast and when they are over we applaud somewhat lustily, yet there must always be a deep-seated feeling of regret for the foolhardiness and abject disregard for life with which no one has a right to trifle. Our sympathy must go out to all unfortunates who through force of circumstance are obliged to earn a living in such hazardous fashion. To be sure, there is always a sense of elation when one can defy the laws of Nature and come out seemingly victorious, but there is a penalty for such defiance which, if not swift and immediate in its dealing, is, nevertheless, certain to come in future days or years.

It can scarcely be gainsaid that the purpose of the contest under consideration was a purely commercial one, indulged in by rival manufacturers and engineered by great newspaper enterprises as a means of securing copy. Therefore, the scheme as

previously planned was likely to reap dollars and distinction for the corporate concerns, but only the latter, possibly, for the individuals who were foolish enough to risk life and limb in this "manly sport." As for the result, this simply shows that it is possible to take an automobile pretty much anywhere on the face of the earth where railroads and ships can be pressed into service in case of emergency. That is a matter which could have been accurately guessed at long before the actual performance of the experiment. As for the drivers and their companions, they have exposed themselves to an endurance test as foolish as, but much more severe than, the horseback tests to which aging officers in our army were recently forced, and if they have come out without immediate hurt they will owe their escape to their youth and resiliency. What the remote results of their nerve-racking trial may be time will show.

REMINISCENCES OF THE AMERICAN SURGICAL ASSOCIATION.

The American Surgical Association was founded in 1879. Its life has been full of interesting features and the names of some of the greatest surgeons have been in the list of its members. Reminiscences of the early days of the association are told in the June number of the *Annals of Surgery* by J. Ewing Mears, one of its original members, who thus places on record some of the notable events which occurred in the first quarter of a century of its existence. He eulogizes Samuel Gross, the founder of the association, a great surgeon, the author of monographs and textbooks, and the pioneer worker in pathological research in this country. Dr. Gross, appreciating to the fullest extent the value of the social intermingling of members of the profession as a means of promoting interchange of thought, at the time of the meeting of the American Medical Association at Atlanta in 1879, called about him a few of the prominent surgeons there assembled and founded the American Surgical Association. There were forty-six original members and the membership was limited to one hundred, a number which was later extended to one hundred and twenty-five. Mears gives chronicles of the early meetings, which were chiefly held to perfect the organization of the association, only a few scientific papers being read. In 1884 appeared the first volume of the "Transactions"; it included all the papers read since the foundation of the society. In the early days of the Association sixty minutes was the time permitted for the reading of a paper, but this was gradually reduced, until to-day only fifteen minutes are allowed. Mears urges in his article that the time limit be again extended, as a quarter of an hour appears to him too short a time for a writer who has given considerable thought and work to the preparation of his paper. Better fewer papers with ample time for their reading and discussion than a mass not fully read or discussed in a proper way.

After a few years of existence a feeling was expressed that the interests of the association would be promoted in having a permanent place of meeting, and Washington was selected in 1884. In 1892 this plan was again changed, and it was decided to meet every third year in Washington in connection with the triennial Congress of American Physicians and Surgeons. Mears admits that much that is interesting and instructive is to be seen and enjoyed at the various meeting places, yet believes that a fixed habitation would contribute to a more serious execution of its business, its scientific work. He suggests that the selection of a permanent meeting place for the association might result in the erection in Washington of a building suitable for its purposes, one which would lend solidity and dignity to the association.

Mears' interesting account of the most important events which transpired in the early days of the association makes very clear the fact that American surgery to-day owes much to the American Surgical Association, and that the latter will continue to be a school for mutual instruction and improvement.

An Original Method of Facilitating Intralaryngeal Operations.

In the issue of the *Lancet* of July 11, 1908, Cyril Horsford describes a method of more ready access to the larynx in those simple operations, such as removal of tumors, etc., not calling for laryngofissure. His paper illustrates the truth of the old statement that there is nothing new under the sun, for he quotes Sir Felix Semon as having found the method described in a German book published some forty years ago, but it is doubtless new to the present generation of laryngologists. Many devices have been brought forward for lifting the epiglottis up out of the way in order to get a good view of the laryngeal interior. Horsford carries out this idea, but goes a step farther. He passes a suture through the tip of the epiglottis and brings the ends out over the tongue, holding them by means of a clamp forceps. The patient then holds the tongue in the ordinary way. The author figures one or two special forms of needle holders he has used in the passage of the suture. He sprays the pharynx thoroughly with a 10 per cent. solution of cocaine. With a laryngeal syringe a little more of the solution is dropped on both surfaces of the epiglottis. A little adrenalin applied in the same way prevents bleeding and helps matters generally. All swabbing or brushing of the parts is carefully avoided, for this usually causes involuntary coughing, which is unnecessary and should be avoided. Horsford gives the histories of four cases of benign tumors removed from the larynx in the manner advocated by him.

Causes of Mortality in Diphtheria, Despite the Use of Antitoxin.

The value of antitoxin has been so universally accepted by physicians at the present day and its use is so general both as a prophylactic and as a curative measure that the inquiry is timely as to what is the cause of death in those patients who succumb to the disease after having received injections of antitoxic serums, the mortality of diphtheria, in spite of antitoxin, being still 10 per cent. With a view to the determination of this question, Martin (*Bulletin Médical*, April 25, 1908) has made use of the material collected from the service of the Hôpital Pasteur from 1900 to 1908, including 853 patients. Of these patients, eighty-three died, but we find that twenty-eight of them died within twenty-four hours

of their entrance into the hospital, and there was not time for them to have received the full benefits of the serum. The mortality was 9.73 per cent. One-third of all the deaths are thus seen to be due to the failure of physicians to recognize the expediency of injecting the serum early in the disease, and of injecting it in all doubtful cases of membrane in the throat without awaiting a bacteriological diagnosis. Of the patients who died within twenty-four hours of entrance, the majority were very young infants from most unhygienic surroundings. These might have been saved by a prophylactic injection of serum. The other prolific causes of death under two years are laryngeal complications necessitating intubation, and often resulting in bronchopneumonia. In older children and adults some deaths result from mixed infections, and might be prevented by early and complete isolation. The remainder of the deaths are later in the disease in patients who show late symptoms of poisoning. A local cure is obtained by the serum, but the absorbed poisons affect the renal, hepatic, and suprarenal functions, and result in death in a state of extreme intoxication. The urine becomes scanty, with a large amount of albumin, or gastrointestinal symptoms and clay-colored stools give evidence of hepatic insufficiency. In the suprarenal capsules are found cellular necrosis and hemorrhages. The remedy for this late intense intoxication is the injection of large doses of serum as soon as unfavorable symptoms appear. Thus the mortality may be greatly reduced by earlier injections of serum and by larger injections late in the disease.

Operation for Pulmonary Embolism.

Arteriotomy for pulmonary embolism was proposed by Trendelenburg in April of this year before the Congress of the German Surgical Society. Since then he has been able to observe two cases of this accident in which the bold operative procedure recommended by him was used. In the first case, treated by Sievers, the emboli were successfully removed and the patient recovered from the immediate effects of the accident; she died, however, fifteen hours later, with symptoms of progressive heart failure. In the *Deutsche medizinische Wochenschrift* for July 2, 1908, Trendelenburg reports a second case, in which he operated personally. It occurred in a tabetic patient after a spontaneous fracture of the femur, and within a few minutes of its occurrence the patient was suffering from intense dyspnea, was almost pulseless, and showed all the signs of quickly impending death. When the pericardium was opened and the pulmonary artery exposed the breathing of the patient had already ceased and the pulsations of the arteries were imperceptible. The artery was divided and four long thrombi were removed from its lumen. Artificial respiration was started and the vessels began to pulsate once more. This patient also recovered from the effects of the embolism and the operation long enough to live in some comfort for thirty-seven hours. The autopsy disclosed the existence of an additional embolus in a branch of the artery not explored during the operation as well as an extensive secondary hemorrhage from the internal mammary vessel. The pericardium, however, was free of blood, showing that the suture of the thrombosed vessel was tight. Trendelenburg concludes that the mistakes committed in this case could be easily guarded against in the future, and the operative treatment of pulmonary embolism may soon be rewarded with a complete success. The accident is so uniformly fatal that the bold procedure recommended seems justified. Medical treatment in this serious emergency is almost synonymous with awaiting the death of the patient, and past advances in the technique of surgery contain in them the promise that the difficulties of operating upon the great vessels will soon be in great measure overcome.

The Nonspecificity of the Lecithin Test.

After Porges and Meier discovered that the blood serum of syphilitic patients mixed with an emulsion of lecithin caused the latter to become fixed, Weil and Braun found that the same reaction took place in two out of five typhoid patients in whom syphilis could be excluded. Recently the latter two observers (*Wiener klinische Wochenschrift,* April 30, 1908) examined the serum of patients suffering from malignant disease and found a positive lecithin reaction in eight out of sixteen. All other diseases which could possibly have given the reaction having been excluded, they attributed the positive reaction to the presence of the tumor. The two typhoid patients in whom the reaction was positive gave a positive Widal in dilutions of one to four hundred, while those in whom the lecithin reaction was negative did not give a positive Widal in dilutions higher than one to one hundred. From this observation they concluded that a positive lecithin reaction, like the positive Widal in high dilutions, depended upon the activity of the serum (upon the number of antibodies). Furthermore Tojosumi has shown that the positive lecithin reaction obtained with the serum of healthy oxen is due to the antibodies present. This fact and their findings in typhoid patients led Weil and Braun to believe that there must be antibodies in the serum of cancer patients who give a positive lecithin reaction. These investigators have not demonstrated the nature of the antibodies, but their experiments do show that the lecithin test is probably caused by antibodies and that it is not a specific test for syphilis, at any rate not as it is used to-day.

Transplantation of Embryonal Tissues.

The Cohnheim theory of the etiology of malignant tumors would obtain its greatest support if the experimental production of such a tumor by means of transplanting the undifferentiated tissues of animal embryos could be effected. It is no wonder, therefore, that numerous workers are occupied with this phase of experimental study of tumors. In the *Russkii Vrach* for June 21, 1908, Dr. Tisenhausen reports the results obtained by him in working with the tissues of the hen's egg in the various stages of its development. The transplantations were made into the anterior chamber of the eye, into the combs, and into the spleen, brain, peritoneal cavity, and other regions and organs. Tumor-like structures having the characteristics of teratomatous new-formations were obtained by this method in about one-half of the experiments, the muscles of the chest proving to be the most favorable sites for the growth of the transplanted tissues. In some cases the transplanted bit of tissue increased to ten or twelve times its original size, its cells showing numerous mitotic figures, while the neighboring cells of the host appeared degenerated and atrophied. None of the transplanted tissues, however, persisted in their development, so that in no case anything closely similar to the progressive growth of a malignant tumor could be obtained. Thus these experiments have been followed by negative results so far as the main

question at issue is concerned. The data obtained and the illustrations of the conditions found in the transplanted tissues will, nevertheless, prove of value to all who are interested in the experimental study of the etiology of malignant tumors.

ALLEGED PROFESSIONAL OPPOSITION TO VIVISECTION.

A FEW weeks ago we received a list of physicians who had signed an appeal for the restriction or the abolition of vivisection published by the New England Antivivisection Society of Boston, Mass. As the paper is without date we were obliged to take the last edition of Polk's Medical Directory in order to look up the standing of these physicians. The interesting result is as follows: Of 162 names, 73 were not in the directory at all. As to dates of graduation the following is the record: 1898 to 1908, 1; 1888 to 1897, 7; 1878 to 1887, 31; 1868 to 1877, 24; 1858 to 1867, 10; 1848 to 1857, 5; 1838 to 1847, 2; date of graduation omitted, 9. As to institutional appointments and private practice the following are the data: Minor positions in unimportant medical schools, 4; small hospitals, 3; dispensaries, 2; asylums, 2; retired from practice, 5; druggists, 1; no appointments, 145. Since the Science of Bacteriology came into being about 1880 and was not widely recognized for several years, it follows that of the physicians signing this circular, who could be traced, only eight were graduated under modern teaching, namely, those who had received degrees since 1888. Any circular of this kind intended to influence public opinion, issued in good faith, should be made correct to date. The 73 names not in the directory may in part be those of physicians who have died or changed their residences. Both are grounds for correction. A vast majority of these physicians in the list live in places having no medical reference libraries giving opportunity for a full investigation of modern medical science and its advances.

News of the Week.

Death Rate in New York.—For the week ending July 18, the death rate in New York was 18.48 per thousand. Last year the rate for the same week was 18.93. For the Borough of Manhattan the rate was 17.18. Diarrheal diseases caused the deaths of 426 children, and there were 172 deaths from pulmonary tuberculosis. Twenty-seven deaths from sunstroke were reported.

Protection of Lives of Infants.—The Chicago Health Department, through its vital statistician, has compiled figures according to which more than 63,000 infant lives have been saved during the twelve years from 1895 to 1907, as compared with the previous twelve years, the death rate having been reduced from 6.13 to 3.18 per 1,000 of the total population. This decrease is thought to be due very largely to the education of mothers in the care of children during hot weather. Since 1900 there has been a large influx of immigration of the Slavic races, and among these people the infant and general mortality is very high. The Chicago City Council has transferred $10,000 from the contagious disease fund to a special fund for the care of children. On July 20, seventy-five physicians were assigned to duty in those parts of the city in which, during 1907, the infant death rate exceeded 7 per 1,000. Thus the Fifth District, along the west bank of the river, will have thirty-four medical inspectors, and the Fifteenth District, which includes the mouth of the Calumet River, six inspectors. These medical officers will call at every home in the district and instruct the parents what to feed their babies and how to care for them. It is hoped that notable results will be accomplished by this work.

A Medical Day in Eastern Pennsylvania.—A gathering of medical men was held at Willow Grove, near Philadelphia, on July 22, under the auspices of the County Medical Societies of Berks, Bucks, Chester, Delaware, Lehigh, Montgomery, Northampton, and Philadelphia. The exercises comprised a dinner, followed by addresses by Dr. J. C. Attix, who extended a welcome on behalf of the management of the park; Dr. Albert M. Eaton, President of the Philadelphia County Medical Society; Dr. William L. Estes of South Bethlehem, President of the Medical Society of the State of Pennsylvania, who spoke on "Fraternalism in Our Ranks," and Dr. Joseph D. Bryant of New York, a former President of the American Medical Association, who spoke on "The Importance of Medical Organization."

The Blind for Telephone Operators.—In Texas the experiment of using blind persons as telephone operators has been tried with great success. The keen sense of hearing possessed by those who have no sight is an advantage, and they learn quickly to manipulate the keyboard by the sense of touch. The occupations in which the blind can engage are so limited that this field, which, if available, would be almost unlimited because of the great extensions of telephone systems, seems worthy of investigation.

Rats Defy Poison.—The New Orleans Board of Health has announced that the experiments undertaken to rid the city of rats by poisoning them have failed. The dangers of the importation of the plague from South America and its dissemination by the rodents prompted the attempt to exterminate them. The Board will now watch the success of the rigid cleaning up of all sorts of refuse as an exterminator.

Cocaine Seller Punished.—A man, recently convicted of selling cocaine, was sentenced on July 21 to one year and six months in State prison, the maximum sentence.

Christian Science Death.—The Coroner of the Bronx is investigating the death of a young woman, after several weeks' illness, without medical attendance. Two "healers" of a Christian Science Church, of which she was a member, had treated her.

The Syracuse University College of Medicine announces the following changes in its faculty: Dr. Frank P. Knowlton, associate professor of physiology, Dr. H. S. Steensland, associate professor of pathology and bacteriology, and Dr. H. D. Senior, associate professor of anatomy, have been advanced to full professorships in their respective subjects. Dr. E. N. Pattee, professor of chemistry in the College of Liberal Arts of the University, has been given a seat in the faculty of medicine. Minor appointments include that of Dr. R. H. Hutchings, medical superintendent of St. Lawrence State Hospital, as lecturer on orthopedics, and that of C. V. Morrill, recently assistant in zoology in Columbia University, New York, as lecturer on histology and embryology. Commencing in 1909, the entrance requirements will include the satisfactory completion of one, and after October, 1910, of two, full years of a science or arts course in a college recognized by the Regents of the State of New York, or the equivalent.

Dr. E. B. Sanborn, for nearly thirty years Deputy Health Officer of the Port of New York, has resigned, and will retire to his old home in

Maine at the end of August. Dr. Sanborn was born in Maine, and was graduated from the College of Physicians and Surgeons in this city in 1867. He was appointed Deputy Health Officer in 1879, and has served in that capacity under Health Officers Vanderpool, Smith, Jenkins, and Doty. He will be succeeded by Dr. Edward S. Rimer.

Dr. William P. Spratling, for nearly fourteen years the medical superintendent of the Craig Colony of Epileptics, has been elected to the chair of nervous diseases and physiology in the College of Physicians and Surgeons, Baltimore, and will move to that city in the fall.

Dr. C. A. L. Reed of Cincinnati was recently appointed a Chevalier of the Legion of Honor by the French Government.

Dr. Joseph E. Lumbard has been appointed anesthetist to the Mt. Sinai Hospital in this city.

A "Clean Milk" Exhibit.—Preparations are being made by the New York Committee of the International Congress on Tuberculosis to hold a clean milk exhibit during the three weeks of the tuberculosis exhibition at Washington, from September 21 to October 12, 1908. The cooperation of a number of dairy owners has been obtained. The exhibit will include photographs of dairies, statistical charts, Petri plates of the bacteriology of milk, and illustrations of tuberculin tests in cattle, and will also have a small working dairy with tuberculin tested cow, skilled attendant, sanitary utensils, shipping cases, and all sanitary appliances for the marketing of a clean milk. In view of the fact that Mr. Nathan Straus is preparing for the exhibition a duplicate of the pasteurization plants already erected by him in Heidelberg, Brussels, and Berlin, the exhibition at Washington will afford an opportunity for a comparative study of the two methods of marketing milk, viz., (1) pasteurized, and (2) unpasteurized but clean.

The Tri-State Medical Society of Illinois, Iowa, and Missouri will hold its sixteenth annual meeting at Ottumwa, Iowa, on Tuesday and Wednesday, September 8 and 9, 1908. The announced program is too long for detailed mention, but includes a number of important papers on tuberculosis and its treatment, surgery of the gall-bladder, and the social evil. The title of the President's address is, "Recent Progress in Medicine and Surgery." The officers of the society are as follows: *President*, G. O. Cuppaidge, Moberly, Mo.; *Vice-Presidents*, C. C. Cochran, Jacksonville, Ill., and Felix W. Garcia, St. Louis, Mo.; *Secretary*, Joseph E. Chambers, St. Louis, Mo.; *Treasurer*, Emory Lanphear, St. Louis, Mo.

The Addison County (Vt.) Medical Society, at its annual meeting, held recently, elected the following officers for the ensuing year: *President*, Dr. G. F. Edmonds of Bristol; *Vice-President*, Dr. S. C. Phelps of Vergennes; *Secretary*, Dr. P. L. Dorey of Middlebury; *Treasurer*, Dr. S. S. Eddy of Middlebury; *Librarian*, Dr. M. H. Eddy of Middlebury.

The Oxford County (N. H.) Medical Association held its annual meeting in Gorham on July 6. Officers were elected for the ensuing year, as follows: *President*, Dr. Cobb of Berlin; *First Vice-President*, Dr. Wheeler of West Paris; *Second Vice-President*, Dr. Wright of Bethel; *Secretary-Treasurer*, Dr. Hutchins of Rumford; *Executive Committee*, Dr. Williamson of Portland, Dr. Stanwood of Rumford, and Dr. Bradbury of Norway.

The Maritime Medical Association (Canada) met at Halifax during the first week of July. The following officers were elected for the ensuing year: *President*, Dr. P. C. Murphy, Tignish, P. E. I.; *Vice-Presidents*, Dr. W. B. Moore, Kentville, Dr. S. C. Murray, Albert, N. B., Dr. George F. Dewar; *Secretary*, Dr. Melvin, St. John; *Alternative*, Dr. Corston, Halifax; *Treasurer*, Dr. McLaughlin, Charlottetown.

Obituary Notes.—Dr. George W. Hall of St. Louis, Mo., died on July 7 at his home, at the age of 77 years. Dr. Hall was graduated from the Jefferson Medical College of Philadelphia, in 1852, and in 1872 accepted a chair in the Missouri Medical College, of St. Louis.

Dr. Bernard Hesse of Saginaw, Mich., died suddenly at his home on July 14, aged 74 years. Dr. Hesse was graduated from the medical department of the University of Michigan, at Ann Arbor, in 1860, and practised, from that time until the day of his death, in Saginaw. He served on the School Board for several years, and was always keenly interested in educational matters.

Dr. William Elmer of Trenton, N. J., died at Atlantic City on July 18, at the age of 68 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1864. He was at one time President of the New Jersey State Medical Association. Dr. Elmer came of a long line of physicians, five generations of whom were graduates from the University of Pennsylvania. He was the third Dr. William Elmer in successive generations.

Dr. Albert Heilbrunn, formerly of Philadelphia, died at Atlantic City on July 17, at the age of 78 years. He was a graduate of Berlin and Heidelberg Universities.

Dr. Augustus H. Wurtele died of apoplexy at Philadelphia on July 21. He was graduated from Jefferson Medical College in the class of 1893.

Dr. Charles Edward Swan of Calais, Me., said to be the oldest practising physician in the State, died at his home on July 13, following a stroke of paralysis, at the age of 86 years. Dr. Swan was graduated from the Brunswick Medical School in 1847, and had for years served as consultant on the staff of the Maine General Hospital.

Dr. John McEwen Wetmore of New York died suddenly at his home on July 21, aged 75 years. Dr. Wetmore was graduated from the College of Physicians and Surgeons in 1856, and was a consulting physician to the Hahnemann and Laura Franklin Hospitals.

Obituary.

CARLETON PHILLIPS FLINT, M.D.

New York.

Dr. Carleton P. Flint was knocked down by a recklessly driven automobile at the Seabright, N. J., railroad station on the evening of July 24, and died a few hours later of his injuries. Dr. Flint was one of the best known of the younger surgeons of New York. He was born in New England thirty-five years ago, and was graduated from Harvard Medical School in 1896. He was an attending surgeon at the Roosevelt Hospital and an instructor in the College of Physicians and Surgeons. He was a man of great promise, a careful observer, an earnest student, and a skillful operator; he also was a writer of ability and had contributed several papers of unusual value on fractures and other surgical subjects to the medical press.

Correspondence.

RECENT MEDICAL DISCUSSIONS OF THE ALCOHOLIC PROBLEM

To the Editor of The Medical Record:

Sir:—The American Society for the Study of Inebrity and Alcoholism, which was organized in 1870 in New York City, has, within the last few years, come into great prominence, and is recognized abroad, and its work is attracting increased attention. At the beginning its members were physicians actively engaged in the management and institutional care of inebriates. Later it included neurologists, physiologists, chemists, and medical men interested in the general subject of alcohol and the diseases which it causes. In 1890 the late Dr. N. S. Davis organized a society for the study of alcohol and its physiological action in medicine. A few years later this society united with the former and became an association for the study of inebriety and alcoholism. This society has been, and is, an organization of physicians, with no other object than to study the neuroses, psychoses, and action of alcohol. It is not a partisan for the promotion of any special theories or to sustain any party or organization, but simply to ascertain the facts and try and group the conclusions into some general, practical measures, that can be utilized in the study of this subject. The central fact about which this society has grouped all its studies, has been that alcohol is a poison in the broad sense, and the injuries which follow are veritable diseases. The papers and transactions of thirty-eight years have gathered about these two facts a great variety of conclusions and new views of the utmost importance. These have been published since 1876 in the *Journal of Inebriety*, the organ of the association, and have gradually educated the medical profession to recognize the whole study as a new field of physiological and psychological medicine. Recently the great temperance societies have realized that their best studies and work must be supplemented by papers and discussions from physicians. Hence medical men have been invited to take part and in some way direct their efforts in the name of science. A few years ago the W. C. T. U. at their great annual gathering began to invite physicians to address them, and other temperance societies followed, appealing to the profession for counsel and advice. Many of the great church temperance societies have placed medical men on their board, and in this and other ways sought to utilize the experience of physicians.

The members of the Society for the Study of Inebriety were nearly all members of the American Medical Association, hence it was found most convenient to hold their annual meetings at the same time and place as the last named society. For many years these meetings were small and scarcely ever numbered over 20 or 30 persons. During the last two or three years the interest has increased until large crowds, beyond the capacity of the hall to accommodate them, are now the rule rather than the exception. It is now proposed to have a distinct meeting a few days before that of the American Medical Association. A resolution was passed to appeal to the American Medical Association for a separate section on this subject.

In 1907, at Atlantic City, N. J., a lunch was projected after the manner of the gathering of the British Medical Association. Over 150 persons dined together, after which they listened to several strong speeches by leaders of the profession. The novelty of the occasion attracted a large number of persons, who became enthusiastic to continue the custom. At the late Chicago meeting a similar lunch was provided and celebrated with great enthusiasm and remarks by leading medical men. It was very evident that this will be a permanent feature of the annual gatherings in the future, and will be an occasion for educating the profession to take a broader view of the scientific study of the great alcoholic problem. As an example of the work done at the Chicago meeting a summary of the papers read will be interesting. They will all be published in the *Journal of Inebriety*, but as this journal is limited in its circulation, the scope and range of the work will not be known to the general profession.

The annual address before the society was by the president, Dr. H. O. Marcy of Boston, Mass., whose subject was: "The Temperance Movement in the South from a Medical Point of View." He indicated from statistics and studies of the mortality tables, as well as the opinions of eminent medical men, that the unsettled social condition and degeneration of the colored people was the subject of great concern, and also that all measures that increased or favored the unhygienic conditions of living produced a sense of alarm. The temperance movement spreading over the South was not based on sentiment or theory, but dated farther back to a consciousness of fear and peril to both life and property growing most rapidly where alcohol as a beverage was practically free. He characterized this movement as a cosmic consciousness of alarm, which was growing in all classes, irrespective of theory, and which materialized in efforts to overcome and prevent, by legal and other measures.

Dr. D. H. Brower of Chicago presented a paper on the "Prevalence of Alcohol as an Active and Predisposing Cause of Brain and Nervous Diseases." He asserted that all the most advanced studies in the etiology of neurotic diseases made alcohol more and more prominent, and, next to syphilis, may be considered the greatest active cause of diseases of modern civilization.

Dr. G. H. Benton of Chester, W. Va., described in detail the action of alcohol in producing autointoxication, and showed how the drink craze is reproduced and kept alive by the ferments and metabolic changes in the stomach. He showed that the beer drinker was particularly exposed to these active causes, and whatever the first cause of taking spirits might have been, its continuation was very largely due to this cause.

Dr. J. M. Aikin of Omaha, Neb., discussed the functional and organic disturbances which preceded the use of alcohol, and which apparently were covered up by the paralyzing effects of this drug. He indicated that alcohol, either as a beverage or a remedy, was most disastrous in perpetuating the pathological changes existing.

Dr. John Punton of Kansas City, Mo., declared that inebriety was a complex disease, that was curable to a very large degree by practical hygienic training in early life, particularly in relation to nutrition, elimination, and surroundings.

Dr. J. D. Mishoff of Milwaukee, Wis., discussed the problem of why spirits are taken as a beverage, and concluded that it was due to nerve exhaustion and starvation, for which alcohol was a most grateful narcotic.

The second session was opened by an address from Prof. W. S. Hall of Chicago on "Recent Researches in the Physiology of the Action of Alcohol on the Cells and Tissue." He concluded that laboratory research work from every point of view confirmed the statement that alcohol was a paralyzant and its action on the cells and tissues was corroding and destructive, both chemically and physiologically.

Dr. C. H. Hughes of St. Louis, Mo., read an elaborate paper on the "Neuropsychopathic Diathesis of Alcohol," and showed that there was unmistakable evidence that such a condition wos both inherited and acquired and was marked by an intense desire to seek relief through alcohol, irrespective of all considerations and conditions. A study of this diathesis threw much light on the mysterious neuropsychopathic diseases which often baffled medical skill.

Dr. R. H. Mettler of Chicago followed with a paper giving examples of the influence of alcohol and narcotics often taken secretly and in so-called moderation, which when removed resulted in recovery. He indicated that all obscure diseases of the brain and nervous system might have an origin from this source, and no clear diagnosis could be made unless this cause was eliminated.

Dr. G. E. Petty of Memphis, Tenn., showed that drug neurosis was increasing in this country, and that the causes were more or less tangible, particularly in toxic conditions from a great variety of sources.

Dr. E. A. Sterne of Indianapolis, Ind., compared the slow and rapid method of the withdrawal of narcotic drugs, and gave the result of his experience, describing at length the conditions for which success might be expected.

Dr. C. A. Rosenwasser of Newark, N. J., discussed the therapeutics of inebriety and the possibility of permanent restoration from appropriate treatment and exact surroundings.

Prof. G. D. Haggard of Minneapolis, Minn., urged that the medicinal action of alcohol should be tested by clinical experience in hospital and private practice, in more exact ways than at present. He deplored the bad teaching of medical colleges concerning alcohol, and thought much of the confusion at present was due to a repetition of old time theories which experience has declared untrue.

The third and last session was opened by an address from Dr. L. D. Mason of Brooklyn, N. Y., who discussed the influence of pauper inebriates on the physical and moral health of the community. He showed that misapplied charity, given to this class, all went into the pockets of the saloon man, and kept alive an enormous evil, which should be treated the same as smallpox and yellow fever. He gave elaborate statistics and quotations from authorities, showing the criminal losses to the community and tax-payer from this source.

Dr. G. Frank Lydston of Chicago read a paper on the close connection between crime and alcoholism. He pointed out that the alcoholic was a trained criminal by

reason of the paralysis of the higher mental faculties, also that his criminality was of a very low type. All this was confirmed by statistics and studies.

Dr. Arthur MacDonald of Washington, D. C., read a paper on the "Statistical Studies of Degeneracy Dating to the Use of Spirits and Drugs." These studies included the history of a large number of persons, and showed the rapid decline to extinction which followed from this entailment.

Dr. J. H. Kellogg of Battle Creek gave an address on "Malnutrition as an Active Cause for Inebriety and Other Neuroses." He showed from chemical studies and tables the degrees of poisoning and exhaustion from this source.

Dr. W. H. Waugh of Chicago gave the result of the use of gelseminine in the withdrawal of morphine, and concluded that it was one of the most reliable remedies so far found to be useful in this disease.

Dr. C. J. Douglas of Boston, Mass., described his method of treating morphinism by substituting other drugs, and supported his claim by clinical examples.

Dr. T. D. Crothers of Hartford, Conn., described the work of the International Temperance Bureau and the American branch at Boston, the object of which was to gather and tabulate all facts and statistics concerning the alcoholic problem.

The World's Temperance Centennial Congress, which met at Saratoga Springs, N. Y., from June 14 to 23, was a gathering of delegates from thirty-two different temperance organizations in this country and Europe, for a general conference and to commemorate the centennial of the formation of the first temperance society at Moreau, N. Y., a few miles from Saratoga Springs. The managers of this congress invited the Society for the Study of Inebriety to hold a meeting at the same time and place so that the leading philanthropists and temperance men might have an opportunity to hear the results of scientific study by this body. This was simply an independent meeting of the society for the presentation of papers, purely scientific, and as a contribution to the subject from the medical side.

Dr. H. O. Marcy of Boston gave the opening address, devoted to a review of the life and work of the leading medical men of the last century who have been prominent in calling attention to the dangers from the use of alcohol and urging a medical study of the subject. Beginning with Dr. Rush he mentioned a number of very prominent men who had written against this drug and did all they could to influence the profession at that time against its use. He concluded with a graphic review of the late Dr. N. S. Davis, and his work.

Dr. T. D. Crothers of Hartford, Conn., followed along the same line reviewing the temperance work of the doctors and the late Dr. J. E. Turner, who founded the first inebriate asylum in the world, and the medical reformers of a half century ago.

Dr. V. A. Ellsworth of Boston, Mass., contributed a history of the first institution for inebriates and the first efforts for medical treatment and the results. Miss Cora F. Stoddard of Boston, Mass., secretary of the Scientific Temperance Federation Bureau, described the work of the past year and the rapid accumulation of papers and statistics concerning alcohol and the future value of this bureau to all students of the subject.

Dr. J. B. Learned of Northampton, Mass., read a paper showing the influence of bad training in home and school life, resulting in degeneration and subsequent alcoholism, giving examples and opinions of educators.

The second session was addressed by Dr. W. S. Hall of Chicago on "The Teachings of the Laboratory and Research Work Concerning the Action of Alcohol," a continuation of the first paper which formed his address for the Chicago meeting. He was followed by Dr. L. D. Mason of Brooklyn, N. Y., who discussed at some length the delusions prevalent in popular lines relating to the harmlessness of moderate drinking, and pointed out by examples and experience the fatality of such opinions.

Dr. G. H. Benton of Chester, W. Va., showed that diet was very important in the treatment of inebriates and should be considered as of equal value to that of drugs and other measures used.

Dr. H. S. Drayton of Jersey City, N. J., pointed out the laws of degenerative heredity, which move with unerring uncertainty, also that a study of this phase of the subject must constitute a very practical part of all efforts to overcome the evils of alcohol.

The third session was onened by an address by Dr. C. H. Hughes of St. Louis, Mo., who gave particular emphasis to the fact that the circulation of alcohol in the blood was particularly injurious to the minute arteries of the cortex, interfering with the protoplasm, and always followed by degeneration of the cells and cell growth. He asserted that recent researches had indicated very serious injuries from this source which had not been noticed before.

Dr. J. H. Kellogg of Battle Creek gave an address showing the damage from the excess of proteids in the foods and the fermentations which followed producing irritation and exhaustion, which was very largely an exciting cause in the production of inebriety. He called attention to the statistical fact that drug and spirit taking were more incurable and difficult to treat in persons who ate large quantities of meat, and showed how it was possible that excessive proteid diet of this kind might complicate and make these disorders more incurable.

Dr. S. H. Kress of Washington, D. C., followed with a paper on "Mental Degeneracy from Alcohol." He illustrated with a history of the effects of alcohol on the South Sea Islanders and other native tribes, bringing out the fact that alcohol had a peculiar degenerative influence, not only on the individual, but on the race, and this influence extended down to future generations, continually weakening and destroying them. He urged that the same influences were at work in our present civilization eliminating the weak and the unstable with absolute certainty.

Dr. C. H. Shepard of Brooklyn, N. Y., urged that the Turkish bath was the most powerful remedy for the restoration of drink and drug victims, and that no measures would be complete without the use of this agent. He presented statistics to prove his conclusions.

The society attended in a body the unveiling of a tablet to the memory of Dr. W. J. Clark at Moreau, N. Y. An address was delivered by the Rev. Dr. Wilbur and followed by remarks by Dr. Crothers, who declared that the formation of the first temperance society at this place was a scientific work in spirit and purpose, as much as the laboratory work and researches of to-day.

At the fourth and last session Dr. J. D. Quackenbos of New York City gave an address on "The Power of Mental Suggestion in the Control of Inebriety." This was a clinical grouping of facts showing the value of psychopathic treatment and the power of suggestion in the control of the drink impulse and a plea that the profession take it up and make a practical test of it.

Dr. D. Paulson of Hinsdale, Ill., considered in some detail the means and methods of the application of mental suggestions and the correction of surroundings and the physical influences essential in the successful treatment of inebriates. He claimed that inebriety was thoroughly curable in proper surroundings and by the use of means and measures which experience had found useful.

Dr. Crothers of Hartford, Conn., concluded the session by pointing out some of the conditions represented by the term "New Thought" in relation to mental life, and showed their scientific relation to psychopathic and physical treatment.

The canteen question was the subject of a special session Monday afternoon. Dr. J. W. Grosvenor of Buffalo, N. Y., gave an exhaustive review and history of the arguments and reasons which had brought the question of the sale of spirits and light wines at the canteen into controversy. He showed the reasons for the repeal of the use of all forms of spirits in the canteens, and gave statistical tables and opinions of authorities, both in favor and against spirits in the canteen. He reviewed the controversy which had grown up about this subject and indicated the facts which were so far sustained by all the evidence. He was followed by Dr. Crothers of Hartford, Conn., who reviewed the researches of Kraeplin and other authorities concerning the effect of small amounts of alcohol on the brain and nerve activities, and gave the conclusions of laboratory researches concerning the peril and injury from these agents to the efficiency and vigor of persons. A number of very frank inquiries followed these papers and the discussions were marked by great fairness and candor.

These two meetings of the association attracted enthusiastic audiences and were listened to with great interest. The last meeting was historical as the first attempt of medical men to discuss the alcoholic problem exclusively from its scientific side before an audience of laymen. The papers were prominent as studies of facts, and the conclusions following were singularly free from dogmatism and theorizing. It was evident that a new step forward had begun in the temperance work in which medical men were to be called on to take an active part, and that hereafter no gathering of laymen to discuss this subject could be complete without the influence of physicians to give assistance and direction to their studies. It is also very evident that both the profession and laymen are gradually recognizing that there is an undiscovered field where the causes of the great alcoholic problem can be studied, known and prevented, and that hereafter all the great work of reform must be directed by trained medical men, and in some way guided by their researches.

The International Alcoholic Congress, which occupied

so large a place in the history of reforms last year, is to be repeated in London in 1909, and work for an immense gathering is already being projected. This will be under the auspices of the British Government. The Duke of Connaught will be Honorary President.

Official delegates, principally medical men, will be sent from all the civilized countries in the world, the central purpose of which will be to discuss the hygienic, social, and scientific problems connected with the alcoholic question. This will be thoroughly scientific and statistical and will be supplemented by studies of the reform work in societies, churches, and other movements. This will bring together a great army of laymen and reformers with all their plans and projects and they will have full opportunity to present and discuss in separate sections. The event will be epoch-making and indicate the growing interest in the evils that come from alcohol as a beverage, which is being recognized in all countries of the world.

T. D. Crothers, M.D.

Hartford, Conn.

OUR LONDON LETTER.

(From Our Special Correspondent.)

CAVENDISH LECTURE ON TUBERCULOSIS, ETIOLOGY, RECENT RESEARCHES—GRADUATED WORK AT FRIMLEY SANATORIUM—LONDON HOSPITAL—ROYAL COLLEGE OF SURGEONS, THE POLL ON THE ADMISSION OF WOMEN.

London, July 10, 1908.

The Cavendish lecture for this year was delivered at the West London Medico-Chirurgical Society on the 26th ult. by Professor Sir William Whitla of Belfast. He took for his subject the "Etiology of Pulmonary Tuberculosis." After referring to the question of differences between human and bovine tubercle and accepting the conclusions of the great majority of recent investigators that they are identical, he passed on to the etiology of phthisis. The study of this narrows itself into the consideration of the two obviously probable routes of infection—the respiratory and the intestinal surfaces. After the discovery of the bacillus and its constant presence in the sputum, and the knowledge from history that the lungs were the seat of the disease in almost all cases, it was naturally held that pulmonary tuberculosis must be a primary disease, and this view is still generally accepted. The lecturer, however, went on to show that, although phthisis may be produced by inhalation, many facts obtained by recent experiments go to prove that the intestinal route plays a far more important part in the production of human phthisis than has heretofore been recognized. The inhalation theory is based on the results of pulmonary anthracosis, experimental and pathological, and also on the successful infection of animals by causing them to inhale an atmosphere laden with bacilli. Hundreds of animals after breathing such an atmosphere have contracted the disease and clinical experience shows that persons become infected in the environment of patients. But late experiments have shifted the question of entrance. Calmette and Guerin's work in this direction seemed so startling and the conclusions from them so vital that Dr. Whitla, in conjunction with Professor Symmers, undertook a series of experiments upon guinea-pigs, with a view of testing them. To give a birdseye view of the results the lecturer exhibited some splendid specimens permanently mounted in gelatin. To test the power of the pulmonary capillaries to filter out fine particles of carbon circulating in the blood, a mixture of China ink and water was injected into the large vein in a rabbit's ear. The lung of the animal, killed an hour afterwards, was highly charged with carbon particles, in obvious contrast with that of a control mounted beside it. Another specimen was from an adult guinea-pig, killed, after feeding for four days with an emulsion of ink, through a rubber tube in a way to prevent possible soiling of the mouth, pharynx, etc. This experiment, repeated twenty times, gave striking results. The lungs were blackened in the upper lobes and the margins of the lower lobes within eight to twenty-four hours. In some other experiments the lungs were infiltrated with the carbon particles after injections into the peritoneal cavity, but the abdominal lymphatics remained free. Clearly the carbon particles easily obtained entrance through the intestinal epithelial surface, reached the lymphatic paths, passed through the mesenteric glands, either enclosed in phagocytes or free, and so into the thoracic duct and venous circulation, to be at last arrested in the pulmonary capillaries.

Vansteenberghe and Grysez found a great difference in the result with young guinea-pigs. In them the carbon particles were arrested in the mesenteric glands. Sir William Whitla and his colleague, Symmers, accordingly tested this. Dense blackening of the abdominal lymphatics was found twenty hours after injecting a young guinea-pig. The carbon had also reached the thorax through the lymph channels of the diaphragm, which was jet black throughout; also the right costal pleura was black, but the lungs were quite free. In ordinary feeding experiments of young animals the lungs remained free in contrast with the dense blackness produced in full-grown animals. The lecturer recalled that Calmette and Guerin concluded from other researches that air-borne bacilli could not penetrate the pulmonary parenchyma, and Von Behring, at the Cassel Congress, 1903, advanced the then startling doctrine that phthisis in the adult was not produced *via* the air passages, but is always the result of a long past absorption from the intestine in childhood. The main question for the practitioner is whether the bacilli pass through the intestinal mucosa like the carbon particles. This the lecturer asserted could no longer be denied, as it had been proved by experiments too numerous to mention. The exhaustive researches of Calmette, Guerin, Breton, and others give a constant result. Injections of emulsion of living tubercle bacilli produced deposits in the mesenteric glands and other viscera. When the animals survived thirty days the lungs were always studded with caseous particles and the bronchial and tracheal glands were affected. If they were allowed to live for from fifty to sixty days the deep cervical glands were almost always tuberculous. This is of the utmost importance in view of the usually accepted opinion that affection of these glands points to entrance through the mouth, tonsils, or pharynx. That this is not the case has been shown by most careful experiment by Calmette and others. Guinea-pigs killed ten days after bacilli had been introduced into the stomach by the tube were found to have the entire lymphatic system infected, and healthy animals inoculated with the substance of the inguinal glands died from extensive generalized tuberculosis.

Sir William Whitla then gave some account of two outbreaks of tuberculosis he had observed in an isolated charity school of 150 children. These he had traced to the milk supply. In looking back over about thirty years in connection with this institution he declared himself convinced that other outbreaks were due to the same cause and he has little doubt that soon many such cases will be recorded. From clinical observation and experimental results, he felt convinced that in regard to phthisis, dosage is everything. The bacillus must be ubiquitous, considering the number of tuberculous cattle and phthisical patients. Natural resistance, hereditary or other, affords protection, but when the dosage is too heavy probably no human being can escape.

Admitting that a great proportion of the myriads of bacilli must be dead, it cannot be denied that everyone must draw them into the air passages and probably take some in most of his food. But for some way in which they are dealt with in the organism, phagocytic or other, the lecturer thought few, if any, would be left to study or discuss the problems of tuberculosis. As soon as any part gets its vital resistance lowered by injury or otherwise, arrest of phagocytosis ensues. As instances familiar to all, tuberculous testicle and spinal caries following a blow without any break of surface were mentioned, also phthisis following pneumococcal or streptococcal pleurisies. The conclusion reached was that probably phthisis will be recognized in the immense majority of cases as caused by the entrance of germs through the intestinal mucosa without the necessity of any break of its surface.

The Brompton Hospital Sanatorium at Frimley was visited on Saturday by a large party interested in the system which has been at work now for four years. It is the method of graduated work which has been carried out in this sanatorium. Seven grades of exercise and work are in use under the supervision of Dr. Paterson, the superintendent. The male patients pass from one grade to another until at last they can do a navvy's work. The women's grade corresponding to this is scrubbing indoors. When a man is thought fit to be discharged, he is set to work at his trade, if he has one, for six hours a day for three weeks, to bring his muscles into training again. Of patients who have been sent out as recovered to their former employment (policemen, blacksmiths, dock and other laborers) 80 per cent. are reported to be in full work. The treatment is being extended to the King's Sanatorium and the National Sanatorium at Benenden, as well as to the Ventnor Hospital for Consumptives. For per-

sons of limited means, who can afford to pay something, twenty beds are to be set apart.

On Monday the quinquennial appeal for the London Hospital—the largest of all—was opened at the Mansion House, when the Lord Mayor entertained several hundred guests at dinner. Lord Rothschild proposed the toast of "Success to the London Hospital" and told how, two hundred years ago, some "adventurous spirits, among whom was the great and reverend John Wesley," met in a tavern and decided to furnish a house on the site now occupied by the London Hospital. They had only one shilling in hand when the work was completed, but somehow it went on and the house grew into four and has grown ever since. The hospital is now nearly complete for its work and requires £400,000 for its upkeep during the next five years, as 1,500,000 patients will have to be ministered to, according to the estimated growth of the population. The assured income of the hospital is about £20,000, the expenditure £100,000. For the balance of £80,000 voluntary contributions are needed.

Yesterday afternoon, at a meeting of the Council of the Royal College of Surgeons, the result of the poll regarding the admission of women was announced. There was a majority of 415 against their admission to the membership and of 1,182 against their admission to the Fellowship.

The votes of Fellows taken separately gave a majority of 288 in favor of admitting to membership and of 34 to the Fellowship.

The votes of members taken separately were against in both cases—a majority of 703 against as to membership and 1,216 as to Fellowship. Out of the 1,373 Fellows 1,043 voted and out of about 13,800 members 8,543 voted. The subject will be considered by the Council in October.

Mr. Henry Morris was reelected president, Sir Watson Cheyne and Mr. Pearce Gould vice-presidents for the ensuing year.

OUR VIENNA LETTER.

(From Our Special Correspondent.)

ANTAGONISTIC ACTION OF DRUGS—STONE IN THE BLADDER—A FOREIGN BODY IN THE BLADDER REMOVED BY A SOLVENT—HEMANGIOMA CAVERNOSUM OF THE LARYNX.

VIENNA, June 1, 1908.

A FEW days ago Professor Horst-Meyer spoke before the Physicians' Society on "The Antagonisms of Poisons." He said that such antagonism may be a direct chemical one between the toxic substances, or an indirect one caused by opposing physiological action. In the study of this relation experiments on animals are necessary, because the mere chemical composition of the poisons can only suggest the possible antagonism of the first kind mentioned above. In the direct chemical antagonism the poison and its antagonist combine together and the result is an indifferent substance. In the second type of antagonism the poisons do not affect each other, but influence an organ in such a way that the results of this influence oppose each other. For example, atropine has a paralyzing effect upon smooth muscle fibers and upon the heart, while pilocarpine stimulates the same structures. For the most case the inhibitory effect of the poison is more distinctly felt, yet often enough the stimulating action appears quicker. The explanation of the result produced is especially difficult when the central nervous system is the field of the antagonizing influences; examples of such action are seen in the inhibitory effect of morphine, the stimulating effect of atropine, the inhibitory influence of chloral hydrate and of alcohol, and the stimulating effect of caffeine, morphine, and picrotoxin. There are likewise drugs that lower or raise the temperature in opposition to each other's action. Not explained are the processes that take place when a motor neuron or a motor field receives impulses of opposing character from two different sources, one of them being inhibitory in character while the other is of stimulating nature. In still a third type of antagonism the opposing principles affect organs that are physiologically pitted against each other. The muscles, the vessels, the glands are subject to the influence of the vegetative automatic system of nervous control, being at the same time open to the effect of inhibitory and of stimulating action of the central nervous system. The vegetative system of nervous control consists of the following elements: (1) Nerve fibers that originate from the middle and from the hind brain and run some distance with the oculomotor, the facial, the glossopharyngeal, and the vagus nerves; (2) nerve fibers that originate from the spinal cord up to the fourth lumbar nerve and pass to the sympathetic paths; (3) fibers of the pelvic nerves which spring from the sacral prolongation of the spinal cord and supply the colon, the urinary bladder, and the genital organs. The sympathetic vegetative system supplies the whole body and has for its antagonists the two other systems of nervous control. The cranial and the sacral nerves of automatic action are stimulated as far as their end organs are concerned by pilocarpine and the like drugs, and are inhibited by the atropine group; the sympathetic system, on the other hand, is not influenced by these drugs.

The drugs that act upon the sympathetic system consist of such substances as adrenalin and cocaine which stimulate it, and of drugs like codeine which paralyze or inhibit it. An organ which is supplied by two antagonistic groups of nerve cells, that is, by the cranial and sacral nerves on the one hand, and by the sympathetic fibers on the other, may be influenced in various opposing manners by the different poisonous elements; for example, its vessels may be contracted by the action of pilocarpine and may tend to be dilated by the influence of cocaine or adrenalin, because of the different degree of influence exerted by these drugs upon the structures affected by them. There exists probably an opposing action between the various secretions, as for example between those of the pancreas and those of the adrenal body upon the glycogenic function of the liver, the antagonistic effects of the medulla and the cortex of the adrenal gland and of the thyroid and the genital glands upon metabolism, but we know as little about this phase of their activity as of the principles responsible for it.

Some interesting cases of urinary stone have been observed by Dr. Alexius Avarffy of the First Female Clinic. In the first case the stone was formed in the bladder by deposits about a hairpin. The latter became non-movable, a concretion of the size of a hen's egg formed about it, and finally began to press upon the wall of the bladder. In response to the injury there appeared an inflammatory reaction with the formation of granulation tissues, which buried the free ends of the foreign body and produced a necrosis of a portion of the bladder wall by pressure upon the blood-vessels. A colpocystostomy was carried out, the stone being a fixed one, and a vesicovaginal fistula resulted from the operation. Three further operations were necessary to repair this lesion. The woman meanwhile had become pregnant, and the labor as well as the puerperium passed without any disturbance. In the second case, the salts were not deposited about a foreign body, but were precipitated into a bladder diverticulum. In this case, likewise, a local inflammatory reaction resulted, the products of the inflammation serving to fix the stone still more firmly in the confined space it occupied. Apparently the patient was suffering from a uric acid diathesis, for a stone the size of a hazelnut was discharged spontaneously by the vagina. A vesicovaginal incision was made in this case also, and a fistula leading into the cervix was discovered occupying the spot of necrosis produced by the pressure of the stone. The anterior lip of the vaginal portion of the cervix was excised as far as the fistula, the stone was freed and removed through the wound, which was then closed. Healing by primary intention resulted and the woman left the clinic on the twentieth day, cured of her complaint. In the third case the stone formed in a cloaca, being deposited in a small pocket which resulted from a previous operation upon the genital organs. Both rectum and bladder opened into this pocket. The rectovaginal fistula was closed after prolonged irrigations had been employed, while the vesicovaginal fistula was left patent for the time being. Two further operations completed the cure. Of great interest in this case is the fact that the infection with the colon bacillus which was present about the opening of the bladder did not ascend to the kidney in the twelve years of its existence.

Dr. Lenk, of Professor Hochenegg's clinic, had occasion to remove a foreign body, a stearin taper, from the bladder and devised an ingenious procedure for the operation. The patient was a married man, fifty-six years old, who had masturbated for many years, introducing pencils, penholders, brush handles, etc., into his urethra. On one occasion he made use of a stearin taper for this purpose and it inadvertently slipped into the bladder. A few weeks later the man appeared at the clinic with marked hematuria and the signs of a well developed cystitis produced by the presence of the foreign body. A cystoscopic examination disclosed an ulcerative cystitis of a severe grade and the foreign body all twisted and incrusted with salts floating in the fluid used for cystoscopy. It seemed impossible to remove it by means of an operating cystoscope or by a lithotribe, for the incrustations upon it would certainly have caused much damage. "Sectio alta" was, too, a dangerous procedure because of the severe cystitis. Lenk decided to dissolve it by means of benzine. He experimented upon himself and found that the healthy bladder could retain about fifty cubic centimeters of benzine with-

out being unduly irritated; care was to be taken, however, not to bring the benzine in contact with the posterior parts, for very marked tenesmus resulted on such contact. Moreover, it could be expected that the damaged mucous membrane of the patient's bladder would prove much more sensitive to the action of the irritant. An attempt to use benzine showed that this expectation was a correct one and Lenk decided upon a somewhat different procedure. The bladder was filled with 120 cc. of sterile water in which the piece of taper floated. Then fifty or sixty c.c. of benzine were introduced, it being expected that the benzine would rise to the surface of the water and there act upon the taper. This method was preferred because the water distended the bladder and allowed the benzine to act thoroughly upon the foreign body, and at the same time but a very small part of the bladder wall and a comparatively healthy one came in contact with the irritating solvent. Especial protection from this action was obtained for the bladder fundus which suffered most from the inflammatory process and which now had a layer of water between it and the benzine. The solvent was allowed to act for about twenty minutes, was then allowed to escape, and the bladder was thoroughly irrigated with water. Thus it was possible to remove the foreign body slowly without causing too much unnecessary pain to the patient. The taper stearin gradually broke up into small pieces because of the solvent action of benzine and these were passed spontaneously. Five injections of the solvent, which was allowed to act about twenty minutes each time, were sufficient to free the bladder completely of the stearin particles. The wick was then easily removed by means of a lithotribe.

Dr. Hugo Zwillinger had recently an interesting case of cavernous hemangioma of the lower pharynx under observation. The patient was twenty-two years old and showed a dark red to bluish black tumor in the right pyriform fossa. Only the upper part of the ary-epiglottic fold was left free by the growth, which covered up a part of the false vocal cord and narrowed the upper portion of the rima glottidis. The surface of the tumor appeared uneven and nodular. The mass stretched in the direction of the right vallecula behind the epiglottis toward the root of the tongue and covered the right pharyngoepiglottic fold. It was attached by a broad surface to a lappet of tissue, originating from under the right tonsil, filled out the right vallecula and ended at the root of the tongue. Digital examination also showed that the tumor surface was uneven; the mass, moreover, was soft and somewhat compressible. The diagnosis was hemangioma cavernosum, a condition very rarely met with on this site. Mikulicz could report only two cases of this affection up to 1889.

Progress of Medical Science.

New York Medical Journal, July 18, 1908.

Dermoid Tumor of the Conjunctiva.—Eleven instances of this rare lesion have been recorded in the last 43 years. An additional case is contributed by M. J. Levitt, whose patient was a male child of five weeks. The growth on the eye measured 8 or 9 mm. in length, 6 to 7 mm. in width, and 2 to 3 mm. in thickness. It was located on the sclerocorneal junction, more on the cornea, was hard in consistency, and free from inflammation, while the rest of the globus was normal. Otherwise the child was normal. Immediate removal was advised but deferred by the mother. Levitt says that such growths in this situation are always congenital, benign in nature, and usually connected with some other malformation or deficient development of the eyelid or other part of the face, such as coloboma or hare-lip. The usual seat of the tumor is at the sclerocorneal junction, but it may occur at any other place of the conjunctiva. The size varies from that of a split pea to that of a cherry. Histologically, these tumors contain all the elements of skin and its appendages, such as hair follicles, sebaceous and sweat glands. In consistence they are either hard or soft, according to the amount of fatty tissue they contain. Dermoids are supposed in general to be due to amniotic adhesions or to invagination of the ectoderm.

A New Corset for Gastroptosis.—The special feature of the corset devised by A. Bassler is its concave abdomen, hollowed in its depth according to the extent of prolapse of the organ or organs within and the bulk of the abdomen, otherwise it is a well fitting, stylish, made-to-order corset, not any larger in the circumference at the waist line than the normal measurement would be, with a contraction transversely to shape it in at the waist, and a corresponding fullness in the costal region to allow for the sustained organs. The concavity is below the umbilicus and at the sides, between that and the anterior superior spines of the ilia down to Poupart's ligament. This feature is brought about by a series of corset steels, which have been bent, then tempered, and placed in the corset in the manner shown in the illustration in the original paper. The corset here described does not depend upon any extreme degree of snug fitting about the hips and lower abdomen to squeeze the underlying tissues and thus hold up the viscera. Even with the women standing the lower part of the corset does not have the extreme close fit as the previously mentioned garment with the women lying down. The entire hand can be readily slipped between it and the abdomen, and still the support factor is accomplished. Nor is it necessary to loosen the lower string of the corset to put it on, as is requisite with the other garment; the corset when once adjusted is taken off and put on without any widening change, and thus its degree of support is not changing day by day, as is the case when the strings are constantly being adjusted. It has not been found necessary to pad the lower edge of the corset so as to relieve point pressure on the anterior superior spines of the ilia or elsewhere. Full directions for application of the corset are given in the original paper.

Syphilis Extragenitally Acquired in Early Childhood.—The various ways in which young children become infected innocently by the virus of syphilis are enumerated by F. C. Knowles. He mentions particularly, parturition, circumcision, vaccination, breast feeding, hand feeding, fondling household utensils, toilet articles, unsterilized surgical, dental, and electrical appliances, careless and unclean methods of dressing wounds, and removal of foreign bodies. Illustrative cases are given under each heading. Nothing new is presented.

Journal of the American Medical Association, July 18, 1908.

Disease of the Cerebral Vessels.—W. A. Jones reports three cases, two of them with post-mortem examination, of brain disease more or less suggestive of focal basal or cerebellar lesions. In the two cases examined post-mortem, there was marked thickening of the arteries at the base of the brain, irregular with multiple aneurysms in one, and uniform in the other, with aneurysms of both vertebral arteries at the level of the first cervical nerve. The cause of death in the first of these cases was obstruction of the circulation in the cerebellum and brain-stem; in the other, the direct pathologic lesion causing death, which occurred with rapidly increasing paralysis and rigidity, was not evident, but the most pronounced post-mortem finding, other than the condition of the vessels, was edema.

Cerebral Inhibition and Motor Function.—H. A. Tomlinson reports cases and reviews the physiological facts that seem to him to show that extreme incoordination of voluntary movement, and even palsy, may result from simple cerebral inhibition in cases in which there are no symptoms of organic disease of the nervous system other than psychic ones. The complexity of function is such in the human brain that under certain conditions there may be disintegration of function and disassociation of the elements of complex motor activities, without lesion or morphological change in the histologic elements of the cortex of the brain. In new-born infants he had observed that when the regular order and sequence of the afferent impulses in a complex reflex is disturbed or incomplete, the efferent impulses are inhibited, and then the reflex is modified. From observations of the insane, he finds that the progress of degeneration in dementia brings about a similar state; so that as the capacity for relation, coordination, and direction are lost, inhibition becomes dominant. Thus we have various degrees of inhibition ranging from incoordination to palsy, usually first in the functions of prehension and locomotion, and next in the acts of deglutition and articulation. The three cases reported are chosen as showing the varying degrees in the development of inhibition according to the extent of the primary defect in the nervous organization, and the advance in the progress of dementia. He locates the defect of function in such cases as most probably in the cortex of the middle portion of the frontal lobes, anterior to the precentral fissure, the region which is first to atrophy in dementia and is least well developed in the originally defective. In Tomlinson's experience, inhibition and incoordination occur only in those cases in which the degeneration is primary and begins during adolescence. In such individuals the higher functions of the brain are imperfectly developed, and consequently, whatever lowers vitality may put these functions in abeyance and inhibition becomes dominant, just as in the normal individual unusual and untoward conditions may operate to produce the same result in the undeveloped and inexperienced.

Fasting in Typhoid Fever.—R. M. Harbin says the

battleground of treatment of typhoid fever lies in the gastrointestinal tract: any vital organs containing pathognomic lesions of an infectious disease need rest, and our aim should be to nourish the patient without increasing saprophytosis. The excessive nitrogenous waste in typhoid fever is not due, he holds, to the typhoid toxin, but probably to mixed infections, and emaciation occurs independently of the amount of food taken and results more rapidly from toxemia than from lack of nourishment. Therapeutic fasting allows an uncomplicated typhoid infection to pursue a normally mild course without any mixed infection, by reducing the bacterial content of the intestines. It is the severe and sthenic cases that are especially amenable to this treatment. In such cases fasting should be prescribed for from one to three days, though it is rarely advisable to continue it through the third day, as the severe symptoms are usually relieved by that time. In other than sthenic cases it is not often necessary. If pneumonia intervene, more liberal diet should be allowed. After fasting for from twenty-four to forty-eight hours, a very restricted diet of broths, etc., in prescribed amounts should be given. Harbin does not favor a milk diet, as no one can tell that it will not form a curd, which is worse than solid food. It is less liable to do so when diluted with from two to five parts of broths, hot water, etc., and may then be valuable. Gelatin he considers a valuable adjuvant in the dietary of typhoid; it adds to the relish of the various liquids, lessens the nitrogenous waste and prevents hemorrhage. He would use it as a routine in all cases, though in very aggravated diarrheic cases, in which it is not well tolerated, only in small amounts on alternate days. Fasting and a restricted diet greatly enhance the effect of hydrotherapy and frequently render the use of antipyretic measures needless. In the series of cases which form the basis of the paper, the low mortality (4.7 per cent. and only 3.4 per cent. in 144 whites) is ascribed largely to the dietic management, though many had very inefficient nursing.

Migraine an Occupation Neurosis.—G. L. Walton argues that the common type of migraine, occurring mainly in early life, is an occupation neurosis, and he rather questions the pain being altogether intracranial, a doubt emphasized by the recent observations of Cushing of the non-sensitiveness of the dura, the part to which, perhaps, more than any other, the pain of migraine has been attributed. He cites here, as illustrating this point, the muscular pain experienced in the back of the neck and "base of the brain" after long-continued eyework, and which is relieved by discontinuance of the work. In migraine there are involved: (1) the visual centers; (2) the centers of accommodation (centers of divergence and convergence in the frontal region); (3) the intrinsic and extrinsic muscles of the globe, and (4) the muscles outside the orbit which are called into play in the effort required for accurate vision, principally the corrugator supercilii and occipitofrontalis, but also the muscles inserted in the occipital region, which serve to steady the head. Walton points out the resemblances between the symptomatology of certain occupation neuroses and migraine and the fact that they both occur in the same class of neurotic and sensitively organized individuals, as supporting his theory, and the paroxysmal pain in some forms of occupation neurosis strongly suggests that of migraine. Walton does not recognize the vasomotor theory of migraine as valid because the vascular symptoms on which it is based are neither constant nor primary, and furthermore, there is no necessary connection between dilatation and contraction of blood vessels and pain. The vomiting is not easily accounted for by the occupation neurosis theory or any other, but Walton considers it probably not one of the essential features, but rather an indirect result appearing generally only in the young and at the height of the paroxysm, representing rather a protective effort on the part of Nature, through producing general and special relaxation. The fact that relief often follows vomiting bears out this idea. His conclusion is that migraine is an occupation neurosis resulting, in individuals of neurotic heredity, from overuse, or use under the handicap of refractive error, of the parts (muscular as well as nervous) concerned in vision.

Hemorrhage into the Ventricles.—Ten cases bearing on the question of the correctness of the assertion of Dejerine, Strümpell, Brissaud and Leube, that convulsions and rigidity in apoplectic hemiplegia point to the rupture of the hemorrhage into the ventricles, and also on the possibility of stimulation of the axons of the upper motor neurons when they are separated from their pericaryons, are reported by A. R. Allen, who summarizes his conclusions substantially as follows: (1) Ventricular inundation in cerebral hemorrhage has no etiologic bearing on the convulsions or rigidity. (2) Tentatively, and basing his opinion on the ten cases, he concludes that the convulsions and rigidity in apoplectiform hemiplegia are frequently due to involvement of the optic thalamus or corticothalamic sensory fibers, provided, of course, that enough of the posterior limb of the internal capsule remained intact to convey the motor impulses. (3) Convulsions and rigidity in apoplectiform hemiplegia may be caused by a sudden or rapid increase of intracranial pressure from cerebral hemorrhage, even if the thalamus and corticothalamic sensory fibers are uninvolved. In this case, also, there must be a sufficient portion of the internal capsule left uninjured to convey the motor impulses to the parts concerned. (4) It is altogether unlikely that pressure or chemical change acting on the motor axons of the centrum or internal capsule—these axons having been severed from their pericaryons by the hemorrhage—could exert a sufficient stimulating action to cause convulsions or rigidity.

The Lancet, July 11, 1908.

The Necessity for Removal of the Appendix after Perityphlitic Abscess.—W. H. Battle closes a statistical and somewhat polemic article with the following statements: The treatment of perityphlitic abscess is most safely carried out in two stages: first stage, evacuation of pus and drainage; second stage, removal of the appendix. The statements of those who held that the appendix is obliterated by suppuration around it are erroneous; it is never obliterated but remains the subject of gross disease which in many instances (20 out of 70) gives rise to a return of symptoms within a short period after the closure of the abscess. The lesions found in those cases in which the appendix has been removed for a return of symptoms do not differ in their character from those found when it has been removed as a matter of routine without waiting for symptoms. Compared with a series of appendices removed for recurring attacks, without evidence of suppuration, the lesions found after removal following abscess are more gross and give fewer instances of apparent recovery from disease. Removal of the appendix after closure of the abscess is a safe procedure, and is not followed by any weakness of the abdominal wall if done in the way suggested. Moreover, operation at an early date after closure of the abscess enables the surgeon to treat dangerous adhesions and deal with any pelvic disease which may complicate the condition.

Sarcomatosis of the Lymphatic Glands.—One case is described in great detail by W. K. Hunter, whose patient was a man 38 years old—miner, who died after an illness of about fourteen months. For a period of one year the symptoms were entirely those of Hodgkin's disease, though the glandular involvement was less widespread and more definitely confined to the cervical region than is customary in that malady. Nothing suggested that the morbid process was extending through the gland capsules to the circumglandular tissues as was proved to be the case at autopsy. Moreover there was considerable initial improvement from the use of arsenic. The author says that there are two distinct pathological conditions included under the name Hodgkin's disease. In the one (leukemia) type the histological structure of the enlarged gland is exactly the same as in lymphatic leukemia—*i.e.* there is a "hyperplasia" of the lymphoid elements of the gland. Such cases might therefore be best regarded as cases of lymphatic leukemia without increase of lymphocytes in the blood. In the other type (fibrous type) the change affects the reticulum of the gland, and as the gland becomes more and more fibrous, the lymphoid elements become less conspicuous, and may ultimately almost entirely disappear. The process is, therefore, not a hyperplasia of the lymphoid elements as in the first type, but an atrophy of these, with a hyperplasia of what are probably stroma cells (large cells with irregular ragged cell-body composed of granular protoplasm and with a large, sharply outlined vesicular nucleus, sometimes round but more often kidney shaped). It is probable that it is only in the former or leukemia type that the glandular enlargement takes on a sarcomatous change. The case recorded by the author was not a lympho-, but a large-celled, sarcomatosis.

Premonitory Signs of Arteriosclerosis.—A. S. Gubb notes that the initial manifestations of this affection vary according to the region in which its impact chances to fall, kidney, brain, heart, liver, etc. The tendency thereto is notably influenced by heredity although acquired by certain habits of life. We may have early migraine, epistaxis, baldness, etc. Constitutional symptoms comprise diminished mentality, energy for work, and power of concentration. Tendency to fatigue is shown by drawn features and psychical depression. Small amounts of tobacco and alcohol render the patient morbidly irritative. Irritability of temper is common. Judgment is impaired and self-control lessened. Headaches are frequent. Sensory disturbances in one form or another are fairly

common, such as neuralgia, tingling, numbness, slight paresis of the limbs with or without pain. Genuine insomnia is rare, though sleep is disturbed. Capiello has called attention to a peculiar sensation in the palm of the hand—a tingling along the palmar arch—when the radial artery is compressed sufficiently to arrest pulsation. A simple way of determining the existence of general arteriosclerosis is the estimation of the "stability" of the pulse. Under normal conditions the pulse-rate is eight or ten per minute higher in the erect than in the recumbent position, and when observation shows that such is not the case we may infer that the blood-pressure is markedly above normal, while if the ratio be reversed it may be taken as proved that not only is the arterial pressure unduly high but that arteriosclerosis has reached the stage of giving rise to definite organic disease, an assumption which is confirmed should we find that the heart apex is displaced to the left. Exaggerated arterial tension with a small, hard, thready but regular pulse is a recognized sign of confirmed arteriosclerosis, but in minor degrees it also constitutes an early premonitory sign; indeed, some weighty authorities believe that actual changes in the arterial walls are preceded by prolonged exposure to the ill-effects of persistent high pressure, what Huchard calls the presclerous period, such hypertension being due to spasmodic contraction of the arterioles probably dependent on toxic irritation of the vasomotor system. High arterial tension, it is true, is commonly associated with chronic renal lesions, but the presence of the latter by no means excludes the possibility of the mischief being due to arteriosclerosis; indeed, the renal lesion may be, and often is, due to local arteriosclerosis. When in addition to an abnormally high blood pressure we get some of the other signs just mentioned there is a strong presumption in favor of the existence of arteriosclerosis.

British Medical Journal, July 1, 1908.

Tincture of Eucalyptus in Hemorrhage.—A. Todd-White calls attention to the value of this remedy in cases of hemorrhage. He was sent for to see a patient who had a tooth extracted three days before, and had had persistent hemorrhage from the socket. The usual remedies were applied without avail. On the third day tincture of eucalyptus was applied and the hemorrhage almost immediately ceased. The next day the patient's brother cut his foot and the hemorrhage was profuse. Having some of the eucalyptus left he applied it to the wound, and the hemorrhage immediately stopped. Later the author was asked to see a case in which persistent hemorrhage followed the application of a leech to the gum. The usual remedies—alum, tr. ferri perchlor., ice, etc.—were tried unsuccessfully for twelve hours. He applied tincture of eucalyptus, and the hemorrhage ceased within five minutes and did not return. It is most useful as a dressing on lint after circumcision or other minor operations. He is of opinion that the internal use of calcium chloride combined with the external application of tincture of eucalyptus will stop any form of hemorrhage.

Tetany in the Adult.—Two cases are recorded by J. A. Gibb. Case 1 was that of a woman of 52 years who was said to have fainted. The author found her with the usual symptoms, the convulsions being a marked feature and yielding to the hypodermic use of morphine and atropine. The patient was seen daily for a week and gradually improved, but at the end of that time relapsed, had fresh seizures, and died. Case 2 was that of a woman over 60 years and addicted to alcohol. She had marked dilatation of the stomach, and her convulsive seizures were similar to those in case 1, except that she did not lose consciousness. A fatal result ensued in 48 hours. The probable cause of tetany in adults is a toxin absorbed from the alimentary canal. Some quotations are made from recent literature on the subject.

Congenital Narrowness of the Pyloric Orifice a Cause of Chronic Gastric Disease in the Adult.—Twelve cases are summarized by A. E. Maryland. His general conclusions are thus stated: (1) There exists an abnormal condition of the pyloric aperture, probably of congenital origin, which consists in an undue narrowing of the orifice, varying anything between 2 and 10 or 12 mm. (2) The condition is more frequently met with in women than in men, and the age at which the symptoms first appear depends upon the narrowness of the aperture and the general physical or constitutional condition of the patient. (3) The narrowing leads to a more or less chronic condition of indigestion, manifested in various forms and often mistaken for chronic ulceration or chronic gastric catarrh: that in the early stages relief is afforded by careful and strict attention to diet, but that any attempt to return to normal feeding causes a recrudescence of indigestion. The attacks of gastric discomfort are at first separated by considerable intervals, but these lessen in length as time goes on. (4) When the patient is advanced in life and shows marked general debility operation will prove of doubtful value. (5) Barring such considerations as those mentioned in (3), pyloroplasty or Finney's operation—preferably the former—should be practised.

The Etiology of Pulmonary Tuberculosis.—In the Cavendish Lecture for 1908, Sir W. Whitla traverses the field of recent investigations, touching on the salient points and summarizing the conclusions. As to the question of the identity of the human and bovine bacillus he says that a survey of the general results carries the conviction that in most if not in all cases the success or failure of experiments to settle the question is strongly a question of dosage, though Koch's followers claim that large doses constitute a violent breach of the natural powers of resistance of the animal. But it is evident that this is but giving the question away by stating in another manner that the tissues of the ox show a greater resistance to human than to bovine tubercle, a fact conceded by all authorities—the resistance breaks down in the presence of a large dose. In conclusion the author suggests that while we are hardly justified in assuming that phthisis never occurs from the inhalation of dried sputum-dust or from the breathing of the spray injected in the act of coughing, it appears to be conclusively proven that the alimentary tract is a frequent portal of entry for the tubercle bacillus, which is able to pass through the intact mucous membrane of the bowel without producing any local lesion at the point of entrance; that this event is especially frequent in children, and that the milk of tuberculous cows is the common source in these cases. Probably at no distant date the contention of Calmette will be accepted that *in the immense majority of cases pulmonary tuberculosis is not contracted by inhalation*, but, as taught by von Behring, the germs enter through the intestinal tract. Future research may explain how in China, where the consumption of the milk of bovines is practically *nil*, tuberculosis is everywhere prevalent amongst the natives.

Berliner Klinische Wochenschrift, July 6, 1908.

Autopsy in a Case of Adams-Stokes Disease.—Karcher and Schaffner say that the interest of the Adams-Stokes symptom-complex lies in its dependence upon a pathological condition of the auriculoventricular bundle of His which causes a dissociation of the heart action. They report the case of a man fifty-eight years old who gave the typical symptoms of the disease, consisting of bradycardia with dissociation of the action of the auricles from the ventricles. During the attacks the radial pulse was thirty-three per minute, while the jugular pulsations were three or four times faster. The frequency of the ventricular contractions was always an aliquot part of the number of auricular contractions; exertion during the attack had no effect upon the frequency of the radial pulse, though the jugular pulsations were markedly increased in number by such influence. The administration of digitalis lowered the number of jugular pulsations quite noticeably, but had no effect whatever upon the radial pulse. The autopsy showed that the heart was hypertrophied and affected by an interstitial myocarditis. Microscopical examination showed that the bundle of His was almost completely changed into connective tissue. Of the twelve cases in literature giving lesions of the bundle of His in Adams-Stokes disease, five showed a condition similar to that observed in the case of the authors'. Other cases showed different lesions localized in the same structure, while in a few cases no lesions of the His bundle could be discovered in the presence of the clinical picture of Adams-Stokes disease. The latter cases, however, are hardly enough to justify a serious doubt that the syndrome is caused by some pathological lesion of the auriculoventricular bundle.

Münchener medizinische Wochenschrift, July 7, 1908.

Significance of Urobilinuria.—Fischler says that the appearance of urobilin and urobilinogen in the urine follows certain well-marked causes and is therefore of interest both to the scientific worker and to the practitioner who is concerned with the diagnosis and the prognosis of disease. Urobilinuria appears in many conditions; this fact, however, does not diminish its diagnostic value. The source of the urobilin is the bilirubin of the bile which is reduced in the intestines by bacterial action and is then again sent to the liver, being reabsorbed from the bowels. Normally the urine contains no urobilin or only very small traces of it. As soon as the common gall duct is obstructed in cases of catarrhal jaundice bilirubin appears in the urine, though in the beginning of the affection and in the very chronic cases the urobilin still is present, a condition which still awaits explanation. In certain cases of liver disease urobilinuria is almost a constant phenomenon,

as, for example, in alcoholic cirrhosis. The appearance of bilirubin in the cases clinically diagnosed as cirrhosis either shows that some complications are present or that the diagnosis is wrong. Urobilinuria in the affections of the liver due to heart disease is frequently present and is in these cases of serious prognostic import. Pernicious anemia is almost uniformly accompanied by urobilinuria, and the pathological appearance of the liver in this disease well explains this finding. Infections and toxemias, finally, are often accompanied by urobilinuria, the liver being very early affected in these conditions. Urobilinuria, therefore, is due to the disturbances of the usual currents of the excretions and secretions of the liver, caused by disease of that organ. Its appearance is of the greatest significance where the condition of the liver is the important factor in the prognosis and diagnosis of disease.

Plastic Operations Upon Nerves.—Spitzy says that in cases of paralysis due to the degeneration of nerves the peripheral portion of the nerve affected may be sutured into a slit of a neighboring healthy nerve, which constitutes the peripheral method of implantation; or the central stump of the healthy nerve may be sutured to the affected nerve, the latter being thus left *in situ*, this being the central method of nerve implantation. The former method is more advisable if the nerve which is used to replace the diseased nerve is itself partially affected. The author has performed such operations in eleven cases of paralysis following anterior poliomyelitis, in which the peroneal nerve was affected and the tibial nerve was used to revivify it. Partial or complete success was attained by these means. Paralysis of Quadriceps extensor muscle of the thigh was treated in a similar manner by the use of the obturator nerve but the results have not been encouraging. Paralyses of upper extremity offer a very promising field for the plastic operations. Partial central implantation is the most advisable procedure in the presence of paralysis of central character. Operations for such conditions in four cases were rewarded with good results. The reappearance of function begins very slowly, the first voluntary movements taking place several months after the operation; electrical irritability follows; if sensory functions have been affected, they always return before the motor functions. The general results prove that the method ought to be widely applied, especially in the paralyses met with in orthopedic practice.

Deutsche medizinische Wochenschrift, July 2, 1908.

Differential Diagnosis Between Appendicitis and the Diseases of the Uterine Adnexa.—Rinne says that such differential diagnosis is always difficult and often impossible. Both anatomically and pathologically the appendix and the uterine adnexa are closely related to each other, the appendiculoovarian ligament affording means of communication between the lymph and blood-vessels of the broad ligament and those of the cecum and appendix. Subjective symptoms, therefore, due to the diseases of one organ may easily give rise to symptoms in the other set. The site of the inflammatory tumor, if any is present, is of value in the differential diagnosis in the early part of the disease only; the appendicular abscesses are more lateral, and increase in the downward direction, the pelvic abscesses are placed more deeply in the pelvis and increase upward. In the latter disease, too, the uterus may be sensitive on pressure. The history of former appendicular inflammation on the one hand or the history of gonorrheal or puerperal infection on the other are of great value in the diagnosis. The initial pain of peritonitis due to an appendicitis is usually general in character, or is felt most in the epigastric and the umbilical regions; there is almost always present a reflex spasm of the overlying muscles, and meteorism develops late in the history of the attack. Gonorrheal peritonitis due to the disease of the adnexa begins with a stormy picture, but very soon the symptoms become milder in character. Meteorism is uniformly present, reflex spasm of the muscles usually absent. In chronic inflammations the diagnosis is still more difficult. It is best, therefore, in all cases of doubt to act as if appendicitis is present and to advise operation. Moreover, all right-sided gynecological inflammations ought to be operated upon by the abdominal and not by the vaginal route, for only the former allows the examination of the appendix, which may be involved.

Experimental Syphilis.—Hoffman, Löhe, and Mulzer have injected large doses of syphilitic virus into the testicles of apes and of rabbits. As a result not only the testicle so treated became inflamed and swollen, but in addition a cutaneous infiltration made its appearance at the site of the inoculation; this lesion appeared thirty-three or thirty-four days after the inoculation, and showed a central erosion and a peripheral limiting wall, being characteristic of the primary sore of animals. The expressed secretion of the lesion contained many spirochetes of syphilis. The regional glands of the ape were markedly swollen. This is the first instance of a cutaneous lesion of syphilis in the rabbit, while the effect in the ape is likewise much more typical than with the usual technique. Experiments are in progress to find out whether the injection of the virus into the testicles is the necessary factor in the production of the cutaneous lesions.

Serum Therapy in Diseases of the Eye.—A. v. Hippel has used the serum prepared by Deutschmann in forty cases of eye disease. He obtained very good results in plastic iritis and especially in cases of serpiginous ulcer, in which the use of the serum obviated the application of the galvanocautery, if the dosage and the frequency of the injections of the serum were carefully proportioned to the severity of the disease. The serum is further of use in plain serous iritis when not caused by tuberculosis; on the other hand it is of no use in infections of the vitreous body. Over two hundred injections of the serum have shown the harmlessness of the procedure and the absence of any local or general reaction. The dosage ranged between 2 and 4 c.c. used daily or less frequently. The explanation of the favorable action of this serum is still to be had, as it is prepared from the blood of animals fed on various yeasts and not by the usual immunizing injections of toxins.

French and Italian Journals.

Non-Existence of Gravidic Pyelonephritis.—Bazy considers it illogical to speak of pyelonephritis of pregnancy, since the pregnancy is not the cause of the pyelonephritis. He believes that the pyelonephritis has generally existed for some time before it is recognized and that the pregnancy is not a causal factor in its existence, but that the occurrence of the two conditions together is a coincidence. It would be better to say pyelonephritis occurring in the course of pregnancy. Pregnant patients suffer from desire for frequent micturition and pain, and no examination is made of the urine, the cause being set down as pregnancy. Only when there is hematuria and fever is any attention given to the condition. Hence we see pyelonephritis in an advanced stage of evolution. The pathology of pyelonephritis in the pregnant and non-pregnant woman is the same and the mechanism of its production is the same. The author believes that pregnancy favors the cure of pyelonephritis. He recommends early examination of the urine of pregnant women and of the ureters, finding out whether the pollakuria is daily and nightly, and placing the patient in bed on diuretic drinks as a preventive.—*La Bulletin Médical*, May 1, 1908.

Surgical Operations and the Value of Ureteral Catheterization in Calculous Anuria.—M. Pavone describes cases of calculus treated by him. In some of these cases he was able, by the use of the urethral catheter, to dislodge the calculus, even when anuria had lasted from one to four days, and the anuria was relieved as soon as the calculus was removed. In some of these cases he injected through the ureteral catheter a small amount of cocaine-adrenalin solution, which caused the spasm of the ureter to disappear, and this having passed away the calculus was displaced by the urine. In some of these cases cystoscopy showed the urine flowing from both ureters. This proves that the anuria is reflex from the obstructed kidney to the opposite ureter. The author advocates the use of the ureteral catheter in every case of anuria. If there is found to be calculus, or when there is a cicatricial contraction the operative indications are different. The precise seat of the calculus may also be ascertained in this way. Nephrotomy arrests the uremia and causes the removal of the calculus.—*La Riforma Medica*, June 15, 1908.

Treatment of Puerperal Infection with the Lactic Acid Bacillus.—M. A. Brindeau has made use of a bouillon of the lactic acid bacillus cultures mixed with sterilized milk sugar, as a remedy for puerperal fever. The remedy depends on the fact that the streptococcus will not grow in an acid medium and as the lactic acid bacillus is nonpathogenic it is used to produce an acid medium. The bouillon is used for vaginal and uterine packing and injections, no antiseptic injections being given either before or after its use. He gives the history of three cases treated in this way with recovery. The condition of the vagina and uterus improved rapidly and the fever was lessened. No bad results were observed and all three patients recovered. The author advocates further use of this remedy until a thorough test of its efficiency has been made.—*Bulletin de la Société d'Obstetrique de Paris*, April 16, 1908.

Book Reviews.

Clinical Lectures and Addresses on Surgery. By C. B. Lockwood, Surgeon to St. Bartholomew's Hospital. London: Henry Frowde, and Hodder and Stoughton, 1907.

This is one of the most recent volumes of the "Oxford Medical Publications"; and, we may add, one of the very best. The book contains fifteen Lectures and Addresses, on the following topics: Introduction to the study of clinical surgery; clinical reasoning; the course of intra-abdominal inflammation; on the recognition and management of intestinal obstruction; the essentials of a diagnosis; secondary infection of lymphatic glands in malignant disease of the tongue; carcinoma of the breast, and its spread into the lymphatics; varicose veins; swellings in connection with the scrotum (two lectures); exploratory laparotomy, especially in case of malignant disease; fecal leaks and fistulæ; the immediate microscopical diagnosis of tumors during the course of operations; clinical pathology in its relation to diagnosis and treatment; and salivary calculi. The whole makes a small volume, full of good material, well written, and very readable. The book can be recommended to recent graduates, about to take up their hospital work or private practice; it is also well worth the perusal of older practitioners.

The Prevention of Infectious Diseases. Being the Lane Lectures delivered at the Cooper Medical College, San Francisco, in August, 1906, and revised for publication. By John C. McVail, M.D., D.P.H. Camb., F.R.S.E., County Medical Officer for Stirlingshire and Dumbartonshire; Lately Examiner in Medical Jurisprudence and Public Health in the University of Edinburgh, and now in the University of Glasgow; Ex-President of the Incorporated Society of Medical Officers of Health of Great Britain, and of the Incorporated Sanitary Association of Scotland. London: Macmillan and Co., Limited, 1907.

This volume consists of a course of lectures on the prevention and control of infectious diseases. The subject is of the utmost importance, and the author has here put together the results of an unusually wide experience, as a Health Officer, in dealing with these diseases and conditions. The first lecture is on Public Health Organization in Great Britain; and it contains much that is of value on the duties of a medical officer of health, his qualifications, and his relation to and attitude towards the doctors in his district. The succeeding lectures are on the prevention of the following diseases: Typhus fever, enteric fever, plague, measles, scarlet fever, diphtheria, smallpox, and tuberculosis. There are several illustrations, plans, charts, diagrams, and maps which all help to elucidate the text. At the end of most of the chapters there is a leaflet dealing with the prevention of the given disease, drawn up in simple language, and suitable for distribution. These lectures are a valuable contribution to medical study, whether viewed from the standpoint of Practice or of Hygiene; and the present work is a worthy successor to the previous volumes which have been published as The Lane Lectures. It is the least technical of the whole series, and appeals to a wider circle of readers than any of its predecessors.

Nervous and Mental Diseases. For Students and Practitioners. By Charles S. Potts, M.D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia; Neurologist to the Philadelphia Hospital; formerly Associate in Neurology in the University of Pennsylvania. Second edition, revised and enlarged. Illustrated with 133 engravings and 9 plates. Philadelphia and New York: Lea & Febiger, 1908.

We are glad to note that this little manual has been brought up to date in a second edition. Most of the important advances in neurology that have been made since the appearance of the first edition have been incorporated, and the chapter on mental diseases has been rewritten in conformance with the newer classifications. Many new illustrations and a number of plates enhance the value of the work. A scheme for neurological examinations is another important addition. A thorough examination of the patient in all cases of nervous disease is of the utmost importance, and if we might offer a criticism it would be that the scheme introduced is scarcely adequate. Such methods of examination are best studied in more complete and fuller works on both nervous and mental disease, or, perhaps, in some volume devoted solely to this part of the subject. A great deal of information is, however, condensed in the book, the size of which has been augmented to about 550 pages. The further study of many subjects not fully described in the text is facilitated by occasional references in footnotes to selected authoritative articles, especially those of more recent date. Among these references it is interesting to note a preponderance of American and English writers. In such small manuals covering broad fields even more references to original works in foreign tongues are frequently valuable. The busy general practitioner especially will find Dr. Potts' book convenient and generally reliable.

Nierendiagnostik und Nierenchirurgie. Von Dr. G. Kapsamer. Two Volumes. Vienna: Wilhelm Braumüller, 1907.

Dr. Kapsamer is associated with von Frisch at the latter's great surgical clinic for urinary diseases in Vienna, and the material for these two volumes was gathered from the records of the Vienna clinics, as well as from the author's private practice.

The first volume is devoted to renal diagnosis, the second to renal surgery. After a brief introduction the various methods of examining the kidneys are taken up. In the section on urine analysis the author discusses in great detail the various new methods of functional renal diagnosis. Next the methods of separating the urine from each kidney are considered. Among the functional tests he favors the phloridzin method, as it gives the most accurate results. Ureteral catheterization is the best method of separating the urines, while the so-called separators often fail when they are most needed. Ureteral catheterization is neither as difficult nor as dangerous as the supporters of the separators would have us believe.

In the next section the relationship of the secretion of each kidney under various conditions is considered, and the author gives an elaborate record of animal experiments and of cases which prove that the presence of a catheter in the ureter on one side stimulates that kidney to secrete more urine; that there is a reflex effect on the kidney when the ureteral catheter is introduced. This effect is usually a mere increase in the amount of water secreted while the solid constituents remain the same. The closing section of the first volume deals with the various functional tests, *e.g.* the phloridzin test, etc., as applied to the separate urines of each kidney. A bibliography of 1,827 separate titles closes this volume.

The second volume deals with the following topics of renal surgery: Tuberculosis, tumors, cysts, stone, pyelitis, nephritis, and ureteral fistulæ. An appendix deals with the behavior of the second kidney after a nephrectomy and with the question of anesthesia in renal surgery. In this volume there are inserted the histories of a large number of cases—a number too large to allow of a perusal of each case even by special students. Therein lies perhaps the only fault of the book. The tendency to quote cases in a systematic treatise has been done to death by some writers. Case histories are well enough when they illustrate special points, and then they should be brief. An elaborate case history diverts the mind of the student from the original purpose of the book, and a number of these is wearisome to any reader, no matter how patient.

In speaking of certain types of nephritis accompanied by hematuria the author declares that there is no such thing as "essential hematuria." He is right; for this expression has been too long tolerated in modern renal we are very ignorant. There may be slight lesions in the kidneys which appear healthy, but which bleed freely from time to time.

The work of Kapsamer is destined, no doubt, to become one of the standard works on renal diagnosis. It is a monument of patience and of minuteness of detail too great to be grasped at a single reading, and it is probably the most complete discussion of the problems of renal diagnosis that has as yet been presented in modern surgical literature.

A Text-Book of Physiological Chemistry. By Olof Hammarsten, late Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized translation from the author's enlarged and revised sixth German edition. By John A. Mandel, Sc.D., Professor of Chemistry in the New York University and Bellevue Hospital Medical College. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1908.

Biochemistry is a comparatively new science, at least in its modern development, and treatises dealing with it are not many. This is perhaps owing to the fact that one of the earliest works on the subject was this treatise by Hammarsten which is so comprehensive and so accurate that other workers find little incentive to enter the same field. This fifth English from the sixth German edition is almost a new work, all of the chapters having been subjected to a comprehensive revision and some of them having been entirely rewritten. That five editions of such a work have been called for in fifteen years shows not only that biochemistry is a progressive science but also that it is one which is attracting a considerably increasing number of research workers.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENITOURINARY SURGERY.

Stated Meeting, Held January 15, 1908.

DR. MARTIN W. WARE IN THE CHAIR.

Vesical Signs Premonitory of Syphilitic Tabes.—Dr. V. C. PEDERSEN presented a patient with vesical symptoms premonitory of tabes dorsalis. The man was 36 years old, white, Canadian, married, telegrapher. He had had gonorrhea four times, the last attack seventeen years ago. About the same time a single chancre developed beneath the foreskin, for which he received treatment with calomel powder at a drug store for a few weeks. His secondary symptoms appeared in due course, but the time of their appearance was uncertain and seemed to have been rather late. His tertiary lesions seemed to have been developed early; a slight paralysis of the right hand appeared fifteen years ago. Dr. Pedersen was of the opinion that this might have been an occupation neurosis since he was a telegraph operator. The physical examination revealed a well-nourished man, slightly anemic, who showed some staggering with his eyes closed; otherwise there was good muscular coordination. His pupils reacted sluggishly to light and accommodation. The muscles of his eyes were normal in action. In walking with his eyes closed the patient's muscular sense seemed to be good. There were no obvious signs of syphilis so far as the mucous membrane, glands, bones, and joints were concerned. Bladder symptoms began three years ago and were then marked with hesitation, occasional obstruction, followed by frequency, distention, and disability to urinate; the stream frequently dribbled; there was little tone to the bladder. The urine at the present time was clear and normal. For a period of several months (about two years ago) his urine was regularly drawn with the catheter twice a week. He had had several crises of pain in the shins. His occupation of telegrapher had carried him all over the United States, so that he had been in the hands of competent specialists in Detroit, Los Angeles, and Seattle. The treatment which in his experiences had been most beneficial was constitutional treatment of the syphilis with washing the bladder out twice a week and the use of the electric vibrator. When first seen by Dr. Pedersen, on December 30, he was in the midst of an attack of vesical irritation, urinating only three times by day, but three or four times by night with hesitation; the size of the stream varied, and he had one attack of inability to pass his water, lasting five hours. He could not urinate at all in the office, so that eight ounces of normal urine were withdrawn by catheter. Seven days thereafter the man was in much the same condition; the vesical irritation had increased, rectal irritation had appeared, and a moisture at the mouth of the penis. Three days thereafter all these symptoms had improved, his nocturnal urination decreasing to two. Three days later he again had a relapse, so that all his symptoms were materially worse excepting the hesitation. During the week preceding this last visit he had had, however, no attacks of inability to urinate. The treatment that the patient was now under was active antisyphilitic, with internal measures, with massage of the prostate, alternating with deep urethral instillations of weak nitrate of silver.

DR. GEORGE K. SWINBURNE said he had seen a few cases of vesical tabes. He recalled one case in which the first appearance of the tabes was in a progressive and almost complete impotence.

DR. FRANCIS C. EDGERTON said he had seen a few cases of beginning tabes with urinary symptoms, and one case in particular was very interesting. This patient had to get up at night as a rule to pass his water, and passed it every two or three hours during the day. One year later he held his water twelve hours and had no desire to pass it at all.

DR. JAMES PEDERSEN said that these cases of tabes were very interesting because they were not so very uncommon. He asked if the residual urine had been tested, and whether indulgence in sexual intercourse in any way affected his ability to hold his water, or affected his attacks of retention.

DR. VICTOR C. PEDERSEN replied that the residual urine had not yet been tested. So far as he was able to judge, sexual intercourse had no effect.

DR. JAMES PEDERSEN said that he had had a typical case in which the man had a hesitancy to start, a tendency to interrupt the stream of urine, attacks of retention, etc. The minor points remained to be worked out in the patient presented. If the patient had a chronic congestion of the prostate, or a relaxed prostate, he thought massaging the prostate with a cold sound, or giving instillations of silver would aid in the recovery of the patient. He asked Dr. Pedersen what form of antisyphilitic treatment he used.

DR. VICTOR C. PEDERSEN replied that, because of the anemic condition of the patient, mouth medication had been employed, but he expected to give the intramuscular injection treatment soon.

DR. MARTIN W. WARE recalled a publication of Dr. Squire's on some lesions occurring in spinal nerve conditions, with disturbances of the bladder. It was very important to find out whether the enlarged prostate was responsible for the retention and other urinary disturbances or not; when the patient was beyond the age of forty years, it was necessary to decide whether the symptoms were due to prostatic or spinal lesions. The cystoscope was one of the readiest and earliest means of making a diagnosis, especially when one saw those muscular bundles in the bladder. When one found bladder retention, or difficulty in voiding the urine, or emptying the bladder completely in young men about 40, a good thing to do was to take the cystoscope and attempt to find these trabeculæ. This would show whether or not the case was of spinal origin. He reported a case that he had under observation, a young man who sought aid in a city hospital for pains of his right side; he was operated upon for a supposed appendicitis. At that time he had bladder disturbances. The operation was successful, but he still had his bladder disturbances, and came to the Mount Sinai Hospital complaining of pain. His urine was clear. He was thirty-eight years old. At times he had incontinence, and sometimes he could not void a single drop of urine. Nothing pathological was found in his urine. The cystoscopic examination revealed a trabeculated bladder and no prostatic enlargement. Further examination revealed ankle clonus, increased reflexes, etc., and a neurologist confirmed the diagnosis. There were nystagmus, tremor, and a complete picture of multiple sclerosis.

DR. VICTOR C. PEDERSEN said that if the patient had not shown so many signs of tabes he would have performed cystoscopy. He believed one should be a little careful about these systoscopic examinations when one could promise the patient nothing more than a confirmation of an already established diagnosis. For the same reason he doubted the wisdom of passing a sound unless the bladder was subsequently irrigated. The urine now was absolutely clear. The sexual history no doubt accounted in part for the irritability of the bladder; there was no doubt some prostatic congestion. Nevertheless, the presence of the typical early signs of tabes made him believe there was a predominating syphilitic deposit in the spinal cord. The first symptoms might be cardiac, pulmonary, ocular, or referable to the lower extremities, or rectal or bladder, together or alone, or gastric. Subsequently one found the sensory disturbances in the lower extremi-

ties. He believed that the diagnosis in this case was correct beyond reasonable doubt.

A Case of Postoperative Enuresis After Prostatic Abscess.—Dr. V. C. Pedersen presented a patient suffering from dribbling after operation for abscess of the prostate. The patient was an American, white, 30 years old, married, laborer. He had had gonorrhea twice, the first time eleven years ago, the last time five years ago. Abscess of the prostate appeared to have developed long after this attack; for this he underwent operation in January, 1907. His first urine was now clear and at times shreddy. His second urine was clear. His sexual habits had always been active and rather excessive in and out of married life. His trouble dated back one year, to the time of the operation. The lesion appeared to be a lack of control of the neck of the bladder following an operation for drainage for abscess of the prostate. He had been treated by physicians privately and in dispensaries all over the city during the past year, with practically all known methods, sounds, instillations, and irrigations, excepting perhaps electricity. Pain was present, moderate and intermittent. The course of his condition appeared to be stationary. By day his urine dribbled constantly if standing, but less if sitting. By night he was able to hold his urine for a few hours. He was obliged to wear a rubber bag by day. All the methods of treatment adopted had failed. Operation had not been recommended. When examined by the urethroscope the patient seemed to have an open mouth of the bladder, which did not close very well over the end of the tube, a lumen being left, apparently the size of a straw. It was only after the urethroscope had been withdrawn a considerable distance that this lumen disappeared, and the mucous membrane closed normally over the instrument. In the deep urethra urine mounted up into the instrument almost constantly. A mucoid discharge was also present. This cystoscopic examination was negative, except that the floor of the bladder was slightly pocketed and the neck of the bladder by retrospection was reddened. Rectal touch seemed to show an abscess cavity filled with cicatrix in the left part of the gland. On the right side there seemed to be left some prostatic tissue. The case was presented, not in criticism of the operation or its result, but in order to bring out suggestions for treatment.

Dr. Francis C. Edgerton asked Dr. Pedersen if a prostatectomy had been performed. All were familiar with the fact that, following this operation, dribbling of urine frequently followed. In a number of cases where prostatectomy had been performed, many times the patients would have erections, but with no emission. There was no seminal fluid.

Dr. A. A. Berg asked Dr. Pedersen how soon after the operation the enuresis developed.

Dr. Pedersen replied, right away. Since his discharge from the hospital he could not hold his water and he returned to see somebody regarding it. So far as the history went, this incontinence developed immediately. Prostatic tissue was there, but the prostate was extensively destroyed.

Dr. A. A Berg said that, with regard to prostatectomy having been done in this case, he did not see what could have prompted such a procedure, and, therefore, he was inclined to the view that it was not done. It seemed to him that an abscess of the prostate, with considerable sloughing, might influence the muscles of the bladder, as traumatism and infection might influence muscles elsewhere, and so result in incontinence. He recalled the case of a child who fell on a beam and sustained a laceration of the membranous urethra with extravasation of urine in the perineum. An extensive perineal slough or phlegmon developed, and, following this, the boy had incontinence for about three years. Then complete continence of urine was established. He thought that accompanying a phlegmonous inflammation of the prostate there was possible a disturbance of innervation which might result in a temporary incontinence of urine, and from which recovery might occur spontaneously.

Dr. A. V. Moschcowitz asked Dr. Pedersen if, from the nature of the scar in the perineum, he could express an opinion as to what operation was done. This might explain the incontinence of urine. A wide incision and division of the various nerves, perhaps on both sides, going to the extrinsic muscles, might have much to do with the incontinence of urine. He had seen some cases following perineal prostatectomy. It was not clear to him in perineal prostatectomy that the incontinence of urine was ever due to the removal of the prostate. In the cases in which it did occur it was due to interference with the nerve supply.

Dr. William C. Lusk asked if Dr. Pedersen had used the urethroscope in this case. He said that the incontinence was probably due to impairment of the constrictor urethral muscles rather than to nerve interference, since the nerve trunks were in close relation with the rami, and therefore pretty well protected.

Dr Pedersen replied that he had, and had found a bladder zone three-quarters of an inch long of cicatricial deformity. After passing that zone he found the urethra behaved normally and closed down over the urethroscope. This zone was far back in the neck of the bladder and was made up of a cicatricial deformity. The dense cicatrix occupied, it seemed to him, the region of the membranous urethra and region of the prostate. He thought that there was some prostatic tissue present, especially on the right side. He had asked the patient to urinate. He stood up and passed eight, ten, or twelve ounces and in a good, forcible stream. Four times he interrupted the flow absolutely, shutting it off suddenly and completely. He said that when sitting he could hold his water indefinitely, but when walking it dribbled. When Dr. Pedersen asked why he shut off his urine, he replied that he had been so instructed in order to cultivate the neck of the bladder. He ventured to suggest that the man could hold his urine better than he thought he could. He believed that if this man was compelled to work and told to pass his urine every two or three hours, he would be able to work, and work better than now.

Dr. V. C. Pedersen said that, with regard to the postoperative enuresis case, he obtained the diagnosis from the patient himself. The form of the scar was irregular, and therefore he could not answer Dr. Moschcowitz's question. The amount of cicatrix present indicated that there had been an inflammatory process. The patient also told him that the doctor said he had an abscess of the left part of the gland and what seemed to him to be the remnants of the prostate, which were chiefly on the right side.

A Case of Urethral Calculus.—Dr. George K. Swinburne presented this report and specimen. The specimen was of interest because the patient declared that until two weeks before he appeared at the dispensary he had never had any symptoms. He then had a sudden sharp pain while urinating and stoppage of the stream and bleeding. He was twenty-three years old and came to the dispensary the latter part of last winter or early spring. He suffered during the two weeks a great deal of pain and passed his urine only with difficulty. He had consulted several physicians, but apparently the correct diagnosis had not been made until he came to the dispensary. The calculus could be palpated just behind the penoscrotal angle as a lump in the urethral canal. Under cocaine Dr. Swinburne attempted to remove it with the urethral forceps, but they only slipped off when traction was made. He was then admitted to the Williamsburg Hospital and, through the courtesy of Dr. Muren, Dr. Swinburne was invited to operate. When the patient was under ether

he again attempted to remove the calculus with the urethral forceps, but without success. So the urethra was opened in the perineum, and with a pair of artery forceps passed forward in the wound the calculus was grasped and readily removed. From its shape it would seem that it must have lodged in the posterior urethra for a long period of time, and there was a groove along either side of the calculus as if made by the stream of urine. The patient made a quick recovery, and he only saw him at the dispensary once afterward, and then lost sight of him. Dr. Swinburne said he would like to have made an examination of his posterior urethra and bladder, but the patient never returned for it.

Dr. Martin W. Ware reported the case of a patient with a vesical calculus. Stone was removed by suprapubic incision. The patient later experienced great bladder irritability and incontinence, and one day all the symptoms abated. In the urine that he passed was found a stone of the same diameter and as large as the one shown by Dr. Swinburne, as well as a number of small ones. In regard to Dr. Pedersen's question, he thought it was not necessary to have a stricture present in order to have a stone lodge in the urethra, and he knew of one case that bore out this contention. A man complained of difficult urination, dribbling, etc. He had a discharge present, but its venereal origin was dispelled because there were no gonococci. A hard mass was found in the pendulous portion of the urethra. Under cocaine anesthesia the stone was removed. There was no stricture in this case. The peculiar thing about this case, however, was that he afterwards developed a dense stricture. At the time he had no stricture at all. The stone became impacted because there was edema about it. The patient afterwards developed a keloid. A resection was done with an end-to-end anastomosis of the walls. Three years later he examined the canal and found it absolutely normal and a patent urethra which admitted a 30 French sound. Dr. Ware's point was that he did not think that it was necessary that a stricture should exist in order that a stone might lodge in the urethra. It might occur because of the obstruction caused by the edema.

Dr. George K. Swinburne said that this patient had no stricture. The stone had lodged at the normal narrowing of the canal. The urethra was large enough for the stone to come through, but it lodged because the edema prevented its passing through. He passed a 28 urethroscope down upon it in the hopes that perhaps he could bring it through, making a channel for it. That did not succeed. The edema of the tissues held the stone where it had become lodged.

Dr. Martin W. Ware asked if anyone had had experience with injecting the urethral canal to distend it with paraffin oil, then attempting to massage while compressing the meatus, or asking the patient to pass his urine, depending upon the *vis a tergo*.

Dr. George K. Swinburne replied that he had injected into the urethral canal castor oil and tried to massage the stone out. He recently had in his office a patient with a urethral calculus. This had occurred the second time. The first time he was able to remove it by forceps. This second time he could grasp it with the ordinary forceps, and he bit into it and then tried to irrigate the pieces out. He was told to return the next day, but the man never returned.

Case of Subcapsular Uronephrosis.—Dr. A. A. Berg presented a kidney showing an interesting but peculiar feature, and for which he wished the Section to give the proper name. The patient from whom it was removed was a child ten months old, who was admitted to the pediatric service of the hospital last summer with the following history: The child was born healthy and had been perfectly well during the first few months of its life. The photograph of the baby when about three months old showed him to be the picture of health. When about six months old the mother noticed that the child was gradually failing. After a bath one day the mother noticed a lump in the right side of the abdomen. This lump increased in size and the child became very peevish. He continued to lose in weight. There were no urinary disturbances. The child had had no febrile disease and had not been sick prior to this time. It was the loss in weight and the peevish condition of the baby that prompted the mother to bring the child to the hospital. This was between the eighth and ninth months. The physical examination revealed a healthy child, with absolutely normal urine, but occupying the right side of the abdomen and extending into the loin was a large tumor the size of the child's head; a characteristic renal tumor. There was a deep sense of fluctuation. The baby was kept under observation for some weeks. No changes were noted in the blood examination, and there were no changes in the urine. The size of the tumor gradually increased, and the weight of the child gradually diminished. Dr. Berg was asked to see the child for two reasons, first to determine the nature of the tumor, and, second, to suggest some method for relief. Upon aspirating the tumor perfectly clear fluid was obtained, which proved to be normal urine. He took it that they were dealing with a congenital hydronephrosis. The presence of this tumor was the cause of the physical condition of the child. Therefore, he proposed an exploratory operation, exposing the tumor and perhaps removing it. Exposure of the tumor by the usual route through a transverse incision was done and he cut down upon the sac. A trocar evacuated 16 ounces of perfectly clear urine. It appeared to him as if the sac represented the remains of the kidney. Thereupon he proceeded to an immediate removal of the sac. The adhesions were dense, making its exsection difficult. The peritoneum was stripped from the anterior aspect of the tumor, and the latter was removed with practically no loss of blood in twelve minutes. He found that he had to do with a large sac. Upon opening this sac he found inside of it a perfectly good kidney. Section of the kidney revealed a much dilated pelvis. The ureter was kinked in passing through the thickened sac. A fistula led from the pelvis of the kidney through its cortical substance to a cavity beneath its fibrous capsule. He considered, therefore, that he had to do with a congenital hydronephrosis, which for some reason, to which the child's history gave no clue, communicated through the fistula in the cortex with the subcapsular space of the kidney. The urine gradually accumulated beneath the capsule, because the outlet of the pelves through the ureter was compressed. As the accumulation increased it stripped the fibrous capsule from the kidney and thus formed a large urinary sac, the outer wall of which was formed by fibrous capsule of the kidney and the inner wall by its cortical substance. The child died twelve hours after the operation. The post mortem revealed an atrophic kidney of the left side and an abnormal implantation of the ureter in the bladder. It seemed to be a congenital hydronephrosis which penetrated through the cortex; the capsule proper of the kidney was so dilated that it held eighteen ounces of urine. What the cause for the deterioration of the child was he could not state. There were no urinary disturbances at all. The case was certainly a unique one in the literature.

Prevesical Abscess.—Dr. Eugene H. Eising read this paper. He said that in 1856 Retzius presented to the Academy at Stockholm the first detailed description of this space, indicating at the same time the surgical importance of that region. The prevesical space was one peculiarly designed for its special function. Its contents were a mass of loosely reticulated connective tissue enclosing masses of soft fat; there were few blood-vessels and some lymphatic glands. The boundaries of this space were in part fixed and in part flexible, which, together

with its soft contents, permitted of the distensibility of the bladder. The surgical features of this region were dependent upon the arrangement of the fasciæ contributing to its formation. After describing the anatomy of this part in detail he said that the present conception showed a marked deviation from the original one of Retzius, describing three spaces instead of one, the prefascial or retromuscular, the prevesical, and the preperitoneal. These he illustrated by diagram on the blackboard. His description was not only academic, but found its practical application both in an intelligent interpretation of the etiology of infections of this region and in their treatment. The obscure etiology of prevesical infection had led many observers to overlook the initial causes and to consider many of the cases to be idiopathic in origin. It seemed probable, however, that prevesical suppuration was rarely if ever idiopathic. Honsell adopted the classification of Englisch, who divided these infections into idiopathic, traumatic, metastatic, and secondary. Dr. Eising considers, however, that for all purposes a division into two classes, primary and secondary, was all-sufficient. The cases hitherto reported as metastatic have been post-typhoidal. Infection of the prevesical space from traumatic causes included all those cases resulting from infection from external or internal injury, directly or indirectly applied, and found no place in this discussion. Eliminating those of traumatic origin, a study of the reported cases of prevesical abscesses revealed the fact that the great majority of cases bore a distinct relation to foregoing inflammations and must, therefore, be considered as secondary. The most prolific cause of suppuration in the prevesical space was inflammatory conditions of the urethra, prostate, and bladder. Other causes were inflammation of the abdominal wall and subperitoneal tissues, suppurations in the pelvis, etc. In the female infection might emanate from diseased internal genital organs and in children more especially from the intestine. He then reported a case in detail, which was important because it deserved mention among the list of cases to be mentioned and because certain clinical features had been studied which had been neglected in other cases. The infection in this case emanated from an infectious nidus in the prostate, excited by catheterization and carried by the lymphatics to the anterior vesical lymph glands. The cases in the literature divided themselves into the following etiological groups: 1. Infection from the urethra and prostate. 2. Direct infection by perforation of anterior bladder wall. 3. Infection from tuberculous adenitis in the vicinity. 4. Infection from the female genital organs. 5. From osteomyelitis of the pubis. 6. Infection from the intestinal tract, including that from the appendix. The symptoms were divided into two groups, the prodromal and the tumor formation. Honsell said that no prodromal period existed, some cases beginning with tumors and in others death might supervene before that event. One case occurred at the age of sixteen months and another at nine years. The condition was more frequent in the male. In consequence of the fact that the prevesical space was practically always, except in traumatic cases, secondarily invaded, there must precede a group of symptoms referable to the primary lesion. From the time the prevesical space became invaded there was a similarity of symptoms. Pain was the predominant symptom; it was not necessarily severe, but was difficult to locate in the milder cases. There was some tenderness, which became marked only with the appearance of the tumor. The patient stooped forward in standing or walking in order to prevent contraction of the abdominal muscles. The tumor might appear early, but usually appeared late, and was usually in the median line, but might be somewhat to either side. It was rarely globular and appeared above the brim of the pelvis; later its lines became more diffused and at a still later period might no longer be globular, but gave the impression of a board-like hardness to the lower part of the abdominal wall. Fluctuation, if it occurred at all, was late and only after the abscess had perforated into the prefascial space, producing an abscess *en bisac*. There might be no urinary symptoms unless the bladder became secondarily involved. The constitutional symptoms were variable. The bacteriology of prevesical abscess had not been satisfactorily investigated. A remarkable issue of these prevesical inflammatory tumors was their spontaneous resolution. The usual termination, however, was by suppuration, which, if not relieved by incision, ruptured spontaneously. A most unfortunate termination was by perforation into the peritoneal cavity, which had been observed ten times. Rupture into the bladder and rectum had been observed.

Dr. William C. Lusk said that he understood the rectus to be attached to the upper border of the crest of the pubes and to the pubic spine. To the front of the pubic bone was attached the pyramidalis muscle, so that the rectus lay against the transversalis fascia. There was no space there at all. With the finger pushed over the crest of the pubis from within the rectus sheath, instead of encountering an attachment of the transversalis fascia to the bone at this situation this fascia receded upward with the bladder and the finger passed unobstructedly into the prevesical space. The two spaces did not communicate. For drainage or diagnostic purposes, therefore, entrance into the lower portion of the rectus sheath, retraction of the muscle outwards, and blunt pressure over the crest of the pubis, would open into the prevesical space. If it was desired, in addition, to make a dependent drainage opening into the space of one side, there existed an easy anatomical approach by cutting along the lower margin of the gluteus maximus muscle, splitting the levator ani and fascia covering it down to the rectal sheath, then passing the finger in this plane of cleavage out to the spine of the ischium over which bony point direct forward pressure would tear through some fascial attachments and enter the sought-for compartment.

Dr. A. A. Berg said he was sorry to differ with Dr. Lusk, but he had seen a layer of fascia behind the pubis and attached there. He had seen also almost the same picture that Dr. Eising had demonstrated on the blackboard. The prognosis in these cases differed somewhat according as to whether the infection was from the intestines or from broken-down glands. But if it was an ordinary staphylococcus infection it took the course of other abscesses.

Dr. George K. Swinburne said he had met with infections in the space of Retzius, but recalled a case told him by a prominent surgeon, a gonorrheal infection of this space, with a typical abscess exactly as Dr. Eising had described. The tumor mass was above the pubis. He cut down upon it and found it to be an abscess and not a tumor, as he first supposed it to be. The man had not had gonorrhea for at least three years. Of course, if there had been an infection of the deep urethra or prostate, gonorrhea would have been at once thought of. But this was a curious and interesting case.

Dr. V. C. Pedersen asked Dr. Eising if in the five or six cases on record in the literature as having disappeared spontaneously the diagnosis was made by mere palpation, or was aspiration done. He doubted whether a fully formed abscess could resolve spontaneously, as there was so much of a tendency to rupture. Edema and infiltration such as followed infections might lead to the diagnosis of an abscess without pus being present, unless aspiration were practised. With regard to the etiology he said he did not remember Dr. Eising mentioning infections of the urachus. When he was in the New York Hospital he remembered Dr. Weir operating upon an abscess of unknown origin. After the abscess was evacuated he found the man had a par-

tially patent urachus, the abscess being situated high in the preperitoneal space. After the abscess was evacuated the man made an uneventful recovery.

Dr. Martin W. Ware said that he was reminded of a case of like nature to the one reported by the secretary, Dr. Pedersen. The abscess had nothing in common with the pericystitis. The abscess was situated higher up. Dr. Ware recalled the case reported by Dr. Eising; the infection was the result of instrumentation. This young man was admitted to the hospital with no discharge. At first he had pain in his abdomen, and two days later he developed retention. Once or twice the urine became cloudy, and there was frequent and painful micturition. When admitted to the hospital there was no gonorrheal infection whatever. The cystoscopic examination revealed a peculiar ulcer and an intense injection of the vessels. This was promptly relieved by instillation of silver. Other symptoms then set in and with the cystoscope there was shown edema of the anterior bladder wall. Edema bullosum was not pathognomonic of pericystitis. This might appear in any inflammatory condition of the bladder. Gynecologists could draw upon this in diagnosticating peculiar positions of the uterus. With regard to Dr. Lusk's remarks, differing with Waldeyer's, Dr. Ware said he took issue. At times in the lining he had seen these fascial layers as definitely marked as demonstrated on the blackboard. As to draining from a dependent point, that of course would seem to be the correct thing to do, but where there was a tendency of the abscess to point above it ought to be incised there. This case was of glandular origin, which in turn infected the cellular spaces. A cellulitis pure and simple could not always be traced. It was often traceable to the glands. It was the French who drew attention in a recent discussion of prostatic abscess to the fact that prevesical abscesses developed from perforated prostatic abscess.

Dr. William C. Lusk said he did not wish to be misunderstood. Drainage should unquestionably be made where the abscess pointed. The idea he intended to convey was that the route mentioned for dependent drainage was an anatomical approach to the space and could be utilized for making a counter opening if desired.

Dr. Eising closed the discussion. Prevesical abscesses might open spontaneously below in the perineum and some burst into the rectum. With regard to the resolution of the abscess, in answer to Dr. Pedersen's remarks he said he did not know whether the abscess had been aspirated in any of the cases reported in the literature, as no mention was made of that fact. He believed, however, that in those cases followed by spontaneous resolution there was no pus formation, and the tumor represented inflammatory thickening, which in this region occurred to an unusual degree.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held March 12, 1908.

Dr. Godfrey R. Pisek in the Chair.

Demonstration of Dr. Fowler's Suction Bell Pump.—Dr. Edmund P. Fowler presented an ear apparatus combined with suction. The general opinion was that the ordinary ear douche did not properly douche this organ, and the device he presented could be used in adults as well as in children. There was a glass bell which fitted around the ear snugly; in the center of this was a little tube to which was attached a fountain syringe. No matter how the child might struggle the apparatus could be held readily in place. He said he had had seven mastoid cases which apparently would have gone to operation, but were aborted by the use of this apparatus. The success was due in part to the local hyperemia produced. This differed somewhat from the Bier method of local hyperemia, in which the whole head was rendered hyperemic by means of the band about the throat. The apparatus sucked the pus to the surface and the douche washed it away. The manometer connected to the fountain syringe, which was placed one foot above the ear, registered 22 mm. of mercury; if placed two feet above, it then registered between 44 and 45 mm. No dizziness was experienced in using this instrument, such as was complained of when the ordinary hand bulbs were employed. The main feature ascribed to this apparatus was the efficiency of the drainage of the pus cavity in the ear, one of the most difficult things to accomplish in aural surgery to-day.

Amaurotic Family Idiocy.—Dr. Charles Herrman presented a baby, fourteen months of age. The parents were Hebrews, and there was no history of nervous or mental disease in the family. The labor was instrumental, and the child was born cyanotic, remaining so for some time. The mother noticed that the baby could not move its arms and legs and did not notice objects. When seven months old the child had convulsions, and there occurred a specially severe one at the age of thirteen months. The patient was almost blind. The head could not be held up, and there was the characteristic cherry red center in the optic disk. The legs were spastic at times. There was present an umbilical hernia and the testes had not descended. There was an optic atrophy. There were no other children in the family.

Dr. Sara Welt-Kakels presented a baby eighteen months old. The parents were not related. There had been five children and it was interesting to note that two had died of the same disease. There was no tuberculosis or lues in the family. The reflexes were increased, sight was diminished, and there were the characteristic changes in the macula and optic atrophy. The speaker did not believe that the changes in the macula were generally understood. In regard to the pathology of the disease it had been shown that there was a degeneration of the ganglionic cells, and the layer of ganglionic cells in the retina was comparatively thick, containing from eight to ten. In the fovea the strata were thin, hence the red color shone through.

The Eye in Amaurotic Family Idiocy.—Dr. Cohen presented an eye that had been removed from a patient with amaurotic family idiocy two hours after death, and which he had preserved in Müller's fluid. There was shown the marked atrophy of the optic nerve, and dilatation of the veins and contraction of the arteries. The bright cherry red spot was well shown in the macula.

Dr. Henry Heiman discussed these cases.

Case of Dextrocardia.—Dr. Sidney V. Haas presented a baby, seven weeks old, who was brought to the clinic because of a gastroenteritis. In making the routine examination the heart was found to be on the right side, but none of the other organs appeared to be transposed. When the baby cried, he became blue. There was a marked systolic murmur heard over the cardiac area.

Dr. Godfrey R. Pisek reported a similar case which had existed for eight years before becoming known. He thought it very strange that such a condition could exist so long before discovery.

Dr. Ward Bryant Hoag reported the case of a man, twenty-five or thirty years old, who never realized that anything was wrong with his heart. A pain, supposed to have been pleurodynia, necessitated an examination of the chest, when the heart was found to be on the right side.

Dr. Herman Schwarz believed dextrocardia to be a rare condition without a transposition of other viscera. The transposition of the heart, viscera, and vessels seemed to go together.

A Case of Lymphangiectasis.—Dr. Henry Heiman presented a baby, eight months old, who had a normal birth. When three months old, a retropharyngeal abscess

was incised and the wound healed in two weeks. The present illness dated back two weeks when a swelling appeared over the left clavicle, which remained stationary. The child was very restless and peevish, but there was no fever. He believed this to be a case of lymphangiectasis, due to some obstruction to the lymphatic circulation. It was to be differentiated from cold abscess, gumma, diffuse lipoma, hernia of the lung, hematoma, and from an aneurysm. By exclusion of these he determined that it was a case of lymphangiectasis. The fluid aspirated was a glairy coagulated fluid.

A Case of Hydrocephalus.—Dr. Montgomery Hunt Sicard presented a baby born of Hebrew parents. When six weeks old the head appeared to enlarge and convulsions were quite common. The bisauricular diameter now was fifteen inches, and the head had a circumference of twenty and three-quarter inches. The enlargement was chiefly upwards. The cranial bones were very much separated. There was a nystagmus as well as a strabismus.

Treatment of Clubfoot.—Dr. Reginald H. Sayre believed that congenital clubfoot could be treated successfully without resorting to tenotomy, if taken early enough; in early life the bones and other tissues were pliable and amenable to dressings applied after pushing the extremity into its normal position. Dr. Sayre presented a patient to demonstrate the application of such an apparatus.

Volkmann's Ischemic Paralysis.—Dr. Reginald H Sayre said that in 1875 Volkmann first drew attention to this condition. After too tight bandaging, as after fractures, such a paralysis might occur. If a constriction was kept on a limb for five or seven hours, the muscles became like boards, bullæ might develop, and paresthesia. If the constriction was not removed at the end of this time regeneration of the muscle cells would not occur. The majority of the cases reported were of the upper extremity. It was necessary to distinguish these cases of ischemic paralysis from hemiplegia and from ulnar nerve paralysis resulting from injury or disease. Dr. Sayre presented a child with a fractured forearm. This member was kept in a splint for seven weeks and with this resulting paralysis. Such deformities came on in a few weeks; whereas paralysis from cerebral causes or from injury of the ulnar nerve appeared after a much longer time. The deformity consisted chiefly in contraction of the flexors of the hand; the flexors of the fingers were not concerned. In the way of treatment Jones of Liverpool had suggested bending the hand well back forcibly, placing it then in a position of hyperextension and applying a properly prepared splint. This had been the method employed in the treatment of the girl he presented. He had treated her in this manner for six months, and it would probably require six months more before she could get her hand under normal control. The blueness of the fingers had nearly disappeared, and sensation was much improved. The bog over the annular ligament had improved a great deal. It should be borne in mind that they were dealing with an altered condition of the muscles; they atrophied and became fibrous cords; the muscles became more or less disintegrated. One stretching would not suffice; one had to work little by little, and day after day, in order to revitalize the parts and cause a restoration of muscle belly. It was not a case of muscle nerve paralysis, but of muscle destruction.

Dr. Herman Schwarz did not believe that pressure alone caused this form of paralysis. Many of these cases reported were not instances of Volkmann's ischemic paralysis but pressure necrosis. He recalled a case of ischemic paralysis in which good results followed shortening the bones. He believed Jones's operation a better method of treatment.

Dr. Sayre said that Powers, Bernays, and another man, whose name he could not recall, had written much on this subject in America, while Lorenz, Lesser, and Volkmann had written extensive articles abroad, and all agreed that it was a most intractable condition to cure or even improve. In most of the cases reported tendon elongation or bone shortening was the method employed. These cases resulted from improperly applied dressings as a rule.

A Case of Anterior Poliomyelitis.—Dr. Dennett presented a child who had a typical attack of this disease last August, with paralysis of all four extremities and of the neck muscles. The paralysis of the four extremities improved markedly, but there was practically no improvement in the abdominal muscles above the umbilicus. All that the patient now presented was this paralysis of the upper abdominal muscles.

A Case of Scrofuloderma.—Dr. Charles Herrman presented a child with peculiar congenital deformities of the hands and feet, asymmetrical palate, deformity of the nose, this peculiar condition of the skin, etc. There was some doubt as to the diagnosis of scrofuloderma, although Dr. Fox had made it. The deeper tissues of the skin were involved, and scars were left. The color of the lesions was a rather characteristic livid red. The lesions were not painful. They were circumscribed. Dr. Schwarz believed the tuberculin test should be made. There was no specific or tuberculous history. This skin condition existed at birth. Scrofuloderma existed for years and did not react to treatment.

A Case of Splenomegaly.—Dr. Dennett presented a case of primary enlargement of the spleen. The child was twelve years old and two or three years ago this enlargement of the abdomen was first noticed. There were no other enlargements. There was no anemia; the child's color was good, and he was bright mentally. There was no luetic or tuberculous history. One brother had an enlargement of the abdomen which was noticed only when he was six or eight years old, and which the attending doctor said was due to an enlarged spleen and liver. He was perfectly well until seventeen years old, when he died of typhoid fever. There were three other children in the family and all were in good health.

A New Jacket for the Correction of Deformity in Pott's Disease.—Dr. Charlton Wallace presented this jacket which had an open space in front so as not to interfere with respiration. The jacket was so constructed that it grasped the pelvis and shoulders and, with the chin piece on, the head. These were the fixed points. Pads were applied over the deformity and pressed on the back in the line of least resistance, *i. e.* anteriorly. The respiratory movements were aids in correcting the deformity. There was no embarrassment to respiration and the organs were not at all crowded. The correction was made by continuous pressure and not by extension. The patients were made more comfortable than with other apparatus. He presented two children wearing this new jacket.

Probable Transposition of the Vessels of the Heart.—Dr. Herman Schwarz presented a boy, nine years old, who had been cyanotic from birth, and who came to the clinic because of a cough. The fingers were clubbed. It was interesting to note that although examined by physicians at divers times this congenital condition of the heart was never discovered. Dr. Schwarz searched for the cause of the cyanosis. After excluding conditions outside the heart which might cause the cyanosis, the cause was then searched for in the heart itself. He outlined the heart. There were no murmurs, but there was a marked accentuation of the second sound. He asked what the conditions were which would give an obstruction and a clear heart tone. A probable diagnosis of transposition of the vessels at the base of the heart was made. The aorta, instead of arising from the left ventricle, arose from the right; and the pulmonary artery, instead of coming from the right ventricle, came from the left. There was a smaller circulation of arterial blood, and a peripheral circulation of venous blood.

A Case of Cretinism.—Dr. Louis Fischer presented a patient, twenty-three years old, a twin brother of a cretin. The twins had been under treatment with thyroid extract for some time and with marked benefit, both mental and physical.

A Case of Cretinism.—Dr. Eli Long presented a little girl, nine years old, who had been treated by him for six years. She practically had no mental development although her physical condition was excellent. He presented photographs of two other cretins.

An Unusual Case of Mastoiditis.—Dr. John J. McCoy reported the case of a girl, nine years old. Two nights before coming under observation she could not sleep because of pain when lying on the left ear. One month before this she had an earache. There had been no discharge from the ear. A large fluctuating mass behind the left ear was incised and a large amount of pus evacuated. The cortex of the mastoid was perforated and through a large opening pus was seen to be coming. The mastoid cavity was found to be filled with granulation tissue and pus. Practically the entire mastoid was involved. The inner plate of the lateral sinus was destroyed. This case was particularly interesting in showing the length of time the process could exist without giving symptoms. It was only when the pus found its way externally that the child complained of any pain. This case was a good illustration of the benefit to be derived from early paracentesis of the drum membrane; had the condition been discovered in time, and a paracentesis performed, such a destructive process would have been prevented.

Early Diagnosis of Pott's Disease.—Dr. Charlton Wallace said that Pott's disease was formerly considered to be congenital, but they now knew it to be tuberculous; tuberculosis of the bones was the same as tuberculosis of the lungs. Deformity might develop without pain or any subjective symptoms. The carriage of the child was peculiar, walking on the toes to prevent jars. These children would not play with others. They lost in weight, and were more or less weak. A diagnosis was not made in many cases because the general practitioner or orthopedic surgeon did not strip the child when making an examination. If one observed the child closely he would see that the patient protected himself in removing the clothes. Sayre's sign would be noted, an especially prominent sign when the disease was located low down. The child would stoop with the back straight. When the patient was on the table the four normal curves of the back would be obliterated if the child was not over six or seven years old. A very important sign was the limitation of motion in all directions. The majority of these cases resulted from lack of prophylaxis in tuberculous families. The orthopedic treatment aimed to prevent and to correct deformity. The prevention of deformity was accomplished by strapping the patient to a frame, and keeping him there. The new jacket was of great value in correcting deformity, and this jacket he believed to be one of the best things in orthopedic surgery to-day.

Philadelphia County Medical Society.

At a stated meeting, held April 22, Dr. Harry A. Duncan made "A Demonstration of the Method of Taking the Opsonic Index." He pointed out that what is required for this purpose is a small amount of blood-serum from the individual under observation, an equal amount of blood-serum from a presumably normal person, a number of washed leucocytes, and an emulsion of a culture of the bacteria underlying the morbid process being studied. By determining the number of bacteria taken up by the leucocytes or the number of leucocytes taking up bacteria in the two specimens of blood-serum a conclusion can be reached as to the opsonic index. This is then taken as a guide to the character and the strength of the bacterial virus to be employed in treatment, as well as the intervals between administration. Dr. Nathaniel Bowditch Potter of New York expressed regret that his experience and that of his colleagues failed to demonstrate any large measure of usefulness for the opsonic index. Their results had been so variable as to make them feel that the procedure is not to be depended upon. Nevertheless, it had been found that opsonic therapy was in the highest degree useful, and an illustrative case was cited in which it was believed that life was saved by the proper administration of a bacterial vaccine. Dr. Nathaniel Gildersleeve expressed belief in the utility of the opsonic index, if not for diagnostic purposes at least for determining the dosage and the intervals of treatment. Dr. G. Morton Illman warmly advocated the determination of the opsonic index and also the therapeutic employment of bacterial vaccines, sustaining his argument by the recital of illustrative instances. Dr. L. Napoleon Boston presented a communication entitled "The Microscopic Diagnosis of Diseases by Blood-smears." He pointed out that the results of examination of the blood were applicable in the diagnosis of various morbid conditions only to the same degree as other clinical manifestations, and a conclusion was, as a rule, no more to be based upon such results than upon any other single symptom. A small number of diseases could be recognized directly from examination of the blood, for example, malarial fever and filariasis. Often leukemia also could be diagnosed by such examination alone; but the accurate recognition of the various forms of anemia required in addition a careful study of other symptoms and physical signs. Even more than the number of erythrocytes and the percentage of hemoglobin diagnostic significance was to be attached to the morphology and the tinctorial reactions of the red cells. Basophilic degeneration of the erythrocytes might be looked upon as distinctive of lead-poisoning. A differential study of the leucocytes was even more important than an enumeration of their number. Eosinophilia with or without leucocytosis should suggest the existence of animal parasitism. Dr. George W. Norris made "A Demonstration of the Method of using the Cardiosphygmograph." He exhibited the instrument of Jaquet and demonstrated its method of application for the purpose of getting synchronous tracings of the cardiac pulsation, jugular or other venous pulsation, and radial or other arterial pulsation. Dr. Wm. Pepper discussed "The Clinical Application of the Cardiosphygmograph," illustrating by means of diagrams the significance of the carotid, auricular, and ventricular pulse-waves and the relation of one to the other. Dr. Wm. B. Stanton made "A Demonstration of the Method of Determining the Blood-pressure." He exhibited the sphygmomanometer devised by him and consisting of a reservoir of mercury communicating with a manometric tube of glass and provided with two arms, one connected with a rubber bag to surround the arm or other member, and the other with a rubber bulb for introducing air into the bag for the purpose of obliterating the pulse distal to the encircling bag. The height to which the mercury rose in the tube with the disappearance or reappearance of the pulse indicated the systolic pressure, while the diastolic pressure was that at which the mercury in the tube made the widest oscillations. The results obtained by this means were not diagnostic of any one or a number of diseases, but they were to be looked upon precisely as any other symptom and were to be considered in their relation to the other clinical phenomena present.

Epithelioma and Syphilis of the Tongue.—My experience has shown me the enormous number of cases where epithelioma has developed in syphilitic disease of the tongue. Hence, I go so far as to say that all chronic tongue cases should be kept under observation at regular intervals.—*Charles Ryall.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

Parkersburg, April 14, 1908.

ANATOMY AND EMBRYOLOGY.

1. What is the skin? Name and describe its layers, what are its appendages, and where found?
2. Describe the mastoid portion of the temporal bone, and name the muscles attached thereto.
3. Describe the iris, giving its blood and nerve supply.
4. Locate the liver, give its average weight, blood supply, and describe its ligaments.
5. Name the regions of the abdomen. What parts are included in each region?
6. Give the rise, course, and general distribution of the femoral artery.
7. What changes take place in the vascular system at birth?
8. Describe in detail the long saphenous vein, and give the surface markings.
9. Define the term osteoblast, myoblast, sequestrum. Explain sequestrum formation.
10. Describe the musculospiral nerve.

PHYSIOLOGY AND HISTOLOGY.

1. Describe yellow elastic tissue.
2. Describe nerve vesicle, nerve fiber, neuron.
3. What is reflex action? Give example.
4. What changes in brain during sleep?
5. What is the blood composition; blood pressure, to what due?
6. Give process of respiration, to what due, when mostly pectoral, when mostly abdominal?
7. Give normal amount of urine in twenty-four hours, its composition, how much urea?
8. Describe the skin, give its office.
9. Explain the difference between tonic and clonic spasm.
10. Locate the speech center, what may cause aphasia?

MATERIA MEDICA AND THERAPEUTICS.

1. Belladonna: preparations, action, therapeutics.
2. Salicylate: origin, action, uses.
3. Define a diuretic, give an example and explain its physiological action.
4. Name eight anthelmintics.
5. Nux vomica: preparations, therapeutic action.
6. Physiological action of cocaine; treat poisoning. What is cumulative action of a drug? Give example.
7. What is Fowler's solution, Dover's powder, Basham's mixture?
8. Name three direct cholagogues, three indirect cholagogues.
9. Therapeutic value of alcohol.
10. Classify arsenic, chloral, phosphorus, iodine, turpentine, quinine.

CHEMISTRY AND MEDICAL JURISPRUDENCE.

1. Define base, acid, atom, and element.
2. Define analysis, synthesis, reaction, and sublimation.
3. What is normal reaction of urine and what caused by, and how modify abnormal reaction?
4. Give chemical difference between inspired and expired air and what effect on blood?
5. Give characteristics of diabetic urine, cystitic urine.
6. What are incompatibilities? Show by formulæ.
7. What is cause of pain in bite of insect? What local antidote and why?
8. Give steps and findings in a post-mortem investigation of death from asphyxiation.
9. What is the danger of eating peach kernel? Is there any antidote?
10. Give formula for lime water and show reaction when taken into stomach.

BACTERIOLOGY AND HYGIENE.

1. What is cretinism, and with what is it associated?
2. Describe the formation of adipose tissue.
3. Mention the malignant neoplasms.
4. Describe the microscopic appearance of acute parenchymatous nephritis and explain the origin of blood in the hemorrhagic form.
5. Is cerebrospinal fever more generally sporadic or endemic?
6. What habits of school children tend to produce myopia?
7. Indicate a proper diet in the case of diabetes mellitus, obesity, and early convalescence in typhoid fever.
8. Name eight principal carbohydrates used in food.
9. Name three tests of detecting impurities in water.
10. What is meant by natural and acquired immunity from disease? Give an example of each.

PRACTICE OF MEDICINE AND PEDIATRICS.

1. Give cause, symptoms, and treatment of chronic gastric catarrh.
2. Give seat of lesion and symptoms of locomotor ataxia.
3. Diagnose and treat acute articular rheumatism. What are the most dangerous complications?
4. Give cause and treatment of constipation.
5. Diagnose the skin and mucous membrane manifestations of syphilis.
6. Give symptoms and treatment of the following poisons: lead, strychnine, aconite, and carbolic acid.
7. Diagnose and treat ulcerative stomatitis.
8. What instructions would you give the nurse in regard to the care and feeding of a child during the first month?
9. Differentiate epilepsy from other convulsive diseases of children.
10. Give cause, symptoms and treatment of acute meningitis.

OBSTETRICS AND GYNECOLOGY.

1. How is the pelvis formed?
2. Describe the Fallopian tubes.
3. Give theory of menstruation.
4. What is the appearance, weight, etc., of a fetus of the fifth month?
5. How many stages of labor? Describe each.
6. What articles should be taken by the accoucheur to to the bedside?
7. What is the most frequent cause of pyosalpinx? Treatment.
8. Treat eclampsia.
9. What preventive measures, if any, would you take to prevent ophthalmia neonatorum?
10. Diagnose and treat a transverse position.

SURGERY.

1. Differentiate varicocele, hydrocele, cystocele, rectocele, and hematocele. Give treatment for each.
2. Give indications, steps and technique of operation for phimosis.
3. Give surgical treatment for varicose veins of leg.
4. Give operation of tracheotomy, naming indications.
5. Define carbuncle and give treatment, local and systemic.
6. Give symptoms of intussusception, treatment, and prognosis.
7. Give etiology, symptomatology, and treat the different forms of erysipelas.
8. Define, give cause and treatment of Colles' fracture.
9. Describe operation for infusing a patient with normal salt solution.
10. Differentiate fistula and fissure of anus, and give treatment of each.

SPECIAL PRACTICE.

1. What should be included in the history of case?
2. Differentiate between appendicitis and biliary colic.
3. Describe some of the conditions which cause children to sleep with mouth open.
4. Aphonia: is it a disease or symptom of diseased condition? Give causes.
5. Iritis: describe and treat.
6. Describe albuminuric retinitis, its significance.
7. Eyestrain: what are some of the symptoms?
8. Name some of the causes of impaired hearing, and how tested.
9. Describe the so-called "S. Weir Mitchell rest cure."
10. Acute mania: give symptoms.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

Parkersburg, April 14, 1908.

PHYSIOLOGY AND HISTOLOGY.

3. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

4. During sleep the brain receives less blood and fewer stimuli; the cortical centers are dulled.

5. The blood is composed of:

1. Plasma.
2. Corpuscles. { Colored. Colorless. Blood-plates.

The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteids, fat, and inorganic salts). The *white corpuscles* consist of water and solids (proteid, leuconuclein, lecithin, histon, etc.).

7. The normal amount of urine passed by an adult in twenty-four hours is about fifty ounces.

The normal constituents of the urine are: Water, urea, uric acid, urates, hippuric acid, kreatinin, xanthin, hypoxanthin; sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium; nitrogen, and carbon dioxide.

The amount of urea voided in twenty-four hours is about five hundred grains.

8. The *functions of the skin* are: Protection, excretion, secretion, regulation of the body temperature, absorption, sensation, special sense of touch, respiration.

9. In *tonic spasms* the muscle remains for some time in a state of rigid contraction. In *clonic spasms* the muscle alternately contracts and relaxes.

10. The speech center is located in the third frontal convolution, on the left side.

Aphasia may be caused by: Cerebral hemorrhage, thrombosis or embolism; by tumor, or abscess in the neighborhood of the center.

MATERIA MEDICA AND THERAPEUTICS.

3. *A diuretic* is an agent which promotes the secretion of urine. Caffeine is a diuretic; it acts by dilating the renal blood-vessels, chiefly in the glomeruli, it stimulates the secretory epithelium of the kidneys, and also hinders absorbent action in the uriniferous tubules.

4. *Eight anthelmintics:* Santonin, pomegranate, pepo, aspidium, pelletierine, spigelia, quassia, turpentine.

5. Nux Vomica. *Preparations:* Extract, fluid extract, and tincture of nux vomica; strychnine, sulphate and nitrate of strychnine.

Physical action: It excites the digestive secretions, increases the appetite, increases peristalsis, and improves the digestion; it is a vasoconstrictor, it raises blood pressure, and is a cardiac stimulant; it is also a respiratory stimulant; hearing and sight are rendered more acute.

6. Cocaine. *Physiological action:* Local anesthetic, when applied externally; internally, it is a muscular, cerebral, circulatory, and respiratory stimulant, and a mydriatic.

Treatment of cocaine poisoning: Wash out the stomach; give nitroglycerin, amyl nitrite, strychnine, or ammonia; artificial respiration may be necessary.

When a drug is administered for a sufficient time more rapidly than it can be eliminated, a time will come when it will have *accumulated* to such a degree that marked, and possibly toxic, effects will be produced by ordinary medicinal doses.

7. Fowler's solution is Liquor potassii arsenitis.

Dover's powder is Pulvis opii et ipecacuanhæ.

Basham's mixture is Liquor ferri et ammonii acetatis

8. Three *direct cholagogues:* Euonymus, podophyllin, sodium phosphate.

Three *indirect cholagogues:* Mercury, potassium bitartrate, jalap.

9. "Though decidedly injurious in health, in disease alcohol is a most valuable remedy in appropriate cases. In *vomiting* of yellow fever, seasickness, etc., iced champagne is useful. *Atonic indigestion* of nervous and depressed subjects, cautiously. *Phthisis*, it does good if it promotes digestion and assimilation; otherwise it is very injurious. *Cholera infantum, diarrhea*, etc., Cognac brandy in full doses. *Cardiac failure*, brandy in small doses repeated as fast as oxidized. *Chloroform anesthesia*, ℥ j-ij of whiskey beforehand, to sustain the heart, and prolong the chloroform narcosis. *Poisoning* by cardiac depressants and snake venom, alcohol freely, to sustain the heart. In *snake poisoning* it is given *ad libitum*. *Diphtheria*, whiskey or brandy in small doses frequently from the commencement, and dilute alcohol sprayed into the throat, is very efficient treatment. *Adynamic fevers*, small doses frequently are often of great value. *Gonorrhea*, Niemeyer is said to have done a lucrative business by treating this affection with injections of tannic acid in port wine. *Insomnia* from cerebral anemia may be prevented by small doses of some alcoholic stimulant at bedtime. *Wounds*, no better dressing than strong alcohol, to prevent putrefaction and protect the surface by coating it with a coagulum of its own albumin. *Bed sores* if threatening, alcohol locally, to harden the tissue. *Cold* from exposure, may be prevented by a moderate dose of alcohol, to restore the balance of the circulation and prevent internal congestion, by relaxing the vessels of the periphery."—(Potter's *Materia Medica.*)

Example: Digitalis, strychnine.

CHEMISTRY AND MEDICAL JURISPRUDENCE.

1. *A base* is a ternary compound capable of entering into double decomposition with an acid to produce a salt and water.

An acid is a compound of an electro-negative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element or radical, without the formation of a base.

An atom is the smallest quantity of an element that can enter into chemical action, or that can enter into the composition of a molecule.

An element is a substance which cannot, by any known means, be split up into any two or more other kinds of substance.

2. *Analysis* is the splitting up of a compound into simpler compounds or elements.

Synthesis is the formation of compounds from elements or from simpler compounds.

Reaction is (1) the action of substances upon certain organic pigments; (2) the mutual chemical action of two or more substances on each other.

Sublimation is the process of converting a solid into a vapor, by heat.

3. The normal reaction of urine is acid; this is due chiefly to the acid sodium phosphate (monosodic phosphate) and acid potassium phosphate (monopotassic phosphate). When the urine is alkaline, benzoic acid may be administered to render it acid.

4. The changes produced in the *air* by respiration are:

	Inspired Air.	Expired Air.
Oxygen	21 per cent.	16.6 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide	0.04 per cent.	4.4 per cent.
Other gases	Rare.	Often present.
Watery vapor	Variable.	Saturated.
Temperature	Variable.	That of body.
Volume	Varies.	Diminished.
Bacteria	Always present.	None.
Dust	Always present.	None.

In the *blood* the changes take place in the capillaries of the lungs, and are: (1) The giving up of the CO_2 by the venous blood, (2) the absorption of oxygen during inspiration, (3) the blood is cooled, and (4) it also loses a small amount of watery vapor.

5. *Diabetic urine.* In diabetes mellitus the urine is enormously increased in quantity, the specific gravity is generally high (1030 to 1045), it contains sugar, has a sweetish odor, is pale in color, and has an increased amount of urea.

Cystitic urine contains pus, albumin, epithelium, triple phosphates, sometimes blood. In acute cases the urine is acid; in chronic cases it is alkaline and ammoniacal.

6. *Physical incompatibility* occurs when a prescription contains drugs which do not act chemically on one another, and so cannot be dispensed without some alteration. *Example:* prescribing an oil and water.

Chemical incompatibility occurs when chemical action not intended by the prescriber takes place between two or more of the ingredients of the prescription. *Example:* prescribing potassium chlorate to be rubbed up with tannic acid.

7. The pain in insect bite is supposed to be due to the presence of formic acid. The local antidote is ammonia water, or dilute alkaline liquid, either of which will neutralize the acid.

8. In death from axphyxiation there will be found:—The right side of the heart and the venous system full of blood; congestion of the mucous membrane of the bronchial tubes; the sinuses of the brain are filled with blood; the brain, liver, spleen, and kidneys will be congested; the blood is usually dark colored.

9. The danger of eating peach kernels is the possibility of being poisoned by hydrocyanic acid.

Potassium permanganate and hydrogen dioxide are said to be antidotes.

10. Lime water is a saturated aqueous solution of calcium hydroxide $Ca(HO)_2$. The reaction when taken into the stomach is:

$$Ca(HO)_2 + 2HCl = CaCl_2 + 2H_2O.$$

BACTERIOLOGY AND HYGIENE.

1. *Cretinism* is a condition of idiocy, associated with imperfect development of the body. It is probably due to some interference with the function of the thyroid gland.

3. The *malignant neoplasms* are: Sarcoma, epithelioma, and carcinoma.

5. Cerebrospinal fever is more generally sporadic.

6. The habits of school children which tend to produce myopia, are: Reading of poor print, or in a poor light, improper positions in reading or writing, using the eyes when tired, and excessive study.

8. *Eight Carbohydrates used as food*: Sugar, fruits, milk, cereals, malt, bread, green vegetables, sweets.

10. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

Natural Immunity is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired Immunity is this resistance acquired: (1) by a previous attack of the disease caused by the bacteria, or (2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are:—(1) a previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

PRACTICE OF MEDICINE AND PEDIATRICS.

2. Locomotor Ataxia. *Seat of Lesion*: Posterior columns of the spinal cord and posterior nerve roots.

Symptoms: Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil.

3. The most dangerous complications of acute articular rheumatism are: Hyperpyrexia, endocarditis, pericarditis, chorea, myocarditis, pneumonia, delirium, coma, convulsions.

4. *Cause of constipation*: Sedentary habits, improper food, fevers, weakened abdominal muscles, pain of fissure or piles, anemia, disease of the digestive tract, jaundice, hysteria, and intestinal obstruction.

Treatment: Removal of the cause, if possible; regularity of attempts at stool; exercise, abdominal massage, laxative articles of food, water drinking, salines and mild laxatives, enema of soap and water. Catharties should be avoided if possible.

6. *The symptoms of poisoning by lead* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions, and tetanic spasms."

The *treatment* consists in removing the cause and administering the antidote, "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic or by the use of the stomach tube."

The *symptoms of poisoning by strychnine* are as follows: "Strychnine produces a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

Treatment: "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible."

"The symptoms of poisoning by aconite usually manifest themselves within a few minutes; sometimes are delayed for an hour. There is numbness and tingling, first of the mouth and fauces, later becoming general. There is a sense of dryness and of constriction in the throat. Persistent vomiting usually occurs, but is absent in some cases. There is diminished sensibility, with numbness, great muscular feebleness, giddiness, loss of speech, irregularity and failure of the heart's action. Death may result from shock if a large dose of the alkaloid be taken, but more usually it is by syncope.

"The *treatment* should be directed to the removal of the unabsorbed poison by the stomach tube, and washing out of the stomach with infusion of tea holding powdered charcoal in suspension. Stimulants should be freely administered."

Symptoms in carbolic acid poisoning: Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

Treatment: Emetics, white of egg, stimulants. Alcohol is said to be antidotal.—*Witthaus' Essentials of Chemistry.*

9. *Epilepsy* is characterized by the cry, tonic convulsions, sudden loss of consciousness, dilated pupils, the biting of the tongue, and the emptying of the bladder.

In *syncope* there are no twitchings and the insensibility is not complete; the condition is preceded by faintness, which is absent in epilepsy.

In *hysteria* the tongue is not bitten, the pupils are not dilated, and the child does not hurt himself in any way.

OBSTETRICS AND GYNECOLOGY.

4. At the fifth month the fetus weighs about eight to ten ounces, and is about nine or ten inches in length. The head is about one-third of the total length; and the liver, heart, and kidneys are disproportionately large; vernix caseosa is present; lanugo, hair, and nails also appear.

6. The following articles should be taken by the accoucheur to a confinement: Tablets of bichloride of mercury, or some other material for making antiseptic solution; forceps; ether or chloroform, with inhaler or mask; fluid extract of ergot; hypodermic syringe, with tablets of strychnine, morphine, etc.; needles, sutures, and needle holder; nail brush and nail cleaner; umbilical scissors; carbolized vaseline; stethoscope; male catheter (rubber); a one per cent. solution of nitrate of silver.

7. The most frequent cause of pyosalpinx is gonorrhea.

8. Eclampsia.—The line of *treatment* as laid down by Edgar is as follows: For *preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ.

The *curative treatment* includes: (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

9. *To prevent ophthalmia neonatorum:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent. solution of nitrate of silver, immediately after birth.

SPECIAL PRACTICE

1. The history of a case should include: The date; name, address, age, occupation, and civil condition of the patient. Inquiry should then be made regarding the parents, brothers, sisters, and children of the patient; their health, or age and cause of death. Then the previous illnesses or accidents from which the patient has suffered, and finally the present illness must be inquired into. With regard to the latter, note date of origin, manner of origin, the order in which the symptoms appeared, and the chief symptoms which trouble the patient now and for which he seeks relief. The patient should also be questioned about his appetite, frequency of bowel movements, sleep, loss of weight, ability to work, etc.

2. In *appendicitis* the pain and tenderness are in the right iliac fossa; there is rigidity of the right rectus muscle; there are fever and gastrointestinal disturbances, but no jaundice or tenderness of liver and gall-bladder.

In *biliary colic* the pain is in the right hypochondriac region; there is no rigidity of the right rectus muscle; there are chills, slight fever, sweats, perhaps syncope, and vomiting; the liver and gall-bladder are tender and swollen, and there may be jaundice.

3. Some of the conditions which cause children to sleep with mouth open: Adenoids, hypertrophy of tonsils, retropharyngeal abscess, any obstruction of the nasal passages.

4. *Aphonia* is a symptom, and not a disease.

It may be caused by: Laryngitis, edema of the glottis, tumor of larynx, excessive or improper use of the voice, retropharyngeal abscess, paralysis of the adductor muscles of the larynx, involvement of the laryngeal nerves, fixation of the vocal cords by cicatricial contractions, ulceration of the vocal cords, foreign bodies in the larynx, and hysteria.

7. Some of the symptoms of *eyestrain* are: Headache, nausea, vomiting, heartburn, anorexia, dyspepsia, constipation, insomnia, nightmare, neurasthenia, chorea.

8. Some of the causes of *impaired hearing* are: (1) Aural polypi, (2) inflammation of the membrane lining the Eustachian tubes, (3) inflammation of the middle ear, (4) inflammation of the internal ear, (5) disease of the auditory nerve, (6) perforation of the membrana tympani, (7) parotitis, (8) diseases of the throat, blocking up the end of the Eustachian tube, (9) certain drugs, as salicylic acid, quinine, etc., (10) impacted cerumen.

The distinction between ordinary deafness and the nervous form is made by testing with watch or tuning fork. "If the ticking of a watch or the vibrations of a tuning fork are heard faintly or not at all when held at varying distances from the ear (aërial conduction), but become distinctly audible when the watch or the handle of the fork is placed in contact with the skull or mastoid process (bone conduction), the deafness is of the ordinary variety and due to aural disease. If, on the other hand, watch and fork are heard indistinctly or not at all, both in contact and at a distance, the deafness is due to some lesion of the nerve or its connections. In the first case the nerve is normal and can appreciate vibrations brought by the bone, while, through some fault in the mechanism, aërial vibrations are not transmitted to the nerve endings. In the second case the nerve is at fault and cannot appreciate vibrations, no matter how well they may be conducted."—Butler's *Diagnostics of Internal Medicine.*

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.		
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan.	5
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct.	5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct.	13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	August	4
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct.	6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov.	10
Delaware	J. H. Wilson, Dover	Dover	Dec.	8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct.	13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov.	11
Georgia	E. R. Anthony, Griffin	Atlanta	Oct.	6
Idaho	W. F. Howard, Pocatello	Boise	Oct.	6
Illinois	J. A. Egan, Springfield	Chicago	Oct.	—
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	Oct.	27
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept.	—
Kansas	D. P. Cook, Clay Center	Kansas City	Oct.	13
Kentucky*	J. N. McCormick, Bowling Green	Louisville	Oct.	27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct.	1
Maine	Wm. J. Maybury, Saco	Augusta		
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.	8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept.	8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct.	13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct.	6
Mississippi	S. H. McLean, Jackson	Jackson	Oct.	13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov.	23
Montana*	Wm. C. Riddell, Helena	Helena	Oct.	6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Aug.	5
Nevada	S. L. Lee, Carson City	Carson City	Nov.	2
N. Hampshire*	Henry C. Morrison, State Library Concord	Concord		
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct.	20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct.	12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	Sept.	22
N. Carolina*	B. K. Hays, Oxford			
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct.	6
Ohio	Geo. H. Matson, Columbus	Columbus	Dec.	8
Oklahoma*	J. C. Mahr, Shawnee	Shawnee	Sept.	—
Oregon	B. E. Miller, Portland	Portland		
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	Dec.	—
Rhode Island	G. T. Swarts, Providence	Providence	Oct.	1
S. Carolina	W. M. Lester, Columbia	Columbia	June	8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan.	13
Tennessee*	T. J. Happel, Trenton	Memphis / Nashville / Knoxville	May, '09	
Texas	G. B. Foscue, Waco	Houston	Nov.	10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Oct.	5
Vermont	W. Scott Nay, Underhill	Montpelier	Jan.	12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec.	16
Washington*	K. Turner, Seattle	Spokane	Jan.	5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov.	10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan.	12
Wyoming	S. B. Miller, Laramie	Laramie	Oct.	14

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 25, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	400	173
Diphtheria	175	22
Measles	219	7
Scarlet Fever	131	9
Smallpox	—	—
Varicella	9	—
Typhoid Fever	71	15
Whooping Cough	14	7
Cerebrospinal Meningitis	12	7
Malarial Fever	—	—
Totals	1031	240

The Bacteriology of Bed-Stuffing.—A recent bacteriological report on specimens of rags and samples of flock used for stuffing bed mattresses, cushions, and so forth, has reached us and affords singularly unpleasant reading. In untreated rags as purchased the number of bacteria living and capable of developing in suitable nutrient media varied from upwards of 10,000,000,000 per gram to over 9,000,000,000. The number of *Bacillus coli* and allied organisms of excremental origin was at least 10,000,000 per gram, while the *Bacillus enteritidis sporogenes* was found in the same material. The report further shows that by the adoption of an efficient pressure steam sterilizer this flock can be reduced to a state of bacteriological purity.—*The Lancet.*

Health Report.—The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 24, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Alabama, Mobile	June 27–July 4	1	Imported
California, Los Angeles	June 27–July 4	1	..
Illinois, Chicago	July 4–11	1	..
Indiana, Indianapolis	July 5–12	2	..
Kansas, Topeka	June 27–July 4	7	..
Kentucky, Covington	July 4–11	1	..
Louisiana, New Orleans	July 4–11	2	..
Maryland, Baltimore	July 4–11	1	..
Michigan, Detroit	July 4–11	1	..
Missouri, Kansas City	July 4–11	1	..
St. Joseph	June 27–July 11	2	..
Ohio, Cincinnati	July 4–11	1	..
Texas, San Antonio	July 4–11	1	..
Washington, Spokane	June 27–July 6	8	..
Wisconsin, La Crosse	July 4–11	7	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	May 23–June 6	15	..
Porto Rico, Mayaguez	June 20–27	2	..

SMALLPOX—FOREIGN.

Canada, Halifax	June 25–July 4	6	..
China, Hongkong	May 23–June 6	7	4
Ecuador, Guayaquil	June 13–20	..	6
France, Paris	June 20–27	2	..
India, Calcutta	May 23–30	..	20
Italy, General	June 21–28	49	..
Palermo	June 6–20	0	2
Turin	June 7–14	1	..
Mexico City	May 16–30	..	47
Russia, Moscow	June 13–20	32	5
Odessa	May 23–June 20	23	2
Warsaw	May 16–23	..	4
Spain, Barcelona	June 1–30	..	3
Valencia	June 20–27	9	1
Turkey, Constantinople	May 22–29	..	0

YELLOW FEVER.

Cuba, Daiquiri	June 18–20	3	..
Curacao	June 26–July 3	1	1
Ecuador, Guayaquil	June 13–20	..	1

CHOLERA.

India, Calcutta	May 23–30	..	81

PLAGUE.

British Gold Coast, Akkra	May 26	3	3
Chile, Antofagasta	May 30	18	2
Arica	June 2	..	Present
China, Hongkong	May 23–June 6	271	221
Ecuador, Guayaquil	June 13–20	..	1
India, General	May 9–June 6	1,409	1,198
Calcutta	May 23–30	..	60
Madras	May 3–June 5	..	4
Japan, Nara	June 24	14	..
Peru, General	June 13–20	18	10
Straits Settlements, Singapore	May 23–30	..	1
Trinidad	June 22–July 1	4	..
Venezuela, La Guaira	June 30	..	1

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Original Articles.

DARWINISM AND DIABETES.*

BY R. G. ECCLES, M.D.,

BROOKLYN, NEW YORK.

WHEN hypertrophy of the ventricles follows mitral incompetency what medical man would think of claiming that the hypertrophy was the cause of the disease? We all know that, in such a case, the increased muscular power is but an effort, on the part of nature, to compensate for the incompetency and to thereby prolong the life of the patient. With apparent purpose the normal functioning of the organ is increased. Just as the muscular power, normal to the heart, is thus augmented, even so, in diabetes mellitus, the normal amount of sugar found in the blood is likewise augmented. In both instances we have nothing more than an increased physiological activity. In the case of the heart we are quite sure that the increase in the physiological activity is beneficial. In the case of the circulation what evidence has any one ever produced that can, in any manner, point to a different conclusion? With Bunge[1] we can pertinently ask: "Why should we accuse a normal function of being the cause of a pathological process?" To look back at the origin of organs and their functions, by the light of natural selection, is to become aware at once of the inconsistency of claiming that they can in any manner cause pathological conditions. Every organism, so viewed, is but a marvelous complex of coordinated fitnesses. Myriads of ages of struggle against disease, hunger, adverse physical forces, and adverse chemical affinities, have left to every creature born into the world a heritage of protective appliances with which to battle for the prolongation of the life of the possessor. Its entire structure, from alpha to omega, is nothing but one wonderful system of fitnesses. No spot is left within the bewilderingly complex whole for a single maladjustment in its unimpeded and unimpaired activities. It has reached us through a never-ending struggle that has wiped out, one by one, every trend toward maladjustments. There cannot, in the very nature of that struggle, be a single organism in existence having a natural trend to disease. Such apparent maladjustments as we discern are but relative weaknesses toward conditions over which natural selection has had insufficient play. How, in a world where only the fit have ever been able to survive, could it be possible for positive unfitness to be selected for survival? Heredity is, through and through, but one mass of accumulated fitnesses. Life, physically considered, is neither more nor less than acquired adjustments against dangers. There are weaknesses toward newly arising dangers, but even these are only relatively such. However fit we may ever become there must still continue to be different degrees in strength among different organs and organisms. Even vestigial organs, like the appendix, cannot produce disease. All the harm they are capable of doing is lodged in their inability to resist and destroy certain attacking parasites. This relative weakness, due to disuse, is nevertheless, marvelously strong and resisting toward other organisms that constantly beset it in its highly exposed position. No tissue and no organ has ever been convicted of spontaneously starting disease. From the view-point of natural selection there can be no such thing as a truly hereditary disease. We may have intrauterine malformations of the fetus, intrauterine poisonings, with intrauterine infections, and some of us may, from lack of a better word, call these hereditary, but true heredity is a heritage of health and health-protecting appliances only. It has heaped up an accumulated wealth of health from all past generations. It is our inherent, constitutional capital—our power by which we are able to resist disease. It is, in very fact, the eternal enemy of disease. To accuse heredity of being a cause of disease is to deny the doctrine of natural selection and to claim that the unfit survive. Such a claim is manifestly absurd. Our heredity, so far as it goes, is one of perfect health, as perfect as natural selection has yet been able to make it. We still lack fitness where the race has not been sufficiently scourged by a disease to which we are unfit. The failure is not in what we get from heredity but in what heredity has never yet triumphed over. Those who have sprung from a stock that has been thoroughly weeded of its weaklings in respect to measles are more or less immune toward measles. Those whose ancestors have come out victorious in a war with plague are immune toward plague. Those whose forebears have been sorely afflicted with all or most of our present common diseases we say have excellent constitutions. Those who have sprung from families that have, somehow, escaped these inflictions we declare have poor constitutions. The hardy and the long lived, where equal care to live hygienically has been practised, are the select progeny from among the sufferers of the past. Pathologists may succeed, by juggling with the chromesomes of germ and sperm, in producing unfitnesses that will approximate to what we might consider true heredity, but nature will take perfect care in seeing that such unfitnesses are wiped out. It is one thing to produce unfit forms, but quite a different thing to perpetuate them.

A favorite explanation among some physicians of the cause of diabetes mellitus has been that it is due to heredity. Dr. Saundby, excellent as are most of his reasonings, has dropped into this popular conception. He says that "heredity is an influence too well attested in certain instances to be doubted." On what sort of fact or facts did he venture to base so sweeping a conclusion? Let us read what he gives as the, probably, most convincing case then at his

*Second paper. See MEDICAL RECORD, May 9, 1908.

command. He continues: "thus in one example diabetes occurred in eight members of one family extending over three generations."[2] He did not seem to observe that every such case as this can be explained, with equal perfection, as a case of contagion or as one in which a common fault of diet was the directing factor. If during the three generations there had been an overindulgence in proteid food by all of these members of this family, we would have an ample explanation from the viewpoint of this writer. There can be little doubt but that many such cases could be found in which typhoid fever shows the same succession in one family, yet no one has suggested the hereditary character of typhoid fever. Had the professor attempted to show us that in the distribution of three generations his eight cases displayed Mendelian characteristics there might have been some suggestiveness of heredity, but he nowhere attempts giving such evidence. What would he do with a case like that related by Dr. L. C. Wadsworth in which a family of eleven were all glycosurics?[3] He surely would not contend that diabetes is so universally a hereditary fault that these parents were breeding true. Does not such a case prove too much? But why consider this phase of the subject further? Let those who are not evolutionists adhere to the belief that this and other phases of disease are due to heredity. The consistent evolutionist can resort to no such explanation without stultifying himself. But whatever the explanation that any physician sees fit to hold he should see to it that that explanation is able to cover all the facts and not merely, as is so often the case, only one or two of them. There is a very wide range of known facts connected with diabetes and until we have a theory elastic enough to meet them all we can be quite sure that we *are not* on the right track. The theory that diabetes is due to disease of the pancreas is the one that pathologists have adhered to for over a century. When, in 1889, Minkowski and von Mering, as well as de Dominicis, discovered that ablation of that organ was followed by a fatal form of diabetes everybody thought that there could be little doubt of that theory being substantially true. The operation has since been performed on many animals and at many times. The results being always alike, except in the case of ducks and geese, every effort has been bent toward completing the proof of the assumption. Most of the experimenting has been with the object in view of discovering a pancreatic secretion so essential to metabolism that its suppression would result in the production of glycosuria. So essential have pathologists felt the necessity for such a substance to exist that von Noorden was constrained to assert that "we are not able at the present time to advance the theory of pancreatic diabetes without it."[4] Lepine suggested that this hypothetic substance might be a sugar-destroying ferment which the pancreas pours into the blood. Experiment after experiment was tried in order to discover this imaginary substance, but it all ended in finding that there is no difference in the glycolytic power of normal and diabetic blood. Cohnheim, evidently constrained by the ghost of Lepine's dead theory, sought for an enzyme activator instead of an enzyme. After much research he finally proclaimed that he had discovered such an activator in the pancreas, and that by its use the glycolytic ferment present in muscle and liver was caused to act vigorously.[5] The reader can get some idea of the function of this activator if he will think of the part played by hydrochloric acid in the digestion of albumin in the stomach. The sugar is supposed to take a similar place to that of the albumin and the supposed glycolytic enzyme is believed to act about as pepsin does. Concerning this supposed activator von Noorden asserts that "Embden and R. Claus have completely overthrown the whole of Cohnheim's teaching by some extremely careful work."[6] This work was done in Cohnheim's laboratory. The editor of the *Journal of the American Medical Association* declares that Cohnheim's activator is "apparently a discovery that clears up at least one of the most fundamental processes of metabolism which has evaded solution in spite of much work directed to this end."[7] Wells is even more emphatic in his commendation of the activator, for he says that "although numerous objections to Cohnheim's views have been made, yet the main fact that the pancreas produces an activator substance for a glycolytic enzyme contained in other tissues seems to have been safely established."[8] Dr. Lydia M. Dewitt assures us that she has proven that Cohnheim's activator really does exist, and that it comes from the islands of Langerhans. Regarding the part that these islands play in respect to diabetes she informs us that "Opie, Weichselbaum and Stangl, Wright and Joslin, Herzog, Ssobolew, and many others believe themselves justified in accepting the theory that pancreatic diabetes is due to some disturbance of the function of the areas of Langerhans, while Hansemann, Gutmann, Reitmann, Karakaschew, Herxheimer, Dieckhoff, Benda, and others contend that this theory does not explain and cannot be based upon the facts observed."[9] To add to the confusion we are told that Stoklasa and Czerny, Simacek, Feinschmidt, and others have demonstrated that both muscle and liver are independent of the pancreas in the matter of glycolysis since they can destroy their own sugar. For the islands of Langerhans to manufacture and the blood stream to carry a special activator to muscle or liver is like "carrying coals to Newcastle," as neither of them need it.[10] But if, for the sake of argument, we accept the activator as a demonstrated verity, how much nearer can it bring us toward the solution of the problem of diabetes? It is a well-established fact that diabetes can exist with the pancreas, so far as human knowledge can discover, perfectly normal. Bunge assures us that "There is not a single organ that does not frequently appear normal."[11] Wells tells us that "there occur many cases of diabetes in which no anatomical changes whatever can be found in the pancreas."[12] Flexner gives quite a list of cases in which diabetes existed in the presence of a normal pancreas and informs us that Nauny "in 40 autopsies on cases of diabetes, saw only one in which he considered the pancreas to be the cause of the diabetes."[13] Von Noorden assures us that he has seen several cases "in which so illustrious a pathologist as Weigert reported the pancreas to be in every respect normal, notwithstanding the most minute search for evidence of disease."[14] In such cases as these what can have happened to Cohnheim's activator? If it really does exist does it not add another to the perplexing problems of this disease. Why did it not activate? Was its function suspended in order to let the blood stream be flooded with sugar? We can come to no other conclusion if it really exists.

In seeking for the etiology of diabetes there are very many more things to explain than a supposed loss of glycolytic power or the results of the impaired functioning of any single organ of the body. Any satisfactory theory of diabetes must give some sort of an explanation of the following facts:

(1) Why the apparent waste of sugar occurs.

(2) How transient glycosuria is related to diabetes mellitus in causation.

(3) Why pancreatic and transient glycosuria can occur in nearly all vertebrates.

(4) Why diabetic patients are most common among the rich proteid users.

(5) Why injuries are the common precursors of diabetic attacks.

(6) Why extirpation of the duodenum produces as severe a diabetes as ablation of the pancreas.

(7) Why, in cold-blooded animals, there is no glycosuria in ablation of the pancreas if the liver is removed at the same time.

(8) Why the protoplasm of the muscles is damaged in all severe cases of diabetes.

(9) Why glycogen disappears from the liver and muscles.

(10) Why the heart, leucocytes, renal epithelium, cerebrum, etc., accumulate unusual amounts of glycogen.

(11) Why the kidneys have increased their impermeability toward sugar but have not done so toward any other substance.

(12) Why the body converts other kinds of food into sugar when carbohydrates are withheld.

(13) Why, in starvation, the body consumes its own tissues in order to supply sugar to the blood and keep up the glycosuria.

(14) Why approaching coma can be arrested by feeding carbohydrates.

(15) Why serious cases can be mitigated by feeding them with oatmeal or potatoes.

(16) Why diabetes can exist with the pancreas in a perfectly healthy condition.

(17) Why antiseptics produce a transient arrest of the glycosuria.

For many years there has been a constantly growing sentiment within the medical profession to explain nearly every disease on Darwinian grounds. It is quite true that it has occurred to but few of them that a microbic explanation of disease is essentially a Darwinian one. They have not thought of such an explanation of disease being an acknowledgment of the struggle for existence and the survival of the fit. Microbes battle with us for even the food we have consumed and that occupies our alimentary tract. They enter our circulation and contest with our cells the right to the pabulum there. They even attack the protoplasm of the cells and seek to appropriate it to their own use. Prof. Roger tells us that, "the more we study pathology, the greater we find the intervention of microbes in the majority of toxic processes."[15] Pathologists have been baffled at every turn in their attempts at explaining diabetes by hereditary, chemical, mechanical, and other causes. It seems about time for us to follow the path that has brought light in other manifestations of disease. Why not now call upon the bacteriologists to come to our aid? Are we not able to help them to a working hypothesis which they can test, and by so doing bring us toward a true solution? A bacteriologist is needed who is himself fertile in theories. Such a one is sure to win by using his opportunities to test with care the value of the successive inductions which he makes from the data at his command. His theories are never mere guesses, as is popularly supposed to be the case, but carefully reasoned out conclusions, based on facts and made to conform to well established generalizations. A sound theory of diabetes must agree with and explain all the peculiarities of that disease. It must likewise conform to the established principles of evolution. The first attempt at framing such a theory seldom results in getting one that exactly fits the case in every minutia but it rarely goes wide of the road that finally reaches the truth. Its suggestiveness alone gives it value for, even when it is wrong, it exposes its own weakness, under trial, and thus redirects toward the right. No theory would seem to fit the facts of diabetes except a microbic one. Assuming, then, that it may be due to some kind of microbe, let us see if there are any facts that can guide us in the direction that may discover the kind of microbe that it is likely to be. Romanes tells us that "wherever we tap nature it seems to flow with purpose."[16] This is clearly a Darwinian idea. If only fitnesses survive we should find purpose everywhere. The most obtrusive fact of diabetes is excessive glycemia. Has it a purpose? We can discover none in its direct relationship to the patient. If any exists it must, it would seem, be in relation to an invading microbe. Massee tells us that "sugar in some form is the positive chemotactic substance to which the germ-tubes of nearly all fungi, parasitic and saprophytic, respond."[17] He also tells us that "Miyoshi cultivated fungi in gelatin containing a small amount of sugar, which was separated by a membrane from a second layer of gelatin containing a larger proportion of sugar; the hyphæ bored through the membrane into the layer containing the largest amount of sugar. He also showed that the hyphæ of *Penicillium glaucum* and species of *Botrytis* passed through the epidermal cell-walls of living leaves, which had previously been injected with a positively chemotactic substance."[18] Bacteria that are chemotropic toward dextrose would be expected to behave in a somewhat similar manner. If a kind exists in the intestinal tract that consumes this kind of sugar in preference to proteid, while not refraining from consuming the latter when the former is scarce or absent, it would be well to suspect it of having something to do with glycosuria. If conditions ever arise in that tract in which the supply of dextrose disappears or becomes very scarce the fact that such bacteria can reach the normal supply of the blood through a weakened mucous membrane should not be forgotten. If, through some lesion or weakness in that wall, such bacteria could migrate into the blood what would be likely to happen? Is it not evident that they would most likely reach the liver through the portal circulation and there accumulate around the stores of glycogen? Such we know to be the habits of microorganisms in respect to substances to which they are attracted. We should expect them to set up there a condition of irritation to which the liver, if adapted through natural selection, would respond by giving them all the sugar it could possibly supply. As the muscles would constitute other centers of sugar supply we should suspect them of following the chemotactic pull toward these organs and there also forming centers of irritation. To this irritation we should likewise expect a similar response. Prof. Calkins in referring to Pfeffer's experiments on chemotaxis with a large number of microorganisms tells us that "he also obtained the interesting result that substances which in weak solutions cause a positive reaction, in strong solutions cause a negative one, so that, as in light stimuli, a chemotactic optimum exists toward which the organism constantly strives."[19] If this rule holds of our supposed intestinal bacterium, we should expect it, when thoroughly filled with sugar, to try to drift away from it and thus to land in a condition of surfeit at the kidneys. Of course if overtaken by the way by a superior force of phagocytes they might be engulfed by the latter before getting there. Such of them, however, as did reach the kidneys in safety would have to be guarded against in these organs and in the bladder or they might there set up suppuration. The over-

flow of sugar into the urine would in this way prove to be a source of protection by keeping the bacteria surfeited until either killed or expelled from the body. The continuous supply of sugar up to the last moment of expulsion would keep such bacteria from attacking and destroying the cells in order to appropriate their protoplasm. As glycosuria is a common symptom of fever, poisoning, suffocation, chill, starvation, and severe injuries, it is evident that whatever lowers the vital powers causes it. Whatever others may believe to be the connection between the flow of sugar and the lowered vital power the Darwinian cannot be consistent unless he maintains such flow to be a survival of a fitness in conditions that now threaten and once proved often fatal. There must be great danger to life which the presence of this sugar averts. Is it a weakening of the resisting power of the intestinal walls and a migration into the circulation of some kind of bacteria? Consistency demands such an assumption. But this will force us to the conclusion that the kind of bacteria we must suspect are exceedingly common ones. These symptoms are of such frequent occurrence and are found in so many kinds of animals that the parasite we seek should be well-nigh ubiquitous.

It is customary to look upon the digestive tract as impervious to all forms of bacteria in the absence of some lesion. This view seems to be weakening among many bacteriologists. The condition is, perhaps, best illustrated by Darwin's metaphor in which he says: "Battle within battle must be continually recurring with varying success; and yet in the long run the forces are so nicely balanced that the face of nature remains for long periods of time uniform, though assuredly the merest trifle would give the victory to one organic being over another."[20] Dr. Meltzer tells us that "even only diminished vitality, like in chronic heart- and kidney-diseases, encourages the invasion and settlement of microorganisms in the body."[21] The same author informs us that "The intestine, as will appear from these statements, is regarded as the portal of entry not only of many of the bacteria found in the inflamed peritoneum, but also of some of those present in the pleura, upon the heart valves, and within the organs. This conclusion is based in part upon the behavior of those species which are known to be derived from the intestine, namely, the colon group of bacilli. It has been found that these bacteria wander through the intestinal walls with great regularity where lesions of the intestinal mucosa exist. * * * The occurrence of the colon bacilli in the organs is frequently unassociated with any lesion referable to their presence."[22] He further informs us that the colon bacilli is the most frequent invader of the circulation, and next to it, as a cause of "terminal infections," comes the streptococci. McFarland states that "Beco is of the opinion that, without any apparent lesion of the intestine, bacteria—*Bacillus coli*—escape from it into the blood during life."[23] Herter states that "the colon organisms probably often pass temporarily from the digestive tract by way of the blood to the kidney."[24] As regards the ubiquity of these organisms Roger says that "the colon bacillus is a very prevalent microorganism, perhaps the most widely distributed of all. It is found in the air, soil, and water, and it is constantly met with in the alimentary canal of men and animals, in the mouth, in the stomach, and particularly in the intestine. When this microbe attains virulence, it produces very various lesions."[25] As regards the acquiring of virulence referred to by Roger, Dr. Theobald Smith has this to say: "One of the most important of these groups consists of derivatives of the colon bacillus, which produce epizootics among swine, guinea-pigs, field-mice; and spermophiles, which have been found associated with disease in horses, cattle, and certain birds; with pseudotuberculosis in certain other species, and to which the *B. icteroides* of Sanarelli and perhaps some forms belong which produce disease in the human subject, and which have been variously classed as paracolon bacilli and paratyphoid bacilli. Outbreaks of meat-poisoning in European countries, characterized by gastrointestinal disturbance, are most likely due to this group of organisms, which are introduced into the body in raw meat. The typhoid bacillus is probably a more highly modified offshoot of this same stock."[26] It is evident that, however harmless the average medical man may consider the colon bacillus to be, the bacteriologists deem it far from being a harmless organism. It seems to meet the requirements of the hypothesis which is sought to be formulated in this paper, better than any other that can be found. As regards its affinity toward sugar Dr. A. W. Peckham has this to say about it: "When the members of the colon group are cultivated under circumstances favorable to the development of both the function of fermentation and that of proteolysis, fermentation invariably takes precedence and no evidence of proteolysis is manifested until after fermentation has ceased."[27] Here then is evidence as to the special favor in which this class of organisms holds sugar. So long as they can secure it they let proteid alone. Neither egg nor meat is attacked until the last of the sugar has disappeared. When inhabiting the intestine of a free user of farinaceous food they are always abundantly supplied. When the host they have chosen uses large quantities of fish, flesh, and fowl, with a minimum of bread and potatoes as soon as all of the carbohydrate is converted into sugar and absorbed into the circulation they are left to change their natures or allow their chemotactic power to direct them into the blood where sugar can always be found. Saundby rightly declares that "Insufficient attention has been paid to the possibility of diabetes having, in some cases, a microbic origin. Charron and Carnot have proved that it is possible to render a dog diabetic by injecting infective fluids (*Bacillus coli*, *B. pyocyaneus*, and streptococci) into the pancreatic duct."[28]

Here we find that the colon bacillus in conjunction with some others has actually produced diabetes. Now we naturally ask whether any form of glycosuria ever arises that is not due to one, two, or all three of these quite common denizens of the alimentary canal? Flexner tells us that the frequent occurrence of the colon bacillus in combination with the pyogenic cocci is a matter of considerable importance, and under such circumstances these microorganisms may come to have greater significance."[29] There are some symptoms of diabetes that would appear to indicate a partnership between the pyogenetic cocci and the colon bacilli. We find a union of such a character between the former and the tubercle as well as the typhoid bacilli. But whether the colon bacilli are alone responsible or the responsibility is shared with other organisms, the fact remains that the explanation of the symptoms can more satisfactorily be made with their introduction into the problem than without it. If poisonings, injuries, chillings, and the like lower the vital forces sufficiently to permit of their chemotactic power to act and to carry them into the circulation at a point from which they are likely to reach the liver and muscles, we have all the necessary conditions for a transient glycosuria. If, in a person consuming an excess of proteid food, a severe injury of any kind

lowers the vital forces, then we have the conditions for a case of severe diabetes mellitus. In total ablation of the pancreas we have a severe injury at the very part from which a raid on the liver glycogen could most easily be made. In *Chemical Abstracts,* of the American Chemical Association, appears the following statement concerning some experiments made by Prof. Pflüger of Bonn: "If the duodenum be extirpated in the neighborhood of the pancreas, and the pancreas be kept intact, diabetes is caused, which leads to death. When the mesentery between the duodenum and pancreas is ligatured, diabetes is produced. In the latter operations, the nutrition of the pancreas is not interfered with."[30] The operations were performed on frogs. It would appear from this that the sole essentials in the production of experimental diabetes are impairment of digestion within the duodenum and a lesion which lowers vital resistance sufficiently to permit of the colon bacilli following their natural tropism. It occurs when the pancreas is intact and unimpaired and it occurs when that organ is removed. In cold-blooded animals the removal of the liver at the same time as the pancreas is totally extirpated fails to produce glycosuria.[31] With the liver gone the immediate source of glycogen is removed and no center of chemotaxis is found. Add to this the fact that "Lepine and Boulud state that the blood of a dog recently rendered diabetic by extirpation of its pancreas can produce glycosuria when introduced into the tissues of other animals."[31] If artificial diabetes is unassociated with an infection this result is unexplainable. If the ablation of the pancreas interfered with duodenal nutrition and permitted a migration of microbes into the circulation then it is easy to see just why injecting the blood of the diabetic dog into another animal should infect the latter and produce a glycosuria. Another feature of this that is likely to be overlooked unless special attention is called to it, is the fact that in this injected blood would be found a selected strain of the bacteria responsible for this effect. All parasites that were least adapted to life in the circulation and least prepared to contest their ground with the phagocytes would be dead. Those left alive would be of a kind that to some degree would be capable of holding their own in the new struggle for existence that had arisen in their lives. If there is anything to the hypothesis that our facts seem to sustain, then every incursion of colon bacilli into the blood stream would lead to the production of a variety capable of holding their own among the new conditions. With the kidneys at work drawing off some of the sugar and their own negative chemotaxis carrying them away from its source we should expect their expulsion in the urine. Being facultative parasites they could easily find opportunities to live in the outside environment until chance events carried them once more into a digestive tract. As the progeny of these would hold the heritage of resistance acquired in the blood we would expect them to be more strongly attracted toward the repeating of the blood experience. Theobald Smith has asked the question: "How far does nature utilize animals as a workshop for preparing bacteria to act in a pathogenic rôle upon the human race?"[32] The non-Darwinian may have any sort of theory or no theory as regards how the microbes of typhoid fever came to be so pathogenic, but the Darwinian, who consistently follows the logic of his faith, must confess that he is constrained by his belief in an orderly nature toward placing them among the list of derivatives of the colon bacilli. In just such a manner as we here indicate the typhoid bacillus was probably selected. Its virulence was part of its favorable variation. Favorable, of course, for it and not for its host. It survived by being expelled through the kidneys. It was the surviving ones that perpetuated the strain. Every passage through a human being killed off more and more of the least adapted to life in the circulation and saved such as had increased adaptations. This round of selective action is still going on, and the typhoid organism is becoming better and better fitted for the fight against our bacteriolysins and our phagocytes. But what has happened to it is probably now happening to the sugar consuming members of the colon group. Diabetics are straining off and killing those unfit to cope with their resisting forces while expelling the adapted, by way of the urine, to renew the fight upon others on a coming day. Those that live are the ones with the strongest tendency to invade the circulation, to attack the liver and the muscles at the point where dextrose is thrown off, and to escape again by way of the kidneys as soon as they have completed a cycle of existence that may be becoming established as a permanent character of their being. That the muscles as well as the liver are points of special attack we have inferred *a priori,* but this point has also been found to agree with fact. Von Noorden says: "There seems to be something (in diabetes) which destroys the protoplasm of the muscles and energetically opposes its being built up afresh, in spite of an abundant supply of protein and calories in the food."[33] We might here add, also in spite of the power to utilize both protein and calories. The former is generally conceded but the latter doubted or denied. Bunge tells us that "Kulz has shown that, even in severe cases of diabetes, there is a smaller amount of sugar in the urine than would correspond to the carbohydrates of the food."[34] Wells assures us that there is plenty of evidence of the fact that sugar is oxidized, within the body of those suffering from diabetes, as far, at least, as glycuronic acid.[35] Von Noorden supplements this evidence by informing us that "glycuronic acid given by the mouth becomes oxidized, even in severe diabetes."[36] When we add to this the statement that "a patient who is excreting sugar on a carbohydrate-free diet may climb a mountain or do other severe work which requires normally the burning up of 80 to 100 grams of carbohydrate, and yet continue to excrete nearly or quite as much sugar as he did before,"[37] we are forced to believe that there is no failure of the physiological functions. The trouble is due to some exogenous derived irritant that is stimulating the body, and the excess of activity is made in order to get rid of it. What could possibly attack and weaken the muscle cells except microbes? It is evidently not lack of food, or they could not keep up work under the conditions here referred to with such a drain of sugar accompanying this work. Bunge says that "as the bulk of the sugar is normally decomposed in the muscles, it seems probable that diabetes may fundamentally be due to a disturbance of the chemical processes of muscle."[38] Very likely that is just what it is, but the disturbance is not one in which a physiological process has brought about a pathological condition. The machinery is disturbed by the presence of something not of its own making. The liver and the muscles seem as if they might be the seat of the irritant. They are wasting their accumulations of stored glycogen with as much apparent determination as when hard work is being done. But while the liver and the muscles seem to bear the brunt of the attack there is very little of the body that escapes some de-

gree of damage. Just as typhoid microbes produce lesions in every conceivable part of the body, so diabetes can show its corresponding set of lesions that bear an exceedingly close analogy to the former. The form and tests for the *Bacillus typhosus* seem no nearer like those for *Bacillus coli* than do the terminal lesions of typhoid fever seem to resemble those of diabetes. The analogy when followed through is very striking, but no more striking than it ought to be if the two diseases are of kindred development. Both produce arthritic troubles or are accompanied by such troubles. Both are associated with arteriosclerosis. Both associate themselves with streptococci. Both tend to produce or encourage the production of boils and erysipelas of the skin. In both the bones are attacked and injured. In both the brain and spinal cord are made liable to inflammations. In both the kidneys are endangered. In both there is cardiac enfeeblement. Both produce conditions that lead toward gangrene or fatty degenerations. Both have mild and both severe forms. To read Dr. Keen's "Surgical Complications and Sequels of Typhoid Fever" and to compare what he there tells us with the record of the complications of diabetes, as given by von Noorden, Pavy, and other writers upon this subject, is to discover a good deal of sameness that is rather interesting. Whether or not they are both contagious is not a settled matter. Naturally there would be a tendency among pathologists to minimize the force of all evidence bearing in this direction, but future experiments will settle it. As soon as the pre-Darwinian bias is fully overcome and the hypothesis of infection gets fair consideration we may find that there has actually developed, through natural selection, a specific strain of colon bacilli responsible for the cases of permanent and severe glycosuria. It cannot yet be very pronounced, or it seems as if it ought to have been detected. Osler informs us that "Schmidt first drew attention to the possibility of diabetes being contagious. Out of his series of 2,320 cases he believed that twenty-six instances were the result of contagion. In the majority of the cases the wife contracted the disease later than the husband."[39] Saundby informs us that Dreyfus, Gaucher, Labbe, Letulle, Schmitz, and Rendu have all thought that diabetes might be contagious.[40] Drs. Fitz and Joslin have reported a case of a servant in Massachusetts who was attacked by diabetes after waiting on a mistress who suffered from the disease.[41] Oppler and Kulz report 900 cases of diabetes with nine married couples among them. They collected the histories of 4,389 cases from other physicians and among these were forty-seven married couples.[42] Senator examined 770 cases and among them found nine couples in which both husband and wife were diabetics.[43] Boisumean reports six couples. In these nine and in a large number of other cases of married couples having this disease that he studied, he had found several in which, following the remarriage of the diabetic widow or widower, the new spouse was attacked.[44] If these are all mere coincidences, then it would seem as if the law of probabilities must be suspended for their sakes. It is evident that the proportions to the totals are too great to obey this law. The subject is one that needs careful experimental and statistical attention. The few facts obtainable point strongly toward contagion.

There is one more important symptom of diabetes that is not often referred to but that deserves careful attention. It is that of the peculiar distribution of glycogen in the body during the disease. Of it von Noorden says: "We lack the biological explanation as to why certain cells retain this function, and even exert it more actively than before, while the proper organs for the storage of glycogen have lost it."[45] Viewed as a perversion of function instead of as a beneficent arrangement of our physiological forces for the preservation of the body it is mysterious and meaningless. Viewed as a survival in past struggles for existence the mystery disappears, and it stands forth as a beautiful adaptation of nature for our preservation in the face of threatening danger. Howell informs us that glycogen occurs "in all the tissues of the embryo during the period of most active growth."[46] Tigerstadt states that glycogen "is a constituent of embryonic tissues especially, and all others in which an active cell formation is taking place."[47] Wherever unusually heavy work has to be done, cell growth has to be looked after, and protection in grave danger is needed, there we find glycogen. It constitutes the most quickly available of the accumulated stores of capital for the body. Lusk tells us that "an active organ like the heart maintains its normal glycogen content even after 15 days of starvation."[48] Other organs can be permitted to lose it early, and with safety to the body, but not so the heart. It must be supplied with this source of power till the very last. When a nation is attacked by a foreign foe its capital must be wasted in fighting the foe; but however much the waste may be at the seat of war there must be an accumulation of capital or munitions of war at such points in the country as such capital may be needed to save the life of the nation. The heart and other vital centers must be protracted whether less vital ones are or not. Every animal in which no such protection occurs must, in time, be weeded out. Flutterer informs us that in diabetes masses of glycogen "resembling an embolic process" are found in the cerebral capillaries.[49] Saundby tells us that "glycogen is present in large quantities in the medulla oblongata and the sheaths of the vessels of the cortex" in all cases of diabetes.[50] Wells states that "it is in diabetes, however, that the most marked accumulations of glycogen are found, the granules frequently fusing in the (leucocyte) cells into droplets larger than the nucleus; when dissolved out in ordinary microscopic preparations, the clear round space left is exactly like the space left by a fat-droplet, except that the margins show a tendency to take the basic stain for some unknown reason. In even the most extreme cases, however, the nucleus is well preserved. Glycogen is found particularly in the epithelium of Henle's tubules, in heart muscle, and in the leucocytes."[51] The most reasonable explanation that can be advanced for such a distribution is that these organs all need it as a protection against the attacks of a sugar-using parasite. The renal cells require it because the route of expulsion is by the way of the kidneys. They are thus laid open to a dangerous attack of a pyogenic organism. By this glycogen being present they can defend their protoplasm by supplying sugar and they can also use it as a source of strength. The leucocytes require it because of their phagocytic function. Without it they would be subject to wholesale destruction through the direct attack upon their protoplasm. The cerebrum requires it for reasons of a similar kind that must be obvious to the reader. It is interesting, in this connection, to know that the attack of streptococci upon the system is met by the phagocytes in a precisely similar manner although it is less pronounced. Is the failure of its being so pronounced due to the fact that streptococci are less sugar loving than the

colon organisms? Locke declares that "no septic condition of any severity can be present without a positive reaction" that shows the accumulation within the leucocytes of glycogen.[51]

In our first paper we referred to the new potato cure for diabetes, but did not mention the fact that oatmeal had likewise been used with the same object in view. The reader is probably prepared by this time to explain, on the basis of the hypothesis here proposed, just how the potato and the oatmeal are likely to prove beneficial. They are slowly hydrolyzed into sugar and thus keep up a supply of that substance within the intestinal canal. While this can have no effect upon the parasites already in the blood, it can lessen the supply of new recruits there and, as phagocytosis and kidney activity may be lessening the numbers present in the circulation, this may be the explanation of the change. Dr. James B. Herrick of Chicago, in a recent communication, in reference to the oatmeal cure has this to say: "Explanations as to how this is brought about are far from satisfactory. The carbohydrate that may be compared to a poison for some mild diabetics has a helpful effect on the severer forms, in which forms it would seem to have its harmful influence counteracted by some substance, perhaps the acid bodies, and these substances in turn, also toxic, have their baneful effects neutralized by the carbohydrate, *i.e.* they seem mutually antagonistic or antidotal." The same author declares regarding his own experience with the milder forms that "so far, however, I have seen no evil result from the use of this diet, even in the milder cases that von Noorden classes as unsuitable for this plan of treatment."[52] Here again we meet mystery on mystery by the attempt at explaining diabetes as due to a normal function run mad. Take it as a plain case of infection and all mystery disappears. We need no multiplication of theories on theories, like the piling of Pelion on Ossa, when this simple, common sense hypothesis of infection is provisionally adopted. We find no poisons needed to neutralize poisons, and are not compelled to acknowledge that our own explanations are far from satisfactory. We may need antiseptics to help the carbohydrate diet in lowering the chemotaxis of the invading organisms. Dr. W. Tibbals, not long ago reported that he had found that the use of creosote by his patients enabled them to consume carbohydrates with a lessened outpour of sugar in the urine. He also found that iodoform, salicylic acid, aspirin, and benzosol had a similar effect.[53] Dr. Herrick may not be able to see that the antiseptics act in a similar manner to his oatmeal and that both lines of treatment are equally sound. Neither are cures. Both are palliatives because both check the natural tropism of a parasite. No hypothesis hitherto advanced has ever been able to explain, in an apparently satisfactory manner, so many of the symptoms of diabetes. No other corresponds so well with the known distribution of the disease. Of course it is impossible to be scientifically sure that it is right until experimentally demonstrated. It may be sneeringly referred to as "mere speculation" or "simply guesswork," but it is the kind of speculation and kind of guesswork that causes our courts to commit murderers to the gallows. It is no more —no less—than circumstantial evidence. This is the evidence of inductive science. A murderer or a burglar when brought before our courts is tested by this kind of evidence as regards their guilt or innocence. It differs very materially from mere suspicion, but it is by no means perfect. Until the murderer has confessed or proven an alibi there is room for honest doubt. Those least capable of weighing the evidence will have the greatest cause to doubt where it has been carefully put together. In the case of the parasite here charged with being the cause of diabetes it remains for expert bacteriologists to show cause for a nonconviction by the medical jury before whom these facts have been placed. Can they prove an alibi or will they bring the clinching evidence of its having been caught in the very act? Time alone can tell.

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SYMPTOMATOLOGY OF RECURRENT AND ABDUCTOR PARALYSIS OF THE LARYNX.*

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The division of this most interesting subject, which has been allotted to me, would at first sight seem a less difficult task than that of the gentlemen who have just read their admirable papers; but when it is appreciated that several varieties of either spasm or paralysis of the vocal bands may coexist, the tabulating of an exact classification of symptoms is not an easy one. It is desirable to select the commonest forms of paralysis of the laryngeal muscles, and give their usual appearances and symptoms rather than to complicate the description by stating the symptomatology of a combination of conditions. A discouraging amount of literature has been written upon the subject of paralysis of the muscles of the larynx, discouraging because we have often found it confusing; and it has been a relief to write, for the most part, from our own observations.

Let us, therefore, endeavor to portray a picture of the clinical phenomena which are present in paralysis of the several muscles and groups of muscles of the larynx. It seems desirable to present the subject of symptomatology under two grand heads or divisions, namely, first, the symptoms, laryngeal and general, of the several temporary disturbances in the efficiency of the laryngeal muscles, disturbances not caused by grave or permanent pathological conditions of the nerve centers, but by injuries inflicted either upon the peripheral nerve filaments or upon the muscular tissue itself; the so-called "myopathic" disturbances, occurring in the various forms of catarrhal laryngitis; the acute and the chronic, either of the moist or dry variety, and the "traumatic" type of laryngitis, a name properly used in describing the crippled vocal conditions of singers, and professional people generally. We suggest this as the first division of our subject, and since it has not been asked of us to describe the impairment of efficiency of the anterior muscle, which is supplied by the superior laryngeal nerve, we must first speak of the laryngeal image and symptoms which are exhibited in paralysis of the internal and tranverse muscles. I should like to be permitted to use the term "transverse" for the arytenoideus muscle; "internal" for the thyro-arytenoideus; "lateral" for the large adductor, and "posterior" for the solitary abductor.

The second division of the subject deals, first, with the symptomatology of paralysis of the large adductor, second, with that of the abductor of the vocal cords and, third, with that of total paralysis of the recurrent nerve.

We suggest that it will simplify matters if we keep this division widely apart in our minds, because in the first or "myopathic" class, the laryngeal image of disturbance is constantly changing, and may present abnormal laryngoscopic appearances for but a short time, because the tone of the muscles is apt to be rapidly restored by rest and intelligent remedies. It is of interest to radically separate the fatigued appearances of the internal and transverse muscles from the widely different exhibition presented by a permanently disabled lateral abductor, caused by lesion of nerve trunks; a paralysis in the full sense of the term, a condition usually not to be improved, because the lesion is permanent and often progressive.

In our first division, paralysis of the internal muscle is by far the most common. We can say that it is nearly always one of the manifestations of a severe grade of laryngitis. The college boy attending a single game of football, can so abuse his vocal apparatus, as to become aphonic the following day, and his vocal bands present the characteristic elliptic opening, extending from the vocal process to the anterior commissure. The picture is familiar to us all. The degree of hoarseness or loss of voice depends upon the diameter of the ellipse, as well as upon the accompanying general inflammatory conditions. The history of the case is so simple as to make the diagnosis itself. The disturbance in these acute cases is nearly always bilateral. If such injury as shouting and screaming is inflicted upon a perfectly healthy larynx, the vocal bands of the aphonic patient will next day present the elliptical opening, and the margins of the bands will be markedly concave, but there will not necessarily be any accompaniment of congestion and swelling. In some cases the wider separation of the vocal bands, at attempts of phonation, would indicate that the lateral adductors had also been injured by the unusual strain. When such injury as we have described is imposed upon a larynx which has been the seat of a chronic catarrhal condition, especially of the dry variety, congestion and, perhaps, thickening of the bands will be associated with the concaved margins of the vocal bands.

Again, we sometimes see cases where in addition to the elliptical concavity symptomatic of paresis of the internal tensors, we find the bands very strongly abducted; bands not in the cadaveric position of recurrent paralysis, but resembling the picture, which theoretically should indicate a combination of internal and lateral paralysis. (Fig. 1.) The patient in these cases is entirely without voice. I have seen vocal cords completely abducted to the sides of the larynx, and concave throughout, in cases of chronic laryngeal catarrh, associated with a far-advanced atrophic condition of the nose, pharynx, and larynx. I recall no such cases in private practice; they have been in dispensary patients, most commonly in women, and, strange to say, in fat women, who have usually been cooks. I recall two cases, and in both there was a severe dry catarrh of the larynx and trachea. The lesion in these cases I have always supposed to be peripheral, due to inflammation of nerve terminations. Both of these cases made a fair recovery.

We have seen unilateral paralysis of the internal muscle, as evidenced by a moderate concavity of one vocal band, in chronic laryngitis where pathological injury was greater on one side than the other. The left cord or its nerve or muscular supply is undoubtedly the weaker of the two. It is not unusual to see concavity of that band with some degree of failure of adduction, associated with such singers' injuries as congestion, general thickening, and perhaps a localized nodule. (Fig. 2.) This impairment of muscular tone is not so easily repaired as in the acute cases, where both internal muscles are temporarily enfeebled, because continued abuse has produced a chronic impairment of muscular power.

The symptoms of all disturbances of the internal muscle, whether unilateral or bilateral, aside from the well-known laryngeal image, are those of some degree of vocal disturbance, from simple hoarseness, to entire loss of voice, depending upon the degree of separation of the cords during phonation. Even if the power of the internal muscles should remain

*Read before the American Laryngological Association at the thirtieth annual session, held in Montreal, May, 1908.

permanently impaired, the compensatory power of the other adductors would pretty largely approximate the cords sufficiently for the ordinary speaking voice; but as some of the fibers of the internal muscle are attached to the edge of the vocal band, and as they very nicely regulate the tension of the cord,

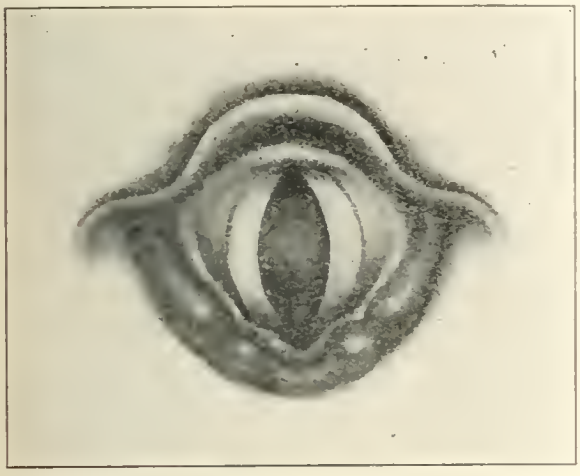

Fig. 1.—Combination of bilateral internal and lateral paralysis, during phonation.

frequent disturbances of this kind will do great and lasting injury to the singing voice. The vocal bands are the tendons of the internal muscles, and when these muscles are paralyzed the bands become more narrow and humped up. The singing voice is frequently impaired when the laryngeal mirror shows no apparent loss of power of any of the laryngeal muscles, and in such cases we are led to conclude that the fault is due to weakness of that portion of the internal muscle which is attached to the edge of the cords. Paralysis of the internal muscles is sometimes called "paralysis of the vocal cords themselves," in contradistinction to all other forms of paralysis.

Paralysis of the short transverse or arytenoideus muscle is much less frequently seen than that of the internal; rarely, I believe, in ordinary catarrhal laryngitis, although the posterior triangular aperture may, frequently, to a slight degree, accompany impairment of the "internal" muscle. Where the triangle is large and charateristic, it has been my experience to find it in cases of local disease of or near the arytenoid cartilages, such as tubercular infiltration of the posterior commissure. The diagnosis of this condition, if it exists alone, is very easy, and the degree of impairment of voice is in proportion to its degree and to other disturbances of the larynx. The speaking voice is almost normal, but in singing there is phonatory leakage, and the voice becomes quickly fatigued. It is interesting in cases of paralysis of the transverse muscle, to notice, with the laryngeal mirror, the jerky motions of the arytenoid cartilages during phonation. I suppose this is because this muscle often receives its nerve supply from two sources. I have not frequently seen this triangular paralysis associated with the concavity of the cords which indicates inaction of the internal muscle, and it has been our experience that paralysis of the transverse muscle is much more frequently associated with that of the anterior or thyrocricoid. It is not necessary to dwell longer upon this division of our subject, because the laryngeal picture is easy to comprehend.

It is much more difficult to give an intelligent symptomatology of the second division of our subject, which in reality is the entire topic of our discussion to-day. "The symptoms of recurrent and abductor paralysis of the larynx," is the text printed on our programs.

It seems to us unfortunate that the word "recurrent" has been employed in describing the nerve supply of the larynx. Why should not the names superior and inferior laryngeal nerves be sufficient? This nomenclature would be less confusing.

It will simplify our position if we state that there are practically but two forms of laryngeal paralysis, exclusive of those which we have described in the early part of our paper, and they are: first, "abductor paralysis;" and second, "recurrent laryngeal paralysis;" and we should perhaps add to these, those cases of adductor spasm which simulate abductor paralysis. There may possibly be a few cases of solitary adductor paralysis on record, but such a high authority as Semon, says not. Such a condition would show vocal bands abducted to the sides of the larynx, would produce complete aphonia, and a hoarse low-pitched noise when the patient coughed or laughed.

Theoretically, there should be a time in cases of irritation of the recurrent nerve, when a laryngeal picture of spasm of the powerful adductors is in evidence. When we consider that there are three and even four strong adductors of the bands to the one solitary abductor, we may reasonably conclude that irritation of nerve centers or trunks, insufficient to cause entire loss of muscular power, would naturally produce approximation, rather than separation of the bands. This picture would simulate that of paralysis of the abductors. Let us for a moment consider the points of symptomatology in spasm of the adductors and paralysis of the abducting power of the bands. This is fitting, because when irritative spasm has been succeeded by true paralysis, it is generally conceded that the abductor fibers are the first to give way. The anatomical reason for this has already been ably stated in the papers preceding me. We believe it can be truthfully said, then, that, so far as the laryngeal image is concerned, there are three stages in the course of nerve and muscular impairment. First, adductor spasm; second, abductor paralysis; and third, total inaction of all the muscles of the larynx supplied by the inferior laryngeal nerve, that is recurrent paralysis, or laryngo hemiplegia. The condition of

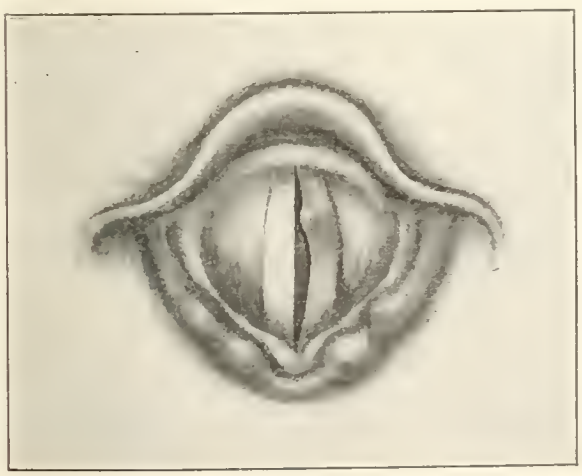

Fig. 2.—Paralysis of left internal, with congestion and nodule of cord.

spasm of any set of muscles is not a permanent one, as is that of paralysis, but occurs at periods of irregular intervals. It is possible that some of the cases of so-called laryngeal chorea associated with general chorea, vertigo, and stridor are really cases of adductor spasm, which eventuate later in true paralysis. It does not belong to this paper to speak

of functional hysterical spasm which may, by extreme and prolonged adduction, produce unconsciousness for a brief period, until relaxation ensues. We read, too, of rare cases where patients make most unusual noises associated with forcible closure of the glottis.

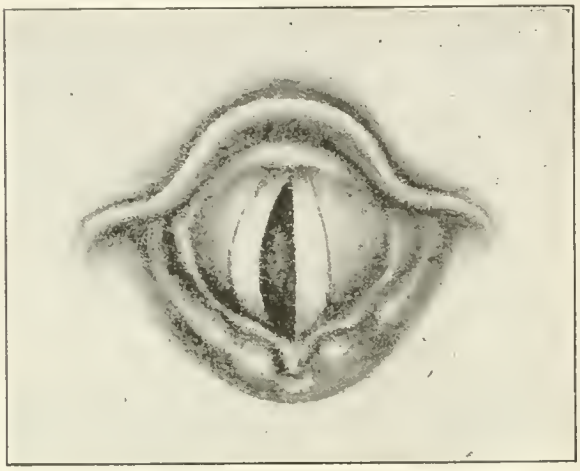

Fig. 3.—Unilateral paralysis of left posterior muscle, during respiration

It is difficult to give a precise picture of the differential laryngeal images seen in adductor spasm and in abductor paralysis. Theoretically the vocal bands should be much more taut in adductor spasm. We use the term adductor spasm rather than laryngeal spasm, since irritation of the nerves, which should produce both adductor and abductor spasm, only accentuates the action of the adductors, owing to their greater number and strength. It is well to bear in mind that adductor spasm of the vocal cords may produce what is called laryngeal crisis, and give such symptoms as the forceful cough seen in whooping cough. Irregular and intermittent adduction of the bands will produce irregular inspiratory dyspnea, and many different pitches in stridulous breathing, but these symptoms are all temporary, in contradistinction to those of a permanent abductor paralysis.

If the spasm is severe it is said that the adduction may be so forcible as to produce overlapping of the vocal bands, and pain in the larynx like that of cramp. If spasm of the adductors continued for any length of time, stenosis would be so complete as to destroy life.

Theoretically, what has been said regarding the symptoms of spasm of adduction may be of importance, but clinically we know little of such cases.

If due to functional causes, the symptoms soon disappear; if caused by actual nerve lesion, the spasm is succeeded by abductor and recurrent paralysis. A symptom which is sometimes of value as indicating central involvement of the inhibitory center is a persistently rapid pulse—and this with normal heart and temperature.

We must next call your attention to the symptoms of abductor or "posticus" paralysis; that of the great inspiratory muscles, the glottic openers, which yield to injury sooner than the opposing lateral muscle. It is perhaps well to remember a point which we fear we have repeated many times, and that is that a lesion which eventually produces recurrent paralysis may first cause paralysis of abduction alone. Since central lesions are more rare than those affecting the nerve trunks, unilateral paralysis of the abductor and its consequent symptoms are more common than those of bilateral paralysis. Not much time is needed to describe the laryngeal picture of unilateral paralysis of the abductor, nor its objective symptoms. The affected cord is seen in the median line, even in deep inspiration; phonation should not be markedly interfered with, and in unilateral cases the normal abduction of the other band should give ample breathing space.

Unilateral abductor paralysis rarely gives symptoms to attract the attention of the patient or of the physician,—unless the abductor paralysis has been preceded by spasm and abnormal phonatory symptoms. The affected vocal band remains in the median line during inspiration, because the three adductors are, at the commencement of the nerve injury, in their full integrity. (Fig. 3.) Breathing may be slightly affected during great exertion. The voice is so little affected that if our diagnosis was correct, we recall the case of a singer who retained a church position, never knowing that he had one vocal band which remained immovable in the median line. While the voice may be at times normal, it is apt to be uncertain, and break in pitch, because one cord may lie at a lower level than its fellow. In sopranos and tenors singing would be almost impossible. The voice would become more and more uncertain, because the tendency of an abductor paralysis is towards a recurrent disability. It is quite possible that many cases of unilateral paralysis escape the notice of the laryngologist, because they often give no marked symptoms until a laryngo hemiplegia is present. It is for that reason that most observers believe that unilateral recurrent paralysis is more frequent than unilateral posticus paralysis. Much more has been written about the symptoms of bilateral abductor paralysis, because they are so much more noticeable and dangerous than in the unilateral lesion. Semon says that in bilateral posticus paralysis, the position of the bands may pass through two stages. First, they are in the cadaveric position of recurrent paralysis, but later, if the adductors recover their tone, the paralyzed cord openers, which remain incompetent, leave the bands in the median line. When we remember that the abductor muscle is solitary, and opposed by several, and by more powerful antagonistic muscles, it is easily understood why the bands remain immovable in the median line. The glottis presents the appearance

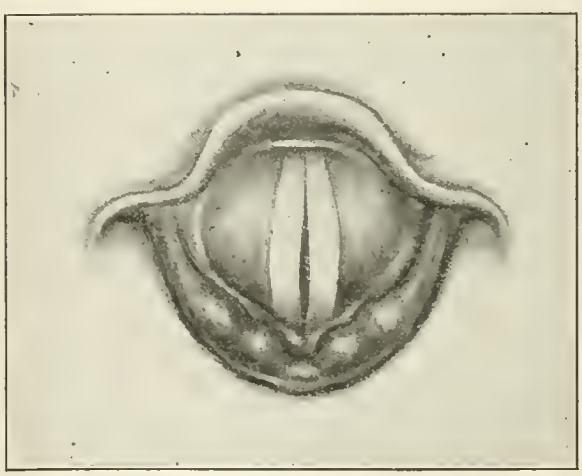

Fig. 4.—Bilateral paralysis of posterior muscles, during respiration.

of an anteroposterior slit between the bands. The cords are blown slightly apart during expiration; and if the adduction is extreme, the inspiration may be prolonged—high-pitched and stridulous. (Fig. 4.) The air current may actually turn the edges of the bands downward as it passes through. In posticus

paralysis, dyspnea comes on by degrees, and may steadily increase, and is aggravated by physical exertion and mental excitement. Cases are recorded where the onset is so sudden that the patient is awakened in the night struggling for breath. In children in dyspnea is much more distressing, be-

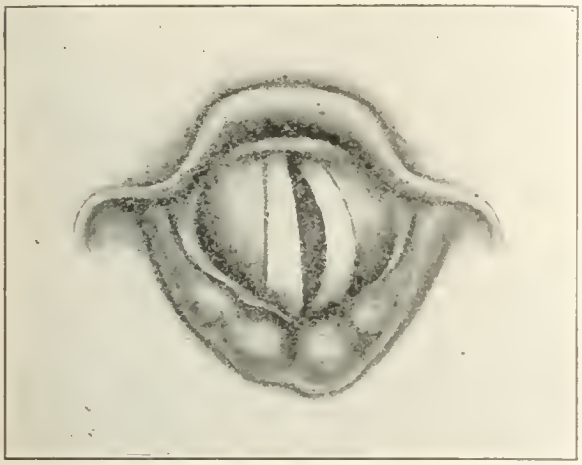

Fig 5.—Complete left recurrent paralysis, during phonation.

cause the larynx is smaller, and breathing is rendered more difficult by crying and struggling. In children there may be noticed a disproportion in length of time between the acts of inspiration and expiration. Inspiration requires much more time than usual, because of the glottic obstruction. Expiration relatively requires less time. The voice may be nearly normal, but is apt to be breathy and uncertain. Confusion in the diagnosis of paralysis of any one group of laryngeal muscles of the larynx, is rendered easy by the spasmodic contraction of any opposing group which are at the same time responding to nerve irritation. Some writers speak of the offensive breath in cases of abductor paralysis, which they believe to be due to the decomposition of laryngeal secretions, by reason of improper drainage and ventilation.

It is remarkable through how small an aperture a quiet, calm patient may breathe without showing apparent dyspnea. We have sen cases in which the inspiratory current actually turned the vocal bands inward, as it sucked downwards between the vocal cords. This in the case of bilateral abductor paralysis. We have seen recently a case of tubercular swelling of the larynx, in which hardly any breathing space could be seen, and the patient complained not at all of respiratory difficulty, but this is a digression.

The symptoms of a solitary adductor or "lateral" paralysis, as it may well be called, can theoretically be easily stated. This must necessarily be a very rare condition, because the lateral muscle possesses so much vitality that, as we have seen, the posterior is the first to succumb, and a more extensive lesion paralyzes all the muscles supplied by the inferior nerve, and a laryngohemiplegia, not a *lateral* paralysis is the result. But if the fibers of the lateral are alone affected, the vocal band, if the lesion is unilateral, or both bands, if it is bilateral, would be seen to be in about the cadaveric position, during attempts at phonation, for the internal and transverse muscles would probably be competent to draw the bands to this position. In a state of inspiratory and phonatory rest, when the posterior muscle was not in action, the cords would be in the cadaveric position. The essential diagnostic point of time would be during deep and forced inspiration, when the unopposed abductors would draw the bands outwards to the extreme sides of the larynx. If the lesion is one-sided, the affected cord makes a more outward journey than its fellow. But during rest and phonation, the three other adductors are competent to keep the disabled band as near the median line as the cadaveric position, which is the position of a recurrent paralysis. The diagnosis, therefore, must be made during forced inspiration. Theoretically, the margins of the bands would assume a straighter line in lateral paralysis than in recurrent, because the smaller tensors would be still exerting their power, but the voice would be weaker—there would be larger phonatory leakage, because on account of the larger separation of the bands the normal cord would not be able to get so close to its fellow as it does in a one-sided recurrent paralysis; sometimes even coughing is impossible, and the voice is completely lost. The bilateral laryngeal image of a lateral paralysis is almost identical, therefore, with that of a bilateral recurrent paralysis, except at the period of forced inspiration, when there is wider abduction in the former than in the latter. The speaking voice, in all varities of paralysis, commonly improves, because of the marvelous ability of the uninjured muscles to render compensatory aid to the disabled ones. If there was time, we should like to cite examples of such compensatory action, but we have already presented to this association a paper on the subject.

Lastly we must speak of the symptomatology of recurrent paralysis, that is a total paralysis of all the muscles supplied by the inferior laryngeal nerve. This is the form most commonly observed by the laryngologist, because, as has been frequently said, if the other forms, excepting bilateral posterior paralysis precede it, they usually furnish so little evidence of their existence that the nerve lesion has produced a recurrent paralysis by the time the patient consults a physician. The band or bands are in the cadaveric position, and respiration is little affected during rest. (Fig. 5.) In one-sided paralysis, the speaking voice steadily improves, as the sound vocal cord is able to go a longer distance, but the voice at first is lower pitched, uncertain, becomes tired easily, and the nervous patient dreads to use his voice, because of its liability to make ludicrous

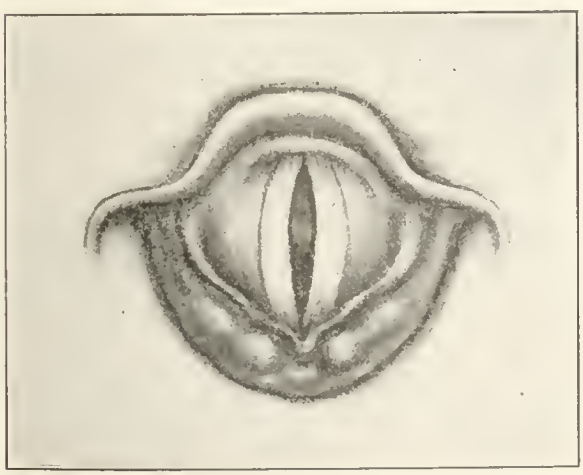

Fig. 6.—Bilateral recurrent paralysis, during phonation.

breaks in pitch. In bilateral recurrent paralysis, there can be no marked dyspnea, but the voice is lost or very breathy and uncertain, and because of nonapproximation of the false cords, the pitch in coughing is lowered, and instead of terminating with a short explosion, it is prolonged, sounding

like a hoarse fog horn, until the phonatory leakage empties the lungs. (Fig. 6.) The sound arytenoid is sometimes pulled in front of the disabled one, and pushes it backwards, and the weaker band sometimes lies at a lower level than the opposite one. Since aneurysm or neoplasms in the neck and upper chest are most frequently the cause of unilateral recurrent paralysis, they themselves sometimes furnish symptoms, which help materially to determine not only whether the laryngeal condition is one of paralysis rather than one of ankylosis, but such symptoms may also differentiate between paralysis and spasm. Watson Williams says a peculiar brassy cough may be one of the earliest symptoms of thoracic aneurysm.

I believe it is not in my task to speak of the differential diagnosis between the forms of paralysis and the immobility of a band by reason of an ankylosed cricoarytenoid joint. As a rule this joint, when affected, shows inflammatory signs, but authors speak of a degenerative change here, which does not affect the gross appearance of these cartilages, but a careful history of the case should make its character plain. Most authors note the fact that in unilateral ankylosis the sound arytenoid is only drawn up to and not in front of the disabled one, and in ankylosis, too, the band is not in any known paralytic position, neither in that of abduction, adduction, nor in the cadaveric position. Theoretically in nonparalytic conditions, the bands are tense, while in paralysis they are limp.

In closing I would say that it is difficult to tabulate any statement of symptoms of the motor neuroses of the larynx, which renders the diagnosis positive without a careful examination with the laryngeal mirror. So far as the voice is affected, there is present every degree of impairment, from slight hoarseness to complete aphonia; a lesion which shows no abnormality in quiet conversation, would be apparent if the patient endeavored to use the voice in a forcible way, or tried to sing. The quality of the voice may even change from day to day, because the compensatory aid given by the unaffected muscles constantly varies in efficiency. In unilateral conditions, it may be stated, as a rule, that the voice shows a gradual and permanent improvement if the vocal cord muscles proper, the internal tensors on the affected side, retain their integrity; but if loss of power here allows the margin of the band to remain concave, there is little hope of vocal improvement. This is an important point in considering the prognosis of voice behavior. A careful study of the conversational pitch from day to day would show whether the impaired muscles were improving in tone. One unaffected lateral muscle can make approximation sufficiently good for ordinary conversation, provided the margin of the affected band is straight and not concave. We do not see so many concave bands, even in unilateral recurrent paralysis, because, I suppose, the anterior muscle is, as a rule, not involved, and so the margin of the band is kept fairly straight and taut. As to dyspnea, there are many degrees of this. It has already been said that if the loss of power develops slowly, and consequently if the respiratory space is but gradually narrowed, the patient accommodates himself, in a remarkable manner, to a larynx almost entirely closed, without showing visible distress. Other symptoms such as vocal fatigue, laryngeal cramps and cough, depend much upon the individual case and upon conditions apart from the neurosis. There are many cases where it will require numerous and most painstaking examinations to determine what muscle or group of muscles are at fault, because perhaps the state of partial paralysis will be masked by a condition of jerky spasm. A weak solution of cocaine sometimes aids, by quieting spasm, and by emphasizing the image of real loss of power. The symptoms of no two cases seem to be exactly similar, and it is most interesting to carefully study the behavior of each.

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MECHANICAL VIBRATION IN THE TREATMENT OF CONSTIPATION AND PELVIC CONDITIONS.*

By MARY L. H. ARNOLD SNOW, M.D.,

NEW YORK.

The progress of the last half century has not only marked an era of advancement in the improvement of therapeutic measures, unparalleled in the history of medical science, but has brought to physical therapeutics long delayed recognition, placing in the hands of the profession a full quiver of practical agents with which to combat disease with greater success and add to the glory of medical science.

Among the many useful measures, mechanical vibration occupies an important place; ancient so far as its governing powers are concerned, but modern in its extensive therapeutic application. Its wide range of usefulness and the low market price of an equipment make it one of the first physical measures to be introduced into the office of the general practitioner. In the treatment of constipation and pelvic conditions alone, it is deserving of recognition.

Mechanical vibration is of great assistance in diagnosis. It often elicits facts that are not revealed by percussion or other methods of investigation. Especially is this true of conditions of the liver, which is frequently found to be in a hypersensitive state; in this case marked tenderness is also often found by vibration below the angle of the right scapula and over the gall-bladder, as well as pain in the dorsal region to the right of the spine, which is readily elicited by means of interrupted spinal vibration, employing a ball vibratode. Vibration with the disk vibratode may also discover marked tenderness over the bowels, especially in the cases of mucous colitis, or other congested viscera may be found markedly sensitive.

For many years the treatment of constipation has been chiefly by drugs which gradually bring about an atonic condition of the intestines, demanding a stimulant to induce action that in time aggravates instead of relieving the condition. Physical measures, on the other hand, particularly the static wave current and mechanical vibration, tone up the nervous, muscular, and secretory functions, and, in connection with the regulation of the liver and digestive functions, soon effect a cure. Vibration has mechanical, chemical, physical, metabolic, and reflex effects. It is an agent whose effects depend much upon the method of application and technique in general. It induces the removal of extravasations, lymph, exudations, and transudations, prevents the formation of adhesions, breaks up slight adhesions, and stimulates the circulatory and lymphatic systems. It improves respiration, stimulates excretion and secretion, relaxes contracted parts, and restores tone to relaxed parts. The following principles should govern its application:

1. The vibration should possess the necessary rapidity and length of stroke demanded to meet

*Read at the II. Congrès International de Physiotherapie, at Rome, Italy, October, 1907.

a given condition, and exerted pressure must be such as to be painless.

2. The rapidity, stroke, pressure, or nonpressure should be governed by the indications and the patient's reactionary resistance.

3. The interruptions when using interrupted vibration should be limited in number to avoid exhaustion in nerve power.

4. The intervals of rest should be three, or even four, times as long as the period of impulse contact to assist in perpetuity and fixedness of the effect.

5. The periods of contact and rest should be rhythmical in the administration of interrupted vibration.

6. Vibratory effects should be applied to aid or promote functional activity of a part without altering the integrity or unfavorably affecting the normal activity of the part.

Mechanical vibration in conjunction with dietary measures, and in some instances exercises directed to the compression of the bowels and liver, is the treatment *par excellence* for constipation. When carefully administered, it is absolutely painless, harmless, and productive of the most gratifying results, and consequently, like many other physical measures, is worthy of a trial by the general practitioner. The quantity, kind, and quality of the food ingested must be regulated, in order that the functions may not be overtaxed and that the food may at the same time be nutritious and not too concentrated.

For infants, in whom constipation is easily cured by the use of mechanical vibration, the mother's milk or the artificial food, which may contain too much fat, should be rectified. Young children are apt to consume too much starchy food, or live on a too exclusive diet. With children vibratory treatment, spinal and abdominal, as well as of the liver and spleen, gives most happy results, and if properly applied is generally agreeable to them. The diet used in general, bulk and nutrition considered, should include the following: Stewed fruits, fresh fruits except bananas and pineapples, rye or coarse bread with much butter, or shredded wheat biscuits, triscuits, or Graham bread, cracked wheat or oatmeal thoroughly cooked, broiled chops or soft-boiled eggs, roasted or broiled beef, lamb, or mutton, or baked or broiled fish, or roasted chicken; spinach, celery, lettuce, beets, fresh string beans, and a baked potato—sweet or Irish. Hot water is to be preferred to tea, coffee, or milk. If the patient is thin, anemic, and weak, a milk and cream mixture—three parts milk and one part cream—is recommended to be taken between meals, a glassful at a time, until a quart of milk is taken daily. Six or eight glasses of water should be taken daily.

The formation of a habit of a fixed time for going to stool is important. In children a low vessel or a low seat of proper dimensions should be provided. The time for going to stool, usually best after breakfast, should be a time relative as Savage so aptly puts it, "to some living habit," as rising. The patient should sit patiently for five minutes at least, but the five minutes should not be used in reading, for nature attends well to but one thing at a time.

The cause of the trouble should first be discovered and remedied if possible, either surgically, if such procedure is indicated, or otherwise. If symptomatic, the treatment of the cause is indicated; if from habit, as from failure to meet Nature's calls, disregard of regularity, reading for a long time when at stool, or a faulty diet, correct the fault. Atonic conditions or disturbances of general nutrition, as well as a pernicious drug habit, demand attention. Chronic invagination of the sigmoid, so often overlooked or treated by surgical measures, may sometimes be effectively relieved by rectal vibration in connection with a corrected diet. If the constipation be due to a fibroid tumor associated with hemorrhage, when an operation can be avoided, employ the .r-ray to check the hemorrhage, then use the wave current to cause contraction and relieve local stasis and give a body vibratory treatment for constipation, the abdominal vibratory treatment for a passive exercise being governed by conditions. The rectal vibration is contraindicated because of the danger of inducing hemorrhage.

If adhesions or spasmodic strictures are present they may be benefited or cured by local vibratory treatment. If an enlarged or retroverted uterus obstructs the passage the constipation can be cured in the majority of cases by using the static wave current with a metal electrode per rectum, in connection with rectal and body vibratory treatment for constipation.

In some nervous diseases, as locomotor ataxia, associated with rectal spasm, constipation may often be relieved by rectal vibratory treatment with a short rectal vibratode. The application should be for about five minutes daily until relieved, but at a higher rate of speed than is employed in the treatment of constipation associated with atony. A cone-shaped vibratode may be used in place of the rectal one where anal spasm alone exists; but great care should be exercised, as sometimes, though rarely, paralysis of the bowels follows dilatation.

The oscillator, a machine giving a vibration and a return vibration, as it were, is sometimes used in treating constipation. A wide belt is applied over the lumbar spine, the liver, and the abdomen, in turn, treatment being regulated at from six to ten millimeters off the center of the revolving eccentric.

The author's technique for vibratory treatment of constipation consists of (1) vibration of the spinal nerves supplying the affected parts, (2) a local vibratory treatment of the liver, spleen, and abdomen. The treatment should be mild at first, with strict adherence to the principles governing the use of pressure, stroke, speed, and regulated frequency, bridging the effect from treatment to treatment, lessening the frequency as improvement permits in all cases. The administrations may be made directly to the skin, or over the under-vest or chemise. The following details of technique are observed: (1) The bladder should be emptied before treatment. (2) If the skin is moist and sticky, dust the surface with a suitable dusting powder. (3) If the abdomen is hypersensitive the application of dry heat by means of a high-power incandescent lamp or otherwise will lessen the sensitiveness.

Contraindications for the employment of mechanical vibration are the presence of cancer or ulcer in the region, and a tendency to hemorrhage. In vibrating the spinal nerve roots, use a hard rubber ball vibratode, and employ a medium stroke and moderate pressure, which should be so graduated as to avoid unpleasant effects. Employ the vibratode between the transverse processes on each side of the spine alternately from above downward, two or three times. Tolerance to pressure over tender spots increases during an administration and during the course of treatment. The pressure, light at first, should be gradually increased. Prolonged pressure inhibits, and is consequently applied over the hypersensitive places. If the whole trouble is in the lower bowel, the lower portion of the spine alone may be vibrated; but in the majority of cases of constipation the liver is at fault, and the patient may have

suffered so long that the health has become generally impaired, in which case we vibrate the spaces corresponding with all the spinal nerves to restore tone.

Boardman Reed locates the center of defecation at the second segment of the lumbar part of the spinal cord opposite the tenth dorsal vertebra. From the sixth to the twelfth dorsal inclusive is the inhibition region of the small intestine, the inhibitory nerve being the splanchnic (Pflüger), while the capillaries contain arterial blood; when this changes to venous the splanchnics are stimulated, and peristalsis is increased. If the nervierigentes are stimulated, contraction of the longitudinal rectal fibers occurs, and the action of the circular fibers is inhibited, even when the hypogastric nerves by which they are supplied are stimulated, which stimulation has "an inhibitory effect on the longitudinal muscles" (Fellner). The vasoconstrictors of the colon come from "between the sixth dorsal and second lumbar segment," and the vasodilators are from the same part of the spinal cord and from the nucleus of the pneumogastrics. The vasoconstrictors of the sigmoid flexure and rectum come from the tenth dorsal to the fourth lumbar" (Reed). The vasodilator fibers for the same arise from "the first to the fourth sacral segments." The vasoconstrictors of the small intestine are "from the sixth dorsal to the second lumbar through the visceral nerves to the solar plexus and then to the blood-vessels of the abdomen, jejunum, and ileum," the dilators of the same rise from "the nucleus of the pneumogastrics and go to the solar plexus" (Reed). Stimuli applied "at long intervals to the nerves act on the vasodilators while tetanizing stimuli act especially on the vasomotors," which are not so easily exhausted.

The liver is vibrated as follows: Posteriorly vibratory friction or percussion is applied from the spine outward following the line in the spaces between the ribs, using a rubber-padded disk vibratode over the organ, and interrupted vibration with moderate pressure and medium stroke is applied over the liver anteriorly, covering the surface about three times. The vasoconstrictors of the portal system are from the third to the twelfth dorsal nerves, inclusive, particularly the fifth, sixth, seventh, and eighth. Contraction of the gall-bladder may be induced by vibratory stimulation of the ninth and tenth dorsal. The solar plexus and lumbar ganglia may be affected by interrupted vibration. Stimulation of the vagus contracts the stomach and pylorus, and induces gastric flow.

Vibration of the abdomen is accomplished with a padded rubber disk vibratode, using a medium stroke. Two methods are employed: The first is to follow from the cecum to the sigmoid. The second is the one preferred, and used by the writer because it is almost always necessary to stimulate the lower part of the bowel first. Begin over the middle segment of the descending colon, use vibratory friction with firm pressure downward and inward six or seven times, gradually approaching the ribs, but each time ending at the sigmoid. Then vibrate the transverse colon, beginning at its middle segment and proceeding from right to left, gradually lengthening the line of advance as the hepatic flexure is approached; then begin midway between the hepatic flexure and the cecum, and vibrate upward, gradually approaching the cecum until the friction is from the cecum to the hepatic flexure. A ball vibratode or the cap shield of some machines is then used from the cecum to the sigmoid to administer an analogue of the cannon-ball massage. The speed and rate of vibration should be slow, because parts containing unstriped fibers, after being stimulated, react "for a long time after the stimulus is withdrawn."

In many of the cases the additional use of internal vibratory treatment is necessary. A soft rubber vibratode (see Fig. 1A), well lubricated, which may be introduced while in motion, is to be preferred. The administration should be for five minutes, using a short stroke and a rate of speed, which will give the maximum width of the loops that are to be formed by the vibration of the vibratode when the operator watches the vibratode before inserting it, as he varies the speed until the desired rate is obtained. These rectal treatments should be given daily until the bowels move naturally. After they have moved for several days successively the rectal treatment should be discontinued or given only occasionally as indicated. In obstinate cases, as from a spasmodic stricture high up, a flexible rubber vibratode 12 or 15 inches long (see Fig 1B) is of service, and is most easily introduced with the patient in the knee-chest position. The duration of the treatment should be from three to five minutes, speed and stroke being as before stated. The rectal tube should be used cautiously if adhesions exist from a former peritonitis. The majority of cases are practically

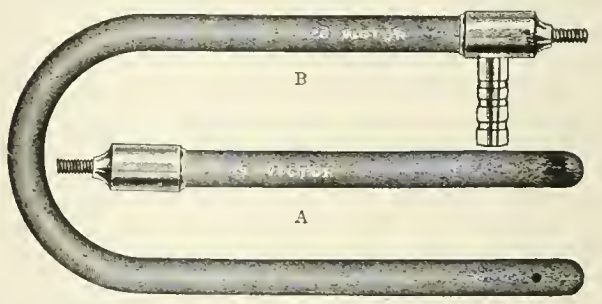

Fig. 1.—The rubber vibratode. A, a short rubber instrument for treating constipation; B, the author's long rubber vibratode for high rectal vibration and for giving high colonic flushings as employed in the treatment of constipation.

cured in about two weeks by this method of treatment.

In severe cases of constipation enemas of from one to three quarts of water, according to the indications of the case, are administered, for which the following method of vibratory flushing has been introduced by the writer. A long hollow flexible rubber vibratode (see Fig. 1B) having a hole in the distal end, and a metal tube at the side of the top of its fitting at the proximal end, to which a tube from a douche bag is attached, is connected to the vibrator. Water is allowed to flow through the tube before it is introduced. Having been smeared with vaseline, it is gradually inserted, vibrating at a slow rate of speed, the patient being in the knee-chest position. When the tube has been inserted a few inches, the water is allowed to flow. The water will be thrown from the opening as from a sprinkler. Gradually increase the speed. After the first pint of water has flowed, gradually lessen the speed and stop the vibrations. Let two or three quarts flow into the bowel, and while the last pint is passing, start the vibrations again and continue them until the tube is withdrawn. Usually one week of vibratory flushing, used after the body vibration as above described, initiates the improvement.

In a few uncomplicated cases of constipation, body vibratory treatment alone is sufficient. This is particularly true during childhood. If the patient

has been long constipated and there is reason to believe that the bowel is lined with impacted feces, a vibratory enema of one to two cupfuls of oil is given, as described below under the treatment of colitis. This is followed the next day by vibratory flushing, as described above. It may be found necessary to repeat this if the patient still gives a history of passing scyballa.

In cases of infantile paralysis associated with constipation, a spinal, liver, spleen, and vibratory treatment will give excellent results, great care being exercised so that too great pressure is not employed. A vacuum cup vibratode is employed for the spinal treatment instead of the ball, as it can be more easily applied in the small intervertebral spaces. Vibratory friction is also employed over the paralyzed parts.

In cases of colitis associated with constipation, most gratifying results are obtained by administering vibratory treatment in connection with a modified von Noorden diet. On the first and third day in the treatment of colitis a high enema of oil is given with long rectal tube (Fig. 1B), previously described for flushing. A little oil is allowed to run through the tube first before introducing it, to prevent colic. Vibration should be mild at first—just sufficient to carry the tube up, except in cases associated with diarrhea, when it is advisable to discontinue it until the oil is all in the bowel, otherwise mild vibration may be continued during the passage of the oil. Disturbances may occur, in which case hot compresses may be used, but I have not found them necessary. Patients may gradually be weaned from the prescribed diet, but it is advisable for them not to depart too early or too suddenly from the dietary régime.

Vibration therapy is indicated in the treatment of contracted muscles arising from various causes, and may be used in the treatment of amenorrhea, dysmenorrhea, inflammatory exudates, endometritis, metritis, oöphoritis, rectal prolapse, certain prostatic conditions, and coccygodynia. In cases of atony, passive congestion, and amenorrhea, vibrate the lower portion of the spine in the interspaces, using the ball vibratode and anteriorly apply the abdominal vibration and interruptions over the affected parts.

Mechanical vibration is contraindicated in pyosalpinx and pelvic abscess. Vibratory treatment of the vagina is indicated in relaxed walls and vaginismus. Enlarged prostate and prostatitis may be treated by local rectal vibration from three to five minutes, the rectal vibratode having a moderate amount of rigidity. In the treatment of hemorrhoids vibration lessens pelvic congestion and stimulates the return circulation. A prolonged rectal treatment is indicated.

Mechanical vibration in the treatment of pelvic conditions, alone, or with the use of light, electricity, hydrotherapy, or exercise as an adjunct, when applied with the proper care and technique, is a measure which from the results obtained appeals both to the layman and the profession, simple yet effective, easily applied, and not disagreeable. It is a most useful and valuable agent in the hands of the profession doing the physician's noblest work—the alleviation of human suffering.

Action of Drugs at Night.—Everything else being equal, remedies are more effective in the night than by day. This is owing to the fact that at night the processes of absorption are quickened and those of elimination abated. For the same reasons toxicity of drugs is greater at night.—*Medical Council.*

PHYSIOLOGICAL ACTION OF THE MOUNT CLEMENS MINERAL BATHS.

By RICHARD LEUSCHNER, M.D.,

MOUNT CLEMENS, MICHIGAN.

For a long time quite an uncertainty prevailed whether the action of mineral baths was based upon a direct transudation through the cuticle and its absorption into the system, or whether it was brought about solely by the external excitation incurred to the nerves of the skin. The holders of the latter view accepted the theory that the transmission of the stimulus extended from the peripheral nerves to the trophic nerves, or, rather, to those nerves supplying the muscles of the vascular walls would tend to regulate the circulation of the blood in the diseased tissue.

In a former article on the physiological action and effect of mineral baths, I conclusively proved the ingress of sulpho-iodo-bromo-salines through the skin and their resorption in the system by having isolated bromine and iodine from the urine of bathers, which findings should indicate that the composition of this water entering the organism, plus the external stimulus, would demonstrate a decided action upon metabolic changes.

Probably the curative virtue of some baths might depend alone upon the external stimulus of the cutaneous nerves; however, in both instances there still exists an obstacle to a full comprehension of the correct action of mineral water bathing, inasmuch as nothing has as yet been directly proven how the changes in the diseased tissues are brought about. For this very reason it is necessary to enter a little more fully into some of the causes that control the general processes of the body metabolism.

It has been universally assumed and accepted that the food products from the intestines reach the heart by passing through the lymph channels, especially the thoracic duct, the heart then distributing them through the blood-vessels to the different organs of the body. The correctness of this view has recently been attacked by Dr. Wachenfeld, a well-known authority at Bad Nauheim. In a brief article on "some observations concerning the mechanism of the circulatory system," he attempts to prove some facts contrary to the above accepted doctrine.

He points out among other things that at the present time very little is known concerning the actual metabolic changes in the cellular tissues, and claims that our knowledge over this matter ends in the intestinal tract. We have, he says, not fully grasped what takes place in those cellular walls, how the actual nutritive processes are carried on in the different organs, how the material for building cellular tissue is supplied, nor have we a correct conception of the elimination of body waste. These are physiological problems not satisfactorily solved. Dr. Wachenfeld then goes on to show that the submucous lymph vessels in the intestines are preferably the true lacteals carrying their material to the thoracic duct, that the outer intestinal lymph plexus supplies the walls of the intestines; he points out that these two sets of intestinal lymphatics are linked very closely together, and alludes conclusively to an important point that not all of the resorbed alimentation passes into the thoracic duct, but that a certain amount is absorbed directly from the intestinal canal into the body tissue.

We are here confronted with numerous questions and problems: What part does the chyle perform in the blood and what becomes of the lymph that

passes through the ductus dexter into the blood? Both liquids are at times entirely different. The nutriment that passes into the blood through the thoracic duct freshly resorbed from the intestines at the time when digestion is active, and that which enters through the right lymphatic duct into the vena subclavia dextra, must necessarily have found its way through body tissue.

Accordingly, then, what changes has the chyle undergone before it is given off from the blood into the tissue spaces? We assume, at least, that a part of the alimentation finds its way directly into the lymph currents, consequently the drainage system of those lymph channels plays a most important rôle in the process of the metabolism. Wachenfeld's clinical convictions on these points are most consistent with those that Wundt has laid down in his textbook on Physiology. Wundt declares that it is possible that the lymph during its slower movements through the interstitial canal system coming in a more immediate contact with the tissues than does the blood, serves as an important factor in the nutrition of these tissues. Principally does this rôle seem plausible where the lymph is devolved in the preparation of the glandular secretions, as approximately in most if not in all glands the parenchyma is surrounded by lymph spaces. Eventually then the liquids transuded from the blood enter the tissue spaces and only then through the thus separated lymph do the gland cells manufacture their secretions.

This important significance of the lymph in the nutrition and production of the secretions correspond with the fact that the lymph carries much larger quantities of decomposed material out of the tissues than the venous blood.

In reference to the action of Mt. Clemens mineral baths the following question now comes up for discussion and consideration: Are the ingredients contained in the water and, finding entrance into the system conveyed to the blood-vessels, acting in this wise upon the diseased tissues, or do they select the lymph channels to reach diseased tissues?

In the first instance the resorbed mineral substances, no matter how manifestly small the amount of their transmission into the blood, and even if they could not be detected analytically therein, would necessarily create a chemical stimulus to the blood influencing the action of the heart and the consequent pressure in the vascular walls. In order to determine this I undertook to test the blood pressure before and after the baths upon some twenty patients. The examinations were made one hour before and one hour after the baths.

Before.	*After.*	*Before.*	*After.*
85 mm.	85 mm.	100 mm.	115 mm.
80 "	95 "	100 "	85 "
95 "	80 "	85 "	100 "
115 "	115 "	115 "	115 "
110 "	110 "	95 "	95 "
95 "	105 "	95 "	85 "
105 "	105 "	120 "	120 "
95 "	80 "	95 "	95 "
95 "	95 "	90 "	95 "
100 "	100 "	85 "	85 "

Accordingly a considerable increase of the blood pressure was not established. In four instances there even was a falling of the blood pressure, which I am inclined to attribute to increased distribution of the blood in the cutaneous vessels. In the majority of the cases the examination showed no material change before or after bathing; in five cases, however, a regular increase of the blood pressure was observed after the bath, although the same was only moderately larger, never reaching over 15 mm. more than before the bath.

It would seem to me that a stimulus of the muscular structure of the heart and blood-vessels does not occur as a result of the resorption of our mineral water, and we must consequently assume that the same is brought about to a large extent through its entrance through the skin into the lymph channels and not into the blood current. As an objection to this contention could be raised the point that iodine and bromine in minute amounts were isolated from the urine of bathers and that the mineral ingredients must necessarily, therefore, have passed through the blood-vessels.

The late physiologist Heidenheim promulgated the theory that the fluids of the urine are separated through the capillaries of the glomeruli and the salts through the walls of the uriniferous tubules. Liebig showed by an experiment that there might possibly be some doubt regarding this. He proved that, by the drinking of a glass of water containing a smaller quantity of salts than the blood on an empty stomach and repeating the same every ten minutes a decided diuretic action is manifest. With the ingestion of the second glass a quantity of urine is secreted which approximately corresponds with the weight or volume of the first glass drunk; and, if in this manner twenty glasses are taken, the last urine is colorless and its percentage of salts will be about the same as that of the first glass of water taken. It is impossible that in so short a time so large a quantity of water could pass through the blood current without causing a large dissolution of the ingredients of the blood. We must therefore conclude that the excretion of urine which was naturally quite large is substantially carried on through the very markedly developed lymph vessels of the kidneys which receive their material from the whole lymphatic system of the body.

How is the action and effect of the resorbed ingredients of the sulpho-iodo-bromo-salines into the organism explained? The solution can only be found in the presumption of the existence on an increased lymph current. Only the increased mechanical force and larger amount of lymph fluid can dislodge and wash out the diseased cells from the diseased tissues. The mineral water finding ingress into the system during the bath must necessarily and beyond all doubt act by stimulating the lymph movement.

Heidenheim accepted the belief that the increase in lymph fluid manifested itself in two ways, either in the absorption of an augmented amount of liquid from the blood into the lymph channels or through the transfer of water from the tissue spaces. Now, this increase of lymph-fluid can be brought about by different substances circulating in the lymph-channels and Heidenheim characterized these ingredients as "lymphagogues." These lymphagogues stimulate the nerve tissues, and in this manner all glandular and analogous structures of the body are forced to an augmentation of secretion.

That the excitation to the nerve tissues will actually produce an increased function of the glandular secretions was proved when Heidenheim some time ago, by stimulating the chorda tympani nerve, induced an almost immediate increase in the flow of saliva.

Other investigators, including O. Nasp, Hirschmann, *et al.*, have found that the grade of irritation of the nerves is more or less controlled by the strength of saline solution acting upon the same.

THE USE OF BACTERIAL VACCINES.

By HARRY BRITENSTOOL, M.D.

NEW YORK.

THE degree of interest shown by physicians throughout the world in the biological methods of the treatment of diseases of microbic origin has placed the opsonic theory in the center of the stage. I am not in a position to discuss the possible value of this theory, nor to aid in the elaboration of any new ideas on the subject. As a general practitioner, unacquainted with the more minute pathological technique, I rather incline to the belief that the determination of the opsonic index of a specific case will be of little value to the average practitioner. Nevertheless, the ultrascientific investigator will doubtless render us a great service by estimating the correct dosage, the best methods and time of administration, and the danger limits in the use of bacterial vaccines. The determination of the exact relation existing between vaccines prepared directly from a specific case and the so-called "stock" vaccines, rests not only with the pathologist, but also with the clinician.

As the fundamental basis of medicine is empiricism, I have taken advantage of our limited knowledge of bacterial vaccines and have used "stock" vaccines of mixed staphylococci with splendid success. I have not used them in a sufficient number of cases to demonstrate fully their efficacy, but my results so far have been so positive that I am submitting three of my cases to augment whatever experience others may have had with such vaccines.

CASE I.—S. C., woman, aged 23, weight 124, blonde. Over a year previous to the commencement of treatment by me, the patient developed an acne on the face. This had been treated by a specialist for nine months with only fair results. Seven months after the first development of the acne, a furuncle made its appearance on her thigh. This was treated locally and sulphur, cream of tartar, and calcium sulphide were administered per os. Under this treatment the furuncle and consequent glandular enlargement disappeared. Two months later, three abscesses, located on the perineum and buttocks, made their appearance. For a period of three weeks, these were treated by a woman physician. When another made its appearance, the patient, who was one of my regular clientèle, came to me for treatment. Owing to her peculiar disposition, I was unable to make an examination. After gaining the consent of the patient, at the same time explaining that the treatment was experimental, I injected one tube of vaccine containing 400,000,000 saphylococci of the aureus, albus, and citreus varieties. The injection was given in the lumbar region and, with the exception of some local tenderness and redness, which soon disappeared, no ill effects followed the administration. At intervals of five days two other injections were given, with the result that the abscess that was forming resolved without any local treatment and her face as well as the other infected parts became normal. Her complexion is now perfect, and the patient is delighted with the results. There is at this time no semblance of a return of the infection.

CASE II.—F. A., woman, aged 21, athletic build, complexion dark, employed as a confidential clerk, came to me complaining of a number of pustules and abscesses on the buttocks, perineum, and pubes. The pus on examination contained only staphylococci, but no culture was made to determine the variety. My treatment for the first two months consisted, locally, of the opening and cleansing of the abscesses with hydrogen peroxide and internally calcium sulphide, small doses of mercuric iodide, etc. I also had her dispense with the use of undergarments that were liable to increase the local irritation. As she was hypersensitive to the local treatment, I explained the experimental nature of the bacterial vaccine and advised their use, to which she agreed. In this case I administered two injections of the (combined) staphylococcus vaccine with an interval of six days between the injections, the selected site being the upper part of each thigh. Following each injection, there was a swelling with some redness and tenderness, but the day following each injection, the patient fulfilled her usual business duties without inconvenience. Improvement of the condition was noted as a result of the first inoculation, the second being sufficient to eradicate completely the infection. It is now over eight weeks since this treatment was employed and there is still no semblance of a return.

CASE III.—L. M., man, aged 35, height 5 feet 11 inches, weight 169, a stock-broker who had been suffering for some time with furuncles on different parts of his body. These had been regularly treated by his local physician with the conventional remedies. As soon as one would resolve another would make its appearance on a new site. Upon examination, the staphylococci were again demonstrated, but no cultures were made. I did not determine the variety, and therefore a mixed vaccine was again employed. In this case the first injection of 400,000,000 bacteria caused a complete cure of the condition, and the treatment was so satisfactory to the patient that he stated that, should he ever again become infected, it would be the only treatment he would accept.

These results, though not conclusive, warrant a close study of this interesting method of combating disease.

783 LEXINGTON AVENUE.

Deafness of the New Born.—W. Koellreutter has recently made a series of tests on new-born children and finds that the deafness often observed then is referable to a disturbance of the sound conducting apparatus of the ear. His material consisted of twenty children. They were all examined in a sleeping or a half-sleeping condition. The source of tone was the Bezold-Edelmann tone series, and the examinations were only made by air conduction. To compare his results with those of Moldenhauer, he also used the musical toy, the cricri. Of the tone series he made use of the following forks—subcontra C, c^2 and c^3, and Galton's whistle c^6. The tuning-forks were set in vibration so that no impression could be conveyed to the child either optically or by a draught. The Galton whistle was approached to the ear without causing any current of air. The results were observed by three persons who were witnesses to the examinations. The room for examination was a quiet room. The children were repeatedly examined for several days and at different times of the day. Koellreutter finds that: (1) The cricri produces in all the children a distinct reaction at all times, even a few hours after birth. (2) The tones c^6 of the Galton whistle produced a distinct reaction in: (*a*) all children within the first 24 hours after birth. (*b*) 74 per cent. of all the children between 2 and 4 days old. (3) The tuning-forks subcontra C, c^2 and c^3 never produced any reaction. He therefore finds a good reaction to high tones from birth, while deep and middle tones in the first days apparently were not perceived at all. He has been able to show that all new-born children reach to high tone c^6 on the first day of life while the deep tones are not perceived. It seems therefore there is no reason to doubt the power of irritation which the auditory nerve possesses in the early age of children. This irritability in the light of present knowledge is shown by this reaction to the high tone c^6 while the insignificant reaction to the other deep tones points to a disturbance of the sound-perceiving apparatus for which there is a well-known anatomic foundation.—*Archives of Otology.*

MEDICAL RECORD.

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HEATSTROKE, HEATCRAMPS, AND LIGHT PROSTRATION.

A VALUABLE contribution to the etiology of sunstroke and heatstroke was published in the January number of the *Journal of the Royal Army Medical Corps*, by Major Leonard Rogers, I.M.S., who makes a careful distinction between the syncopal cases, which he calls true sunstroke, and the more fatal heatstroke, or thermic fever, characterized by fever and coma. He combats the microbic theory of Sambon and Manson, who asserted that heatstroke prevailed capriciously as far as atmospheric temperature is concerned, and that it was found only in low countries, never above 600 feet elevation. He shows by elaborate statistics that the cases occur everywhere in India and are strictly dependent upon high atmospheric temperature as to both the hottest months of the year and hottest hours of the day, and that high humidity increases the effect of the heat. Humidity merely prevents evaporation of perspiration and loss of body heat, for cases are practically unknown in our arid West, where the dryness of the air causes enormous evaporation. The symptoms are due to the fever and are cured by a reduction of the body temperature. There is no relation to the direct rays of the sun except their heating effect, and cases may occur from exposure to heat in shaded rooms. "Sunstroke," or what we call "heat prostration," he says, always follows sun exposure, as in marching troops, and is very amenable to treatment. This corresponds to many previous observations, which ascribe these syncopal cases to the effects of excessive light, and it should be proper to designate them as "light prostrations" if they never occur except after exposure to excessive light.

Another group of cases due to heat was described by Surgeon M. S. Elliott, of the U. S. Navy, in *The Military Surgeon* for March, 1908, though the cause of the symptoms is not stated. His cases occurred among those exposed to the heat of the firerooms of ships, where the air temperature is often as high as 140° F. The main symptoms are subnormal temperature, muscular cramps, profuse perspiration, and collapse. After copious high enemata of hot physiological salt solution, improvement was almost instantaneous, so the cause of the condition is probably the high specific gravity of the blood from the loss of body fluids in the excessive perspiration. The condition is practically the same as that found in cholera, when the fluids drain off by the bowel. These heat cases have been repeatedly described in many parts of the world, and suggestions have been made to use saline solution intravenously. It is also an old tropical observation that if ample water is not drunk during excessive perspiration the urine may be so concentrated as to cause acute inflammation of kidneys, bladder, and urethra, lighting up old gonorrheas, and there may be rheumatic and obscure nervous symptoms, probably from defective elimination of waste products.

Elliott says the cases are far more numerous among negroes, who, contrary to the general impression, do not stand a high heat as well as white men. It has also been stated that negroes suffer unduly from true "heatstroke." The black skin is apparently evolved to exclude the excessive light of the tropics, where the heat is never so intense that there is special need of other protection than by the evaporation of perspiration. Consequently, they are at a disadvantage when exposed to very high temperatures, such as they never encounter in their native state, as dark surfaces absorb heat better than light ones.

There is ground for the belief that white men, upon exposure to the sun's rays, suffer more than negroes from the syncopal forms, and Rogers may be right in calling these cases true "sunstroke," though "light prostration" might be a better term, as "sunstroke" is generally used for "heatstroke" or "thermic fever." There should be a better differentiation of cases and new descriptive terms invented, for some of the cases are neither "heatstroke" nor "light exhaustion," but purely results of the loss of body fluids, and there may be all conceivable mixtures of these cases.

It would be of value to determine whether our syncopal forms are more common in the lightest months and lightest parts of the day, and whether blonds suffer more than brunets, and the latter more than negroes. Protective measures could then be devised. Recent observations have established the fact that the loss of vitality of soldiers long resident in India is due to the actinic, and not the thermic, rays, and it is being suggested that they be housed in mid-day, and if compelled to be outdoors that the clothing be opaque, and the hats large and of wide brim, like the native's headcovering. It now seems that in our summers an umbrella may be more necessary on sunny days than on rainy days.

PUBLIC MEDICINE AND ITS RELATION TO SOCIETY.

THE rôle of the physician has changed greatly during the past few years. At a time not long ago, his sole recognized office was to treat and cure, or try to cure, disease. Whatever may have been the results of his efforts in this direction, and statistics seem to show that they were not unsatisfactory, at least so far as his own pocket was concerned they were more favorable to him than they are now under existing conditions. Prevention of disease, rather than treatment, is the object now aimed at, and the physician is coming to be regarded more as a worker for the community at large than for the individual. In times that are past, or passing, the medical man's only place was in the sick room and in the hospital, where, naturally, he was all-powerful.

Now he is not only the dictator in the sickroom and in the hospital, but his presence has been demanded in the school, the workshop, the factory, and the mine. Formerly, the function of the physician was to attend to the sufferings of the sick, but at the present time his scope of work has been greatly amplified, and his labors have been extended to the care of those in apparent health, in order to ensure that the conditions under which they live are such as not to endanger their health and vigor. In fact, what with notification, isolation, medical inspection in schools, the physician is really oftentimes more of an official than a medical guide. The question is, has this evolution and development worked for the public good.

Dr. Alexander James, speaking in Edinburgh, on July 1, on this subject, concluded that much of the public health work carried on during the past twenty or thirty years had not been attended with any strikingly successful results. It had been recognized that the assumption by communities of individual responsibilities had many disadvantages. Apart from the fact that it struck a blow at family life, it had the effect of lessening that feeling of responsibility in the individual that begot self-dependence and frugality. On the other hand, it was argued that measures which were for the physical and moral welfare of the community at large would more than counterbalance any disadvantage to the individual. Dr. James, however, endeavored to show that this interference of the community with the liberties and responsibilities of the individual which public medicine had brought into existence within the last quarter of a century had not been doing all the good which was claimed for it. He demonstrated by means of tables and figures that the mortality from phthisis between the years 1860 and 1905 in Edinburgh, Dundee, and Aberdeen had decreased, but this result was due to progressive voluntary efforts of individuals. With regard to typhoid fever in the same period, and in the same cities, the enforcement of legislative enactments did not appear to have improved matters. As regards measles, statistics showed that since notification and isolation the mortality had increased rather than diminished. As regards diphtheria, figures showed improvement in all the towns, but not especially after compulsory isolation, and the improvement was not more marked than was seen in phthisis without isolation. Dr. James' object was to show that the strict isolation measures of the past fifteen or twenty years in Great Britain stood condemned on their own showing, and that distinct modification was now required. He was strongly of the opinion that the functions which physicians in many cases had been performing were not what were in their own interests or in the interests of the community. Of course, the movement in the direction of prevention of disease rather than treatment, has taken a firm hold in all countries, and is likely to progress. Furthermore, a large number of physicians will not agree with the conclusions of Dr. James. These contain a basis of truth, and it may be that the new departure has not by any means all the merits which is claimed for it. At any rate, it is refreshing and instructive to hear the other side of the question. It leads to thought on the subject, and if, as we believe, public health measures, including notification of contagious diseases, are beneficial to the community, the discussion aroused by opposition such as that of Dr. James, will speedily demonstrate the fact.

THE QUESTION OF THE SPECIFICITY OF THE WASSERMANN REACTION.

The many observers who have given the Wassermann reaction a trial have found it present in a large percentage of syphilitic patients. Wassermann, Neisser, and others hold, indeed, that it is a specific reaction, but Weil and Braun, on the other hand, have repeatedly opposed this claim, and in the *Wiener klinische Wochenschrift* of June 25 they adduce further evidence in substantiation of their belief. They found a positive reaction in four out of twelve cases of croupous pneumonia, in three out of twenty of typhoid fever, in two out of twenty-one patients with tuberculosis, in one out of four diabetics, and in four out of fourteen patients with malignant growths. In all of these patients syphilis was ruled out. Those patients in whom the reaction was negative had light forms of the diseases mentioned, while extensive pathological changes were found in those in whom the reaction was positive. This led Weil and Braun to believe that the blood serum reaction was due to the products of cell disintegration circulating in the blood. They employed the same technique as Wassermann and his followers, and made several tests in each case. They also obtained a positive reaction in syphilitic and paretic patients when using extracts from normal organs instead of extracts of syphilitic organs.

However, even though these observers appear to have shown that the reaction is not specific for syphilis, it cannot be denied that it has some practical value. They themselves admit it is of value when diabetes, tuberculosis, malignant growths, and a recent pneumonia or typhoid fever can be excluded. Furthermore, they tried the reaction with the blood only, and not the cerebrospinal fluid of nonsyphilitic patients, so that a positive reaction with spinal fluid may still be regarded as pointing to a diagnosis of syphilis, at least until positive reactions have been obtained with the spinal fluid of nonsyphilitic individuals.

Reversal of the Circulation in the Prevention of Angiosclerotic Gangrene.

The so-called "spontaneous" gangrene of the older writers has been properly traced to the effect of localized degenerative changes in the blood vessels of the extremities, and the views in reference to the ultimate etiology of the affection as well as to the proper treatment of it have undergone corresponding modification. Alcohol has been looked upon by many as the most important factor in the production of such sclerotic changes in the arteries, but the observations of physicians working among the Mohammedan races do not lend support to this view; thus, Dr. Wieting notes the relative frequency of the disease among the total abstainers in the Oriental countries, over one hundred cases having come to his notice within six years of routine hospital practice in Constantinople (*Deutsche medizin-*

ische Wochenschrift, July 9, 1908). In his opinion, alcohol is but one of the many toxic substances that may lead to the disease in question, tobacco and the toxins of the infectious diseases being the probable etiological factors in his cases. Attacking, as it often does, persons of middle age, or even in early adult life, angiosclerotic gangrene must be looked upon as one of the most serious affections; warm baths, artificial hyperemia, continuous elevated position of the affected limb, are only slightly useful in the treatment of it, and sooner or later an amputation must be performed to save the patient from a worse fate than the loss of a limb. The author properly warns against the application of an Esmarch bandage in the determination of the site for amputation as well as during the operation itself. Careful attention to the differences in the warmth of the surface is quite sufficient for determining the part of the limb that must be sacrificed. In connection with operative treatment of the disease, Wieting reports an interesting case, in which partial reversal of the circulation in a limb was effected, the result quite approaching the success obtained by Carrel and Guthrie in experimental work upon dogs (*Annals of Surgery,* 1906). Dr. Wieting's patient had already lost one leg by amputation because of gangrene, and readily agreed to the tentative performance of an arteriovenous anastomosis, which promised to save his other leg, that was beginning to be affected. The implantation of the femoral artery into the corresponding vein was followed by gradual remission of all threatening symptoms, and complete recovery of the limb resulted. It is probable that this is the first case in which such an operation, that has been quite effective in the experimental work upon animals in the presence of healthy tissues, has succeeded in an advanced pathological condition affecting a human being. Wieting, however, very properly speaks of the result as, probably, only a temporary success. The rapid advance of gangrene was certainly stopped in his patient: that its progress was put an end to completely is hardly to be assumed, in view of the present conception of the etiological factors of the disease, to which we have referred in the beginning of this notice, and which no change in the direction of the blood stream would be likely to affect permanently.

Diphtheria Antitoxin in the Berlin Epidemic.

The use of diphtheria antitoxin has become so general that no defense of it is necessary at the present time. The few individuals who still claim that the specific treatment of this disease has not lowered the mortality, the apparent decrease in the death ratio being due to the many mild cases that are now diagnosed and reported, are probably beyond conviction by any arguments that may be adduced. The nature of the disease, however, is such that the use of antitoxin cannot prevent the appearance of epidemics; an attack of diphtheria does not confer immunity for any great length of time, the artificial immunity afforded by antitoxin is also very short in duration, and the chances of infection are almost always present, especially in children of the school age. These reasons explain the recent reappearance of diphtheria in epidemic form in Berlin in the year 1907, during which 3,447 cases occurred in the city, 520 of them being observed by Baginsky in the Children's Hospital (*Berliner klinische Wochenschrift,* July 6, 1908). But while the epidemic could not be prevented, the mortality as compared with the earlier figures gives fair evidence that the danger from the disease has gradually diminished even since the introduction of specific treatment, most of the profession having been educated to the value of early and sufficient doses of the antitoxin. Of Baginsky's cases 11.9 per cent. died; the mortality in the early days of antoxin was 15.6 per cent., and in the pre-antitoxin days it reached from 30 to 50 per cent. of the cases. The epidemic under consideration, too, was quite severe in character, the larynx being involved in 110 patients. The deaths occurred in patients in whom the antitoxic serum was used late in the disease, in many cases the dosage being much below the usual amounts recommended by the best authorities; several other deaths could be traced to complications, on which the specific treatment could have no effect in the very nature of things, coincident infection with scarlet fever having occurred in a few cases, while in others the fatal outcome resulted from the accidents of tracheotomies. The study of this epidemic leads Baginsky to reiterate the great advantage of early use of the antitoxin, in amounts ranging from 1,500 to 5,000 units, the day of the disease, the severity and site of the lesions, the age of the child and its physical development being the factors in computing the size of the dose to be used in each individual patient. In a recent discussion, Guradzi, in answer to those sceptical of the value of specific treatment in diphtheria, said that the mortality, with the further development of serum therapy, will drop to such low figures that the present minimum will appear appalling, and Baginsky urges the profession to show greater confidence in the value of antitoxin by using a sufficient amount of the remedy as early in the disease as possible, and thus hasten the results anticipated by Guradzi.

The Tuberculo-opsonic Index in Pregnancy.

In the last decade much has been written concerning the morphological and chemical changes in the blood during pregnancy, but few investigations have been made regarding the presence of opsonins at this time. In the *Wiener klinische Wochenschrift* of April 2, 1908, K. Koessler and W. Neumann discuss the effect of pregnancy on the opsonins normally present in the blood. To ascertain this they compared the opsonic indices for the tubercle bacillus in a number of healthy pregnant and nonpregnant women. They considered any index normal which ranged between eight-tenths and one and two-tenths. Among sixty-five clinically nontuberculous pregnant women only forty-eight per cent. showed a normal tuberculo-opsonic index during the last month of pregnancy; among twenty-three nontuberculous women in the puerperium the percentage of normal indices was also forty-eight. Among healthy nonpregnant women other observers have estimated the percentage of normal tuberculo-opsonic indices to be eighty-seven or higher. From which Koessler and Neumann conclude that the normal opsonic content of the blood becomes diminished in many women during pregnancy and the puerperium. It is true that they have shown this in regard to tuberculosis, but similar tests would have to be made with other bacilli before we should be justified in stating that the blood shows a lowered resistance for all diseases during pregnancy. Nevertheless the findings in regard to the tubercle bacillus are amply substantiated by the clinical experience that most women do not withstand tuberculosis as well during pregnancy and the puerperium as they do at other times.

News of the Week.

Medical Schools Merge.—Louisville, Ky., is to have one large medical school in the place of the five existing a year ago. Articles of agreement have been signed by the trustees of the University of Louisville, the Louisville Medical College, and the Kentucky School of Medicine. Last year the Hospital Medical College was merged with the Louisville Medical College, and the Kentucky University of Louisville. The Kentucky State University has been asked to make the merged school the medical department of the University. The faculty will number between seventy-five and a hundred, and the number of students is estimated at about 700. The buildings which have heretofore been used by the separate schools will be available for classrooms and laboratories, and a movement is on foot to erect a new City Hospital, in which clinical instruction may be given.

Civil Service Examinations.—An examination will be held by the United States Civil Service Commission on September 2 and 3, 1908, for the purposes of securing eligibles from which to fill a vacancy in the position of first assistant surgeon (male) in the Freedmen's Hospital. Application should be made at once to the United States Civil Service Commission at Washington. The Freedmen's Hospital is an institution for the treatment of colored patients, and it is the practice of the Department to appoint only colored persons to positions therein. The salary is $1,500 per year.

On August 26, 1908, the same Commission will hold an examination for the purpose of filling the position of clinical director in the Government Hospital for the Insane, at a salary of $2,000 per annum, with maintenance. Applicants must be graduates of a medical college, have had at least ten years' experience in institutions for the care of the insane, and be not over thirty-five years of age. The appointee will have general supervision of all the medical work of the hospital. Application should be made to the United States Civil Service Commission at Washington.

The Opium Evil.—Since 1878 the importation of smoking opium into the United States has increased more than 250 per cent. according to facts collected by the American commissioners appointed to attend the international congress to consider the question which meets at Shanghai next year. During 1907, 157,000 pounds were imported, about 75 per cent. of which is used in the manufacture of morphine. Reports indicate that in the United States the use of opium as a habit has grown to an alarming extent and that this growth is not among the Chinese residents, but is among the whites, not so much in the slums as among the professional classes. Chinese doctors have devised a cure and are impressing on their countrymen the destructive influences of the use of the drug, and among the Chinese here strong efforts are being made to abolish the habit. On the other hand, it is estimated that there are 5,000 white persons who are smokers of opium in New York City. The "strenuous life" is again brought forward as a reason, or excuse.

New York's Death Rate.—For the week ending July 25, the death rate was 18.50 per 1,000, the total number of deaths being 1,568. Last year during the corresponding week the rate was 22.05, and the total number of deaths 1,811. In 1907, the number of deaths of children under five reported during the week reached 949; this year the total was 739. For the week ending August 1 the death rate was 16.63 per 1,000, against 21.98 for the corresponding week in 1907. The total number of deaths was 1,410 this year, compared with 1,804 in the corresponding week last year.

Immigration Cut in Half.—During the twelve months ending June 30, 1908, 585,970 immigrants came into the Port of New York, but little more than one-half the number entering during the preceding twelve months.

Death Rate in London.—The reduction in the death rate in London, which has recently been marked, has been ascribed to the decrease in horse traffic on one hand, and to the increase in motor traffic on the other. The anonymous author of this attempt at an explanation states that the fumes from motorcars and omnibuses are the finest possible disinfectant, clearing the air of germs and impurities. The vapors from the cars are in reality health tonics and bracers, instead of the nuisance we have generally thought them. And yet the park commissioner of this city has barred the smells from Central Park, when perhaps those are precisely what the rhododendrons are pining for.

Contagious Diseases in Chicago.—The small number of deaths from contagious diseases in Chicago during the past week has been noticeable. There were but six from diphtheria, two from scarlet fever, two from measles, and two from whooping cough.

Charitable Gifts.—The Association for Improving the Condition of the Poor has received from Mr. G. H. F. Schrader a gift of $500,000, part of which is to be used for the construction of a new building for "Caroline Rest" a home at Hartsdale, N. Y., for the benefit of mothers convalescing from childbirth. The gift also provides for the endowment of the home.

Hospital for Tuberculous Patients.—The Board of Supervisors of Rensselaer County, N. Y., have appropriated $25,000 for the erection of a hospital for advanced cases of tuberculosis, which will accommodate sixty-five patients. Investigation had already showed that with a large number of cases of this disease in Troy, especially among the poorer classes, the county almshouse was the only institution where such cases were admitted, and that accommodations there were very unsatisfactory. The new hospital will therefore fill a great need, and be of immense value in the control of the disease.

Hospital Burned.—The City Hospital of Lock Haven, Penn., was destroyed by fire on July 28, after the thirty patients in the institution had been safely removed. The loss is estimated at $45,000.

St. Bernard's Hospital, Chicago.—Dr. Thomas J. Sullivan has been made chief of staff, and Dr. Charles P. Caldwell, head of the dispensary, of this hospital.

The American Hospital Association.—Because the large number of meetings and conventions arranged for the latter part of September in Toronto has made it impossible to secure adequate hotel accommodations at the previously announced time, the date of the meeting of the American Hospital Association has been changed to September 29 and 30, and October 1 and 2. The meeting will be held at the King Edward Hotel, Toronto.

Cholera in Russia.—An outbreak of Asiatic cholera has been reported in three provinces of Russia. Two deaths have occurred at Astrakhan City. In Tsaritsyn eleven deaths have been reported out of twelve cases. The disease is said to be of a most virulent type.

Mrs. Esther Davis, living at the Home of the Daughters of Jacob, New York, on July 29 celebrated her 114th birthday. Mrs. Davis was born in Russia and came to this country when 89 years old. She is still in good health.

Yellow Fever in Cuba.—Three Spaniards have been reported ill of yellow fever at Cobre, Santiago. One death occurred on July 29.

The Rutland County (Vt.) Medical Society held its annual meeting on July 14. The election of officers for the ensuing year resulted as follows: *President,* Dr. W. W. Townsend; *Vice-President,* Dr. H. L. Martyn of Cuttingsville; *Secretary,* Dr. William Stickney: *Treasurer,* Dr. H. R. Ryan.

Obituary Notes.—Dr. Paul S. Redfield of Providence, R. I., died at his home on July 19, aged 70 years. Dr. Redfield was graduated from the medical department of New York University in 1866. Owing to failing health he had practiced but little of late years.

Dr. Andrew O'Malley of San Antonio, Texas, died on July 20, after several months' illness. Dr. O'Malley was graduated from the College of Physicians and Surgeons, New York, in 1890, and served as interne at the Roosevelt Hospital. He was for a time connected with the New York Polyclinic and had written largely on medical subjects.

Dr. Claibourne Watkins of Little Rock, Arkansas, died at his home on July 20, after a long illness, aged 64 years. Dr. Watkins, after serving with distinction in the Confederate Army, was graduated from the Jefferson Medical College at Philadelphia in 1868. He was one of the founders of the medical department of the University of Arkansas, and for a long time served on the faculty of this institution. At the time of his death he was a professor emeritus.

Dr. William Henry Snyder of Brooklyn, N. Y., died at the Seney Hospital on July 30, of appendicitis, at the age of 24 years. He was graduated from the Long Island College Hospital in 1903, but for the last two years had engaged in business.

Dr. Edward Vincent Brown of North Tarrytown, N. Y., died on July 25, in Portland, Oregon, at the age of 71 years. Dr. Brown was a graduate of New York University medical school in 1863, a member of the American Institute of Homeopathy, and a visiting physician on the staff of the Tarrytown Hospital.

Dr. Alexander Hamilton Laidlaw of New York died on July 29, at his home, aged 80 years. He was graduated from the Hahnemann Medical College in Philadelphia in 1861, and had not practiced since 1905. He was the author of several works and had been always greatly interested in educational subjects.

Dr. Horace Y. Evans of Philadelphia died at Breakwater, Me., on July 23, at the age of 74 years. He was graduated from Princeton University in 1855, receiving the bachelor's and master's degrees; and from the medical department of the University of Pennsylvania in 1858. Subsequently, he prosecuted post-graduate studies abroad. During the civil war he served as a surgeon in the United States Army, entering the service with the City Troop in 1860.

Dr. Franklin J. Evans died at Chester, Pa., on July 29, at the age of 45 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1884. He was President of the Delaware County Medical Association, Physician to the Baltimore and Ohio Railroad Company, and he was a member of many fraternal organizations.

LETTERS TO A NEUROLOGIST.

To which is appended brief replies purporting to set forth concisely the nature of the ailments therein described, with remarks on their appropriate treatment.

X. From a Lady Who Seeks the Deliverance of a Sister Who Is Jealous.

My Dear Doctor:—I wish to make an appointment with you for my sister, Mrs. ———. She will be here next Monday to stay a fortnight. I am greatly concerned about her, and as she is seeking your counsel at my urgent solicitation, I feel at liberty to tell you something of the conditions, as far as I know them, under which she is struggling. I am convinced that she is not only sick in body but mentally ill as well, otherwise her weakness, backache, apathy, and depression cannot be explained.

My sister and I were left orphans at an early age. My father died when I was seven and my sister but an infant. My mother lived on, a heartbroken invalid for ten years. When she died, I was seventeen; my sister, not quite eleven, was a delicate creature, having, I am told, suffered much from digestive trouble in her infancy, and been threatened with rickets.

From a child she would devote herself passionately to one person in whom she lived and breathed. She could be, apparently, in the seventh heaven of delight, when a cold word or an indifferent look from the beloved one would plunge her instantly into the depths of gloom. When we were left alone in the world she became deeply attached to me, and had she not fallen in love I should have considered it my duty to refrain from assuming more intimate ties and to guard and protect her always.

At twenty, however, she fell violently in love with a young man a few years her senior, whose family we had known always. Her engagement was a short one. She was married and nine months later her first child was born. Everything was apparently most felicitous in spite of the fact that she did not escape those hours of disappointment and disillusionment which fall to the lot of every young bride. It was at this time that I felt at liberty, my sister being settled, to seek my own happiness. I married an old friend, a German officer, and have lived in Germany for the last sixteen years. I have a large and engrossing family, and although I have kept in touch with my sister as much as possible, I haven't been under the same roof with her for any length of time, until my present visit, which is now terminating.

When my sister met me at the station her appearance gave me a shock. She looked almost transparent and her eyes had a strained, excited expression, which I had noticed in the past only at times of extreme exaltation. She seemed delighted to be with me, but instantly became reserved when I asked if all were well with her. Her husband, she said, with a shrug of the shoulders, was away from home amusing himself. Her boys, respectively 13 and 15, were at boarding school. She was alone. I did not notice during the first twenty-four hours that she was much changed, for we recalled the past and lived over in imagination many happy days long gone by. As time went on, however, my attention was attracted to a peculiar expression which seemed to come over her face at short intervals without apparent cause. Her interests in whatever subject we were discussing seemed suddenly to fade away—her face would get pale, her features immobile and her eyes fixed. Her thoughts were either far away

or her mind's door was closed. There was an impenetrable barrier of some kind between us. I perceived that my sister was not happy, that she had something on her mind, and that her natural reserve and sensitiveness led her to hide it from my searching eyes,—she seemed to be on guard.

It was two weeks or more before I could induce Mary to speak of herself and then she would let down the barriers only a few moments at a time. She would be on the eve of a confidence when she would suddenly become distant in manner and absolutely impenetrable. By degrees, however, I have learned the true state of affairs. The illness of one of my children calls me home and I am sailing in three days. I am in the throes of a divided duty and feel the greatest concern at leaving my sister, but I am convinced that under the circumstances the best thing I can do is to entrust her to your care, for I feel sure that you will know how to win her confidence.

But let me tell you what I know. I will try to piece together the bits I have gathered from her from time to time. She is, as I have said, morbidly sensitive and has an intense craving for approbation, and although a devoted and self-sacrificing mother, her instincts are more uxorial than maternal. She has sent her boys away from home for two reasons—the first, that she is not strong enough to be both wife and mother, and the second, she sees or imagines she sees, a growing antagonism between her husband and her eldest son, but more of this later. The husband came home a week after my arrival, and I took it upon myself to observe him closely. Years have but intensified his peculiarities. He has an iron constitution, a clever but uncultivated mind, inexhaustible spirits and a most exacting nature. He is easily bored and will take any means to escape boredom. He has no religious convictions—to him this world is all we have and he looks upon the man who does not grasp every pleasure that lies in his way and rush up every avenue that promises pleasurable sensations as an unmitigated fool. He is a law unto himself and recognizes no boundaries but his own limitations. My sister confesses to me that at different times her jealousy has driven her to thoughts of suicide, and there are indefinite rumors that at one time she acted irrationally for a few days. During their entire life together, beginning eighteen months after their marriage, her husband has had a succession of affairs—probably harmless in one sense, for they have been with women in his own class, often with his wife's intimate friends, and these women have lost neither position nor reputation. His intense vitality makes him irresistible to some women. For the time being, he lives only for the object of his admiration, whom he surrounds with every outward evidence of his approval whenever opportunity offers. In the ballroom, or in the country, his wife has purposely placed herself in a position to overhear what he may be saying to the woman whom he admires, and she has heard caressing compliments in the delightful, magnetic tones which won her own heart directed toward some one else.

For dreary days and sleepless nights she would eat her poor heart out—and then he would return to her. So far he has apparently never failed to return. Then would begin a struggle of another kind. She would try, in spite of her delicacy, to fulfill all his requirements—take long walks, exhausting rides, enter with apparent interest and enthusiasm into all his schemes. At these times he would devote himself to her. It almost seemed as if he would devour her soul and body. Then reaction would set in—he would seek alluring fields and pastimes new, go away from home alone and leave the poor little bruised being a prey to all the forebodings that a sick body and jealous mind could fabricate. At times I fear she must have been beside herself, but he always returned in time to restore her in part, and her broken condition seemed to appeal to a side, which, if you will believe me, is not his better side. It seems to me that he takes a certain satisfaction in seeing what devastation he has accomplished. My brother-in-law is now away on a shooting trip and I feel that my sister is in no condition to be left alone. I am also convinced that she needs medical advice and care.

She has been receiving treatment from a physician in ————————, who thinks she has some spinal trouble, a weakness of the spine. At times she complains of a great deal of pain in the back of the head and neck, and of fatigue, which apparently is not the result of exertion. At other times these complaints disappear suddenly and she will seem quite well. I do not know that I make my meaning quite clear to you, but there are periods when she seems quite normal; yet within a few days, nothing having apparently intervened meanwhile, she will go to pieces, become terribly depressed, apathetic and uncommunicative. One would think she was becoming a prey to melancholia.

One time the doctor gave her a rest cure, another time he burned her back, and lately he has been talking about sending her to a sanatorium. I haven't had much conversation with him about her, but I am convinced that in his interpretation of her condition he does not take into consideration the fundamental part that the mental or emotional element plays in her case.

I have observed her very closely during the past two months, and the result of my observation is that her physical suffering is largely dependent upon disturbed peace of mind. It is with difficulty that I have persuaded her to come to New York and see you. I feel convinced that you will succeed in bringing her back to a normal state, particularly if you gain her entire confidence and make her feel that she can rely upon you to listen understandingly to the complications of her life.

Apparently she has every worldly possession that goes to make life worth living, but the peace of mind surpassing wealth, which the Sage is said to find in meditation, eludes her.

After you have seen her I shall be grateful for a letter, telling me what you think of her condition. Don't hesitate to tell me if you conclude that it would be to her advantage to have me here, for I can easily arrange to return in the spring. I fear, however, that one of her own flesh and blood is not the best person to help her at the present time.

Yours very sincerely,

———

New York, Oct. 13, 1907.

My Dear Madam:

I have your letter of yesterday requesting an appointment for your sister. I hasten to reply so that you may have my view of your sister's case before you leave for your home, more particularly as I wish to get some further details from you before she comes to see me.

You have given me such a lucid account of your sister that I am able to say what her chief trouble is. Perhaps after receiving my reply you will think it

wise to take her to a priest, not a doctor. We really haven't made any advance in the treatment of jealousy since the time of Moses. In those days, when the spirit of jealousy came upon a husband or a wife, they were brought unto a priest, and it is probable that you can do no better than follow the example of the Israelites.

We who deal with disorders of the mind, as well as of the body, have sometimes to combine the offices of the priest and physician, but fortunately for the reputation of the clergy, we do not thereby arrogate to ourselves a comprehension of practical theology which surpasses that of men trained in that profession.

Jealousy is an instinct which we inherit from our animal ancestors. Those versed in biology and the laws of heredity do not hesitate to tell us with much confidence that it is an mnemonic engram, something almost as specific and material as a million dollars, but however this may be, no one denies that it is a heritage of animals and barbarism. It originates at a period in the development of the human species when possession depends upon might, and retention upon artifice and violence. It is an indirect effect or derivative of the most profound primordial passion. In other words, it is an irradiation of the sexual appetite which has a peculiar mental character.

In women it is less brutal and violent than in men, but what it lacks in these qualities it makes up in being more instinctive and more penetrating. Jealousy is like all other hereditary infirmities. It is very little influenced by what is commonly called treatment. To eradicate it requires the combined efforts of education and selection. These carried on for a sufficient length of time may gradually overcome it. As physicians, we have very little to do, unfortunately, with either of these activities.

I shall be glad to see your sister and listen sympathetically, and, I hope, understandingly, to her story. Perhaps I shall be able to suggest to her a line of conduct and a mode of thought which will bring into her life a greater amount of happiness. Except in a general way, however, it will be an experiment, because in every case in which disorder of the mind or of the emotions, flowing out of unhappiness, is the complaint, the indiidual and not the disease is what we have to treat. There are certain general principles underlying the treatment of such diseases as typhoid fever and pneumonia, but when it comes to the treatment of a state of mind which is the result of injustice—for I presume that everyone admits that jealousy is injustice—there are no cardinal principles.

I gather from your letter that your sister, besides being sensitive, romatic, and impressionable, is rather a literal person. She is, I presume, about thirty-five years old. The opportune time to attempt to eradicate those emotional qualities which are now contributing to her unhappiness has long since gone by. Not only is her character fully formed and set, but habitual modes of mental and emotional reaction to all sorts of stimuli have developed within her. She can scarcely hope to change this, save by prolonged mental discipline and toil. "For labor must lead the way to every fair possession, and he must toil who is eager to attain virtue. Thou knowest that Herakles and the Dioskuri, and Asklapius, and all other children of the gods, through toil and steadfastness accomplished the blessed journey to heaven. For it is not those who live a life of pleasure that make the ascent to the gods, but rather those who have nobly learnt to endure the greatest misfortunes." So wrote Porphyry, the Boswell of the Neo-Platonists, to his wife, Marcella, upward of fifteen centuries ago. I commend the letter from which this paragraph is taken to your sister.

Can you encourage me to believe that it will be possible to convince your sister that her experience is not unlike that of many of her sex, that in reality it is her lack of confidence or trust in her husband that precipitates her acutest misery and thrusts her into the injured lover's hell; that she does not make allowance for average human frailty; that she neglects to sum up the total of her husband's virtues and of his deficiencies and putting them in the judicial scale abide by the kick of the beam?

Furthermore, what shall I do if I become convinced that her husband's conduct is such as to justify resentment? Do you think it will be advisable for me to send for him and apprise him of my belief? Is it not possible that he will resent interference on my part, even though I put it on the grounds that his wife's health not only justifies but demands my interference? Moreover, I say to you now, frankly, that I may permit myself some latitude of professional privilege and advise her to apply for a divorce, for uncontrollable jealousy is, to my mind, a legitimate cause for such action. It might be well, therefore, for me to learn how the family look upon such a possibility.

I gather from your letter that you, who apparently understand your sister fairly well, and who have had much opportunity recently of seeing her, are of the opinion that there is some justification for her jealousy. But if her husband is a type of man that harks to no higher call than the gratification of his every desire, it seems to me that we cannot do much with such a person. What is there in him to which I can appeal that will be likely to influence him to shape his conduct more in conformity with his wife's wishes? I cannot believe that he is insensible to the fact that her complaints flow indirectly from his conduct. Is her health and happiness of such importance to him that he will be willing to make some sacrifice in order to secure them? You have not drawn him very clearly, and yet I feel that I must get an accurate description of him, in order to be of service to her. If you can tell me something of his conception of happiness, destiny, and justice, you will aid me in forecasting her future.

The only encouragement I can offer is that I may be able to give your sister, by suggestion, a mental attitude—a point of view—which in time may become a philosophy of life in which jealousy can be intellectually fought and conquered.

I need not tell you that there is scarcely any affliction so potent to cause misery and suffering as jealousy. Yet, what effort is made to eradicate it in the growing boy or girl who shows its warping effect and its baneful consequences? We take infinite pains and care to instil into the budding mind principles of honesty, veracity, chastity, and temperance. We expend any amount of energy in pointing out to our youth the advantages derived from learning to "play fair." We infuse them with sentiments of altruism, of unselfishness, of generosity—in short, with all the so-called humane impulses—but so far as my observation entitles me to an opinion, we do little or nothing towards teaching our youth that jealousy is more potent to produce misery and unhappiness in themselves and others than almost any other mental possession.

Suppose, for instance, that when your sister first began to feel the tentacles of this parasite fastening themselves upon her she had reasoned with her-

self, or had been reasoned with, to the effect that matrimony does not necessitate that either one of the contracting parties should cease to seek pleasure and diversion from association and honorable intimacy with persons of the opposite sex, and that so far as her information went such was the extent of her husband's guilt. Do you think she would have resolved, and fortified her resolution with whatever appeal to the supernatural her training and mental make-up suggested, to thrust jealousy out of her mind, as one throws out of his house a person who has attempted to impugn his honor and rob him of his best asset, integrity? Or do you think she would have been more likely to wreak vengeance upon the person whom she thought was trying to share some of her husband's attractiveness, a possession which she believes belongs to her exclusively? Is your sister a person who will be as frank and honest in discussing this feature of her affliction as you think she will be in laying before me her conception of the cause of her misery? From your knowledge of her, can you tell me if she has the capacity to take into consideration that not only is she concerned, but many others as well? I shall be able to find this out for myself, but your opinion in the matter will be helpful to me.

Perhaps you can also tell me something of your sister's interests, particularly what makes life for her worth living? Maeterlinck maintains that it is reasonable to believe that the paramount interest of life, all that is truly lofty and remarkable in the destiny of man, reposes almost entirely in the mystery that surrounds us; in the two mysteries which are the most dreadful of all—fatality and death. If this is so, and if your sister is so fortunate as to be a woman imbued with religious sentiment, it may be comparatively easy to give her a new point of view. She will accept, or, at least, make a serious effort to accept, that which is foreordained, believing that it has been initiated and sanctioned by the Infinite to which she bows resignedly. And if at first she cannot accept it fully and peacefully, silence and prayer and the religious attitude will facilitate its acceptance. If, however, her idea of life is—

> "To eat, to drink, and in communion sweet.
> Quaff immortality and joy,"—

the problem will be a more difficult one, but not necessarily insoluble. For if this life is all, then it behooves us to make it a success, to make ourselves and our associates happy, to spare no pains, to hesitate at no mental or moral operation which can reveal to us the art of living, and give to us and to those we love serene and beautiful days.

Correspondence.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

To the Editor of the Medical Record:

Sir:—The International Congress on Tuberculosis will be held in Washington from September 21 to October 12. With the exception of those of 1876 and 1887 it will be the first great international medical congress in the United States. There seems to be no reason why it should not prove a great success, and both the Americans, who planned, favored, and prepared it, and the Europeans, who have been taught to expect great things from America, are looking forward to the congress of 1908 as an event of the first magnitude.

Its objects are the study, prevention, and eradication of tuberculosis, the most formidable enemy of mankind, sapping its vigor and endangering its future. That is why in all countries both medical men and laymen have combined to search in the medical and social sciences for the root of the great evil, and are looking for its gradual extinction. That is also why educated and generous citizens have come forward with financial aid and mean to participate in the labors of the congress.

But, after all, a congress of this nature and with this program must be carried on mainly by the medical profession, and its objects cannot be realized without the cooperation of thousands. Now these lines have no other purpose than to draw the attention of the members of an ever ready profession, those who have forgotten or delayed, to the fact that only a few weeks more will pass before the congress will be opened. Meanwhile, the State of New York, the Empire State, had until a few weeks ago furnished less than five hundred active members. Five dollars sent to the Secretary-General, Dr. John S. Fulton, 1714 Colorado Building, Washington, D. C., will secure membership, including admission to the meetings and a copy of the Transactions of the congress. It seems that a mere reminder like this will swell the list of active members, whose duty and right appear to be to prove to the world at large, and particularly to those many foreigners who will visit us on this occasion, that America takes a prominent stand among the countries which value the health and the lives of their citizens. That is, Mr. Editor, why I take the liberty of requesting you to publish this appeal to my professional brethren of this and other States.

A. Jacobi, M.D.,
President, 4th Section, International Congress on Tuberculosis.

New York, August 3, 1908.

OUR LONDON LETTER.

(From Our Special Correspondent.)

CANCER RESEARCH—SANITARY INSTITUTE—TONE OF CARDIAC MUSCLE—HOSPITAL PRIZES, LONDON, GUY'S—OBITUARY.

London, July 17, 1908.

The annual meeting of the Imperial Cancer Research Fund was held on Tuesday, at which it was stated that the number of cases reported upon by the home hospitals after complete pathological examination now exceeds 10,000. The systematic experimental investigation of cancer is only of some five or six years' growth, and at the outset, as Dr. Bashford, the medical superintendent, points out, it was impossible to foresee along what lines it would advance, what animals would be most suitable for observation, and so on. Experience has taught much as to the requirements for the research and the scale on which observations must be conducted.

The executive committee reported that invitation had been received to join in the establishment of an international committee, but it was thought to be more advantageous to encourage an active interchange of views and material between the workers of the different countries. In pursuance of this policy the committee gave facilities for Dr. Gierke from Berlin and Dr. Russell from Aberdeen to work in the laboratories, which have further been visited by distinguished scientists from America, France, Germany, etc., who desired to learn the details of the organization and administration of the fund and the experimental processes employed in the laboratories. The expenditure of the year was over £14,700, exceeding the receipts by £1,443. The treasurer acknowledges the liberal assistance of the two Royal Colleges, which provided free accommodation in their laboratories. How far this may continue seems uncertain.

Sir Wm. Church moved the adoption of the report, referred to various portions of the work, and announced that full details would shortly be published in the "Third Scientific Report," which will differ from its predecessors by taking the form of seventeen separate, signed papers by the staff. It is three years since the second scientific report was issued, but results have in the meantime been frequently communicated to the Royal and other societies, in order that other workers in the same field might obtain them. Some of these I have communicated to you in former letters. Sir William drew attention to some of them, *e.g.* Dr. Bashford's, on the ethnological distribution of cancer, showing how fallacious are mortality returns as indicators of the prevalence of the disease, the number of deaths assigned to cancer increasing with the accuracy of the vital statistics of a country. The experimental study of cancer in mice and rats is based on the fact that inoculation gives rise to tumors characterized by the same powers of growth and tendency to dissemination as the spontaneous disease. The course in mice is closely parallel to what is seen in man. Spontaneous or induced, it does not at first interfere with general nutrition. The weight of a mouse increases with the growth of the tumor. In the later stages,

when hemorrhage or ulceration has taken place, diminution is found, and the mouse seldom lives above two weeks after loss of weight begins. As in man, removal is followed by a period of apparent recovery and the lost weight is regained. Recurrence is frequent—sometimes not for sixteen weeks, a considerable period in the life of a mouse. Metastases occur whether removal has been done or not, lending no support to the notion that operation favors metastasis. The failure of implanted grafts to develop seems to depend on the non-penetration of the graft by the tissues of the heart, and retrograde changes taking place for want of nutrition. No explanation of this appeared to Sir W. Church sufficient for acceptance. Absorption of normal mouse tissue appears to confer on mice a degree of immunity—special tissues to special forms, *e.g.* absorption of normal skin appears to give complete immunity to squamous-celled carcinoma; the absorption of tumor tissue increased resistance to inoculation of similar growths than to those with a different histological structure.

Mr. Butlin, in seconding the report (which was afterwards carried), referred to an objection that had been put forward as to cancer researches, that it had done nothing to solve the two great problems of cause and cure, and so was only of interest to the scientific world. He held that it was not a matter of indifference whether a surgeon called to treat a case held one theory or another. In his student days the humane pathology prevailed. The operators, therefore, did not hope to cure their patients, but only to afford some relief or prolong life for a few months. Before he began to operate the local origin was maintained by able pathologists, and surgeons began to operate with some hope. Accordingly, operations were better designed and more thoroughly performed. Nevertheless, until quite recently it could be argued that cancer was a constitutional disease. The result of our research has confirmed the theory of local origin, and has placed it on so firm a basis that he would be a bold man who would now maintain the older view. As a direct consequence of research, surgeons operate with a confidence which depends on a more accurate knowledge, and far greater success is attained. So, while anxiously looking for the discovery of an antidote, surgeons, Mr. Butlin declared, are profoundly grateful for what has already been done, and he had no hesitation in asserting that all the time, the labor, and the money which had been expended on cancer research are as nothing compared with the benefit which that research has already conferred on medicine and on the public.

The twenty-fourth congress of the Royal Sanitary Institute was opened at Cardiff on Monday. About 200 delegates were present. The Lord Mayor opened the exhibition of sanitary apparatus and appliances. The inaugural address was delivered by the Earl of Plymouth, who said sanitation meant comfort, health, and happiness for the people. It went a long way towards abolishing crime, immorality, and the evils that followed in their train. Inventions to keep microbes at bay ought not to be necessary. By leading healthy lives, in healthy surroundings, they could defy microbes. In newly-built houses provision should be made for open spaces and covered balconies for children to play on in the open air, instead of the dirty street. Women could sit there and watch them and work, and in summer such a space might often serve as a dining-room.

The section devoted to preventive medicine and sanitation was opened on Tuesday by Dr. Davies of Bristol, who urged that pathological and chemical laboratories should form an integral part of the medical service.

"The Tone of the Cardiac Muscle" was the subject of a paper at the Royal Society of Medicine by Dr. A. M. Gossage. He considers that probably the muscle is capable of two forms of contraction, that to which the term is usually applied and that which is to be distinguished as "tone." They may occur either separately or together. Nevertheless, he said, "tone" was never altogether absent, and on it ordinary contraction was, so to say, superimposed, but this was diminished by increase of contraction. Dilatation is due to loss of tone. Increased tone diminishes contractility, conductivity, and excitability. The action of cardiac toxics is chiefly to increase tone. Digitalis powerfully excites the muscle, increasing the rate of the rhythm; it also excites the vagus, and thereby diminishes the rate, but excites the tone. When contractility is depressed digitalis will increase the depression. Cardiac irregularity after digitalis is not due to increased excitability, but (1) a hidden irregularity may be unmasked by a diminution of rate; (2) extra systoles may be excited by the drug; (3) beats may be dropped out from depression of conductivity; (4) an alternating action of the heart may be caused, which is almost certainly due to depression of contractility.

Dr. James Mackenzie said that sudden dilatation of the heart was followed by an increase in its rate—a fact which might perhaps be explained by diminished tone lending increased excitability. Dr. Cushny said we must distinguish between toxicity and elasticity; the duplex action of digitalis, muscular and vagal, also. Decreased excitability was, he held, a vagal effect. Dr. A. Morison held to the nervous explanation of the action of digitalis; Dr. Cayley to the myogenic. Dr. D. B. Lees thought cardiac tone was in reality a spinal reflex.

This is the season for the distribution of prizes at the medical schools. I have sent you a note on one or two, and will now add others. At the London Hospital the function was combined with the unveiling of the statue to the Queen. The ceremony was performed by the Earl of Crewe. The statue is the first erected to Her Majesty, and is presented by the committee, staff, and a number of governors to mark the fact in the hospital's history that the Queen had consented to be its president, in succession to the late Duke of Cambridge, who had held that office for over fifty years. It further marks the appreciation of the deep interest taken in the work of the hospital by Her Majesty, who has paid many private visits to the wards, who in the dark days of the South African war sent out twenty-six of the nurses at her own expense, and came down to bid them Godspeed. To the Queen, also, the hospital owes the installation of the first Finsen lamp used in this country.

In distributing the prizes Lord Crewe said the British public did not know much about the schools, only seeing the splendid results. He told the students they were about to join the most noble of all the lay professions, and those who had not taken a prize might feel satisfaction at any honest work they had done to qualify them.

At Guy's Hospital Lord Rothschild distributed the prizes, and defended the claims of medical schools against some objections to making them an adjunct to hospitals. It had been said by some of these that the presence of students interfered with the comfort of patients, to which Lord Rothschild replied that this was not the case, and the students were often of the greatest service. He repudiated the idea that vivisection made them inhumane, and instanced the case of a friend of his, an old student, who being seriously ill, the workpeople of the neighborhood waited outside his door for news of his progress. The last objection noticed was cruelty to animals, as to which his lordship said anesthetics prevented suffering, and the benefits to humanity were so great that even slight suffering would not be sufficient cause for forbidding experiment.

Sir John Banks, K.C.B., died yesterday in Dublin, where he had spent a long and honorable career. He was physician to the King in Ireland and the first president of the Royal Academy of Medicine. He took M.D. at the University of Dublin in 1843, and became its Regius Professor of Physic in 1880, holding that office until 1898. He had also been president of the Royal College of Physicians, of which he was admitted a Fellow in 1844. He had received the honorary degree of LL.D. from Glasgow University, and D.Sc. from the Royal University of Ireland, on the senate of which he had served. The societies which delighted to honor him were numerous, and he was not only a leader of the profession, but of various institutions in the city. His clinical work was done chiefly at Sir P. Dun's and the Coombe hospitals, of which he became consulting physician, as also at the Royal Eye and Ear, the Richmond, and Hardwick hospitals. Among his literary contributions were "Typhus," in Quain's Dictionary, and various articles in the *Dublin Medical Journal* and the *Pathological Transactions.*

The death is announced from Brisbane of Sir Thos. Naghten Fitzgerald, F.R.C.S.I., 1884. He was born in Ireland in 1838, and qualified in 1857 from Mercin's Hospital. He went to Australia in 1858, and soon took a high position as surgeon, becoming at length senior surgeon to the Melbourne and consulting surgeon to St. Vincent's Hospital. He was president of the Victoria Medical Society in 1883 and 1889, and was also president of the Intercolonial Medical Congress. He was knighted in 1897.

Dr. Henry Ashby of Manchester died on the 6th inst. He took the M.R.C.S. 1873, M.B. Lond. the next year, and M.D., with gold medal, 1878. He became lecturer at Owen's College, and examiner at the university. As physician to the Manchester Children's Hospital he devoted himself to that department of medicine

with the greatest zeal, which was recognized by the American Pediatric Society creating him honorary member. He delivered the Whitmore lecture of the London Society; was elected F.R.C.P. in 1890. He enjoyed the confidence of the profession, and so had a large practice, but he found time to write several excellent works, among them the volume on diseases of children, jointly with Dr. G. A. Wright, which reached a fifth edition some two years ago. The journals and societies also received important papers from him. He was president of the Manchester Pathological Society in 1885-6.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 16 and 23, 1908.

The Use of Fresh Animal Sera in Hemorrhagic Conditions.—T. Leary reports a series of cases of hemorrhage occurring variously in jaundice, the newly-born, and purpura, postoperative, uterine, typhoid, etc. He used rabbit serum exclusively. His series comprised 20 cases in all, in 15 of which hemorrhages had already occurred. In the remaining 5, the remedy was used as a prophylactic measure. Diphtheria antitoxin has been advised for hemorrhagic conditions and has been used to a slight extent, but to be of service in this connection it should not be more than two weeks old. The subcutaneous route is preferred for all the injections, 30 c.c. being the amount usually employed. The ordinary serum sequelæ may appear as usual. Of greater significance are the anaphylactic symptoms—sudden dyspnea, cyanosis and death—which may arise when a second injection or series of injections is made after an appreciable interval has elapsed since the first injection. This condition, common in guinea pigs, is rare in man. It is regarded as due to an increased sensibility to the toxic principles of the foreign serum, due to a sensitization of the body cells by a substance present in the initial dose or doses. Within an interval of ten days this danger seems to be absent. The author says that his series of cases is too small to permit the drawing of any conclusions, but he pleads for a wider use of the agent under the clinical conditions enumerated.

A Typhoid Carrier Fifty-two Years After Recovery.—Gregg's patient was a woman of 74 years who had had typhoid fifty-two years previously. She was a woman who had kept boarders, and whose house was clean and neat. Seven cases of typhoid presented one common factor, viz. that this woman prepared food for them all. Her blood was negative to Widal and her urine contained no typhoid bacilli but a plating of the fæces revealed a bacillus which responded to all the tests for the *B. typhasus*. No other evidence could be adduced that the seven cases had a common origin but it seems highly probable that this was the case. Similarly it could not be proven that this woman had been excreting typhoid bacilli all these fifty-two years but there was no history of a second infection.

Pustular Acne Heated with Staphylococcus Vaccine.—A man of 64 years under the care of B. D. Ridlon suffered from pustular acne of the nose for a year or so and did not improve. Various ointments and applications supplemented by constitutional treatment and the light treatment had been tried with little or no effect. His nose at time of admission to hospital was nearly twice the normal size, inflamed and covered with dried scabs and pustules. Cultures were made from the pus of some of the pustules which proved to be pure staphylococcus albus, and vaccines were obtained from these. May 26, 1 ccm. injected. This injection was followed by no physical signs except on the second day a marked improvement in the appearance of the nose. The inflammation had noticeably abated and the pustules had begun to disappear. Five days later improvement continued, nose had attained normal size and soreness had nearly disappeared; patient able to wipe his nose for the first time in months. In another week second injection of 1 ccm. Improvement continued and redness fast fading out. Eight days later third and last injection. Appearance of nose steadily improved until all signs of the disease disappeared except the scars of the pustules and there has been no recurrence to date (three months).

New York Medical Journal, July 25, 1908.

Expert Testimony and the Alienist.—W. A. White says that society has too long dealt with crime either from the standpoint of revenge—the principle of "an eye for an eye, a tooth for a tooth," is the principle upon which our criminal code is built and which controls much of its application even to-day—or from the standpoint of a disagreeable affair with which the easiest way is the best, and so it locks up the culprit, turns its back upon him, and tries to forget all about it. The time has passed for either one of these attitudes. Revenge may be sweet, but it is usually a pretty expensive indulgence. Crime is a social phenomenon and demands attention if for no other than economic reasons. It is distinctly an unwise policy that continues a system which actually makes criminals. What else can be expected when a young boy for his first offense is ruthlessly shut up in prison to associate exclusively for months with a collection of the worst and most incorrigible offenders? It is a distinct duty, pointed to by actual dollars and cents economy, to keep men out of prison, or if they get in to restore them to independence at the earliest possible date. These results will never take place until we learn to deal with the criminal and not the crime. This, says the author, would seem to be the rational method for the State to pursue. How best can it be accomplished? If insanity is the defense the defendant should be sent to the nearest State hospital for the insane. Surely if a person is insane the place for him is in an institution for the insane and not in a jail. Not only this, but only under the close observation possible in a hospital can the best results as to the diagnosis of the condition be expected.

A Note on Conjugal Diabetes.—A. C. Croftan has found six cases in a total of 241 diabetic patients. He quotes some statistics from other writers. In regard to the conjugal factor he says that it is clear that we are dealing in most of these cases with more than a coincidence; such a thing may occur by chance; but in his series, for instance, in which glycosuria was regularly looked for in the consort, the proportion of instances discovered is far too great to warrant the inference that this is the case. One must think of common errors of alimentation obtaining in a family, or of common errors of living, of exposure to common nervous, mental, and emotional influences. One must think finally of contagion. Syphilis and malaria can produce glycosuria; also certain other contagious and infectious disorders of known type that cause vascular degenerations in important organs (liver, pancreas, nervous system) concerned in sugar metabolism. It is not impossible that other infectious agents of unknown character and origin may be concerned in the transmission at least of certain types of diabetes. This subject is well worthy of further study; it is a corollary of the contagious theory of gout that is gaining many adherents. To deny the possibility of a contagious diabetes on the one hand is precarious; to affirm its existence on the other altogether premature. These facts and considerations at least warrant further investigation and the collection of more elaborate and more exact statistics. They have induced eminent authorities to commit themselves strongly in favor of the *reality* of conjugal diabetes.

Journal of the American Medical Association, July 25, 1908.

Fresh Air in Pneumonia.—T. W. Kilmer reports the results of the fresh air treatment in 16 cases of lobar pneumonia and 20 cases of bronchopneumonia in dispensary babies. Nearly every clinical type was represented, from mild to very severe, and the diagnosis was positive in every case. Many of the parents were ignorant, but willingly followed instructions and carried out the treatment surprisingly well. The treatment of both lobar and bronchopneumonia in these cases consisted in giving an initial purge (castor oil or calomel); mustard poultice to the chest; sponging to reduce fever; cutting down diet to one-half strength; hygiene of body, clothing, and sickroom, etc.; light expectorant every two hours for six to eight doses in twenty-four hours; keeping the gastrointestinal tract clear; abundance of fresh air; rest. One patient died, but not until the mother had insisted on taking the baby to a hospital; it is nevertheless included in the series. This makes the mortality 2.77 per cent., which is remarkably low for either private or hospital practice. The study, Kilmer thinks, shows conclusively that, by a combination of simple instructions to parents, and quiet, rest, proper food, and, above all, fresh air for the child, the mortality of one of the most serious diseases of infancy can be greatly reduced.

Diagnosis of Rabies.—J. B. Rucker has used the smear method of Williams and Lowden in the examination of thirteen cases for the Negri bodies, and described it as follows: A small piece of the gray matter of the brain is excised and placed on a clean slide near one end. The cut should be at right angles to the surface, only a thin piece being taken in order to avoid the white matter as much as possible. A clean cover-glass is placed over the tissue and pressed down with the thumb until it is thinly spread out, and with even pressure the cover glass is drawn almost to the other end of the slide. A little practice will enable one to thus produce a thin, even film of tissue. He used both the modified Giemsa stain and

also the modified Van Gieson stain as used by Williams and Lowden. The details of his thirteen examinations are briefly given, and he concludes, from his experience, that the smear method is preferable to all other methods, because: 1. It is much simpler than any other, on account of the extreme facility with which the smears may be made and stained. 2. It is much shorter than any other, requiring only from fifteen minutes to three hours. 3. In the smear method the Negri bodies appear very distinctly, and their minute structure is brought out very clearly. 4. The smear method is absolutely reliable.

Neurotic Hair Disorder.—L. D. Bulkley and H. H. Janeway recognize as neurotic and nutritive disorders of the hair the following conditions with their various etiologic varieties: Hirsuties, alopecia, canities, fragilitas crinium, trichorrhexis nodosa, alopecia areata, and monilithrix. The hair, they say, is an active, live portion of the economy, subject to various alterations dependent on its innervation and nutrition. The changes that occur in the hairy coats of sick animals would indicate this. There is a certain increase of activity of the hair follicles at puberty and a waning of the same in old age; fevers and nervous strain have their effects also on the hair. In 15,240 miscellaneous dermatologic cases in private practice a total of 1,129, or 7 per cent., were of the classes here considered. There were 175 cases of hirsuties in females, a condition not infrequent in insanity and at the menopause. The authors deem it probable that sexual derangements existed in a large proportion of these cases. Where facts were recorded menstruation was regular in only 22.8 per cent. There were nervous disturbances recorded in 31 cases. Six hundred and seventy cases of alopecia are tabulated according to ages; the most occurred between the ages of 20 and 22, and the great majority in males. Fevers, nervous disturbances of various kinds, debility, heat, daily use of shower bath, etc., were given as causes; in 182 cases no cause was assigned. In 22 cases it was ascribed to heredity. Thirty cases of canities are tabulated, three males and twenty-seven females. In four cases there was a clear history of nervous causes and in a considerable number the condition was associated with general debility. In one case of whitening of the hair in patches it was found due to leucoderma. The authors consider the reports of sudden and complete whitening of the hair from grief, fright, etc., as credibly attested. Twenty cases of fragilitas crinium, all but one females, are tabulated, and 32 of trichorrhexis nodosa, 26 of them females; little is known of the causation of these disorders, but Bulkley and Janeway think that they are more probably due to neurotic and nutrimental rather than parasitic causes. Alopecia areata is treated of at some length; it occurred 202 times in the 15,240 cases, in 1.3 per cent. of the total. In 10,000 public cases its percentage was only .06, or about half as much, a fact that speaks against a parasitic cause. Its spontaneous disappearance and its recurrence with nervous disturbances also indicate its constitutional nature, and its yielding to internal treatment while rebellious to local measures points the same way. It is more frequent in males, 199 of the 202 being of that sex. It is rarely seen in infants or after middle life, occurring most frequently between the ages of 20 and 35; in the youngest case of those here observed it began at the age of three months. While it sometimes disappears spontaneously or yields quickly to treatment, it is often very persistent. Several interesting observations made on these cases are given, indicating the constitutional nature of the affliction. Only one case of the rare condition known as monilithrix has been seen by the authors. While little is known of its causation, they consider a parasitic origin out of the question. In conclusion they insist on the practical importance of attention in these cases of nonparasitic disease of the hair to the constitutionl conditions and errors of living on which they depend. In almost every case it is found that if a physician has been consulted at all, there has been only some local application given, while in the large majority the trouble has been left to the hair dresser. Practically everything but the local condition has been ignored.

Pneumonia Diagnosis in Infancy.—R. G. Freeman insists on the importance of the clinical signs in the diagnosis of pneumonia in infants, and thinks that text-books, by laying too much stress on the physical diagnosis, tend to confuse the beginner. The physical signs are often not available in time to be of use. His conclusions are summed up substantially as follows: 1. Pneumonia in infants furnishes characteristic clinical symptoms on which a diagnosis may be based before the lungs are examined. 2. These symptoms are sudden onset, depression, rapid respiration with pulse ratio of from 1 to 3, fever and usually cough. If with these are observed flaring nostrils, pneumonic breathing and expiratory grunt, a definite diagnosis may be made, while rigidity of the neck and upper limbs, if present, is a valuable confirmatory sign. 3. Auscultation and percussion of the chest should be employed for confirmation of the diagnosis, for localizing the lesion, and for information as to its character.

Interstitial Keratitis.—A. E. Davis reports two cases of diffuse interstitial keratitis in acquired syphilis and remarks on the apparent rarity of the disease from this cause while it is so comparatively frequent in hereditary syphilis. He thinks that this rarity is more in literature than in actual fact, and that there must be many unreported cases. He reviews briefly some of the literature and gives his conclusions substantially as follows: 1. Diffuse interstitial keratitis may occur as the result of acquired syphilis. 2. It usually occurs as a late secondary symptom or in relapses in the tertiary stage. The average time of its development after the primary infection, is given by Stephenson as 10.8 years, but it has been reported as early as three weeks and as late as twenty-three years after the primary sore. 3. It is confined to one eye, though almost always a few exceptions to this are reported. 4. As a rule it runs a lighter course than the inherited syphilis cases, and rarely affects sight. 5. True "salmon patches" are rare in these cases. 6. It is difficult to make a clinical diagnosis between the tuberculous and syphilitic forms of the disease, and even a differential pathologic diagnosis is not always conclusive. 7. The prognosis is good, but it should be remembered that sight has been entirely lost in one reported case.

The Lancet, July 18, 1908.

Ascites in the Newly Born.—H. M. Inglis delivered a woman in her second pregnancy at full term and found the child's abdomen very much distended, being so tense that he could not palpate any of the abdominal organs. About 12 hours after birth the child passed a large quantity of urine, the abdominal tension becoming much less pronounced, the walls being slack enough to allow him to feel the organs. The heart sounds were normal. Death occurred 36 hours after birth. On postmortem examination he found a considerable quantity of bile-stained fluid in the peritoneal cavity. The omentum was so thin that he could not define it accurately. The intestines appeared to be covered with blisters, the largest being of the size of a walnut. As far as he could judge these blisters were little sacs of fluid on the under surface of a thinned-out omentum. All the organs were apparently normal. He attended this child's mother in her first confinement when the child died shortly after birth with a considerably enlarged liver.

Hemophilia in the Newly Born.—F. G. Brittin's patient was the child of a vi-para, an anemic woman who had always had severe postpartum bleeding. The reporter found the os fully dilated, the head presenting, the membranes unruptured and the caput succedaneum. The lumbosacral promontory was very prominent and evidently obstructed labor. Under chloroform he turned and brought down the child's right foot and delivered the child in five minutes without the slightest trouble. There was no undue traction necessary. On the next day he was asked to cut the child's frænum linguæ. It was very short, so he peeled it back with the finger to satisfy the mother. On the following day he visited the case and found that persistent oozing from the frænum had occurred since it had been peeled back. The whole of the frontal region was black, distended, and fluctuating. This swelling extended backwards over the skull and downwards behind the ears, which were pushed out. The skin as far as the clavicles was black. The right shoulder and arm were darkly ecchymosed and the right foot and leg were also darkly colored. On the next day the eyelids were black and the breathing was stertorous and the child died. The author believes that the extraordinary subcutaneous hemorrhage was due to some hemophilic tendency in the child.

Diphtheritic Paralysis Healed by Injections of Antidiphtheritic Serum.—After referring to several similar cases already on record, G. S. Middleton reports the case of a man of thirty-one years, admitted to hospital on account of paralysis. Eleven weeks before he had diphtheria and was in bed for four weeks. After a week in the country he tried to resume work, but was unable so to do owing to paresis of the limbs, preceded by vague pains and numbness in the hands and feet. The paralysis affected also his speech and deglutition. There was no ocular or facial paralysis, no dyspnea, and no palpitation. His legs gradually grew worse and he became unable to stand. Under bed treatment and electricity he failed to improve. Finally, after the paralysis had lasted nine weeks, serum injections were begun. Daily injections of 10 c.c. were made, and after 100 c.c. had been injected there was a slight but distinct gain in power. This was progressive and he gradually recovered his strength. By the end of the

injections he had an urticarial rash which appeared on the limbs and trunk and lasted for a couple of days, and was slightly itchy on the hands. Coincident with the rash was some puffiness of the eyelids and about the ankles, but there was no albumin in the urine. Occasionally he had pains in the calves of the legs and in the thighs of a neuritic character, but they did not trouble him much and had disappeared long before he left hospital. At no time had he any rise of temperature. The improvement that followed on the injections was so rapid in its occurrence and so marked that the author could not but attribute it to the remedy, though the objection might be raised that it may have been just when spontaneous improvement was about to begin that the injections were commenced. He was, however, impressed by the result.

Blood-pressure in Neurasthenic States and the Effects of Certain Forms of Treatment Thereon.—E. D. Macnamara presents the following conclusions: (1) In many cases of neurasthenia there is an alteration of the level of the blood-pressure from the normal, the level being sometimes higher and sometimes lower than normal. (2) Patients who show such alterations and who undergo certain sorts of treatment manifest, in some cases, at the end of a course of treatment, a level of pressure different from that which existed before treatment began. If the pressure at the commencement be abnormally high it will probably descend, while if it be abnormally low it will probably ascend. (3) The number of patients whose blood-pressure is different at the end of their course of treatment from that which it was before treatment began is greater among those without a family history of nervous instability than among those with such a history. (4) In a very large majority of cases the application of high-frequency currents produces a lowering of blood-pressure, while the static bath (+ charge) and massage produce a raising of pressure. The discharging of a patient charged with static electricity results as often in a rise as in a fall of blood-pressure. The application of the Faradic current tends rather to lower than to raise the blood-pressure and the galvanic current cannot be said to effect much change in either direction. (5) It is difficult to institute treatment with any confidence that there will be at the end of the course such an alteration as might perhaps have been expected from a knowledge of the alteration that is likely to follow each application of the therapeutic agent employed, though we may look for a change of level, when the level was at the commencement abnormal, to one that is nearer the normal. (6) There is no evidence that the differences of variation of level before and after treatment which may sometimes be noted can be correlated with improvement in health.

British Medical Journal, July 18, 1908.

Gonorrheal Iritis.—W. M. Beaumont says that the interval which usually occurs between the gonorrhea and the iritis probably explains the fact that the former as the progenitor of the latter is frequently overlooked. As a rule this secondary manifestation of the gonorrheal virus is rare. It is probably more apt to occur in those with a gouty tendency. Rheumatism is generally given the credit of etiology in these cases without apparent cause, but modern teaching bears in a contrary direction. The gout symptoms and eye symptoms are, more often than is generally admitted, both manifestations of a gonorrheal poison. Epitomized histories are given of twenty cases classified as iritis. Sixteen patients out of twenty confessed to gonorrhea, and, even allowing for the prevalence of the lues, this seems to be a higher percentage than can be accounted for by other theories than cause and effect. After due allowance for the circumstance that patients suffering from other forms of iritis, such as tuberculous, malarial, diabetic, etc., less often come to Bath (the city of the author's practice) for hydrotherapeutic treatment, he thinks it is fair to surmise that gonorrheal iritis is much commoner than some authorities are inclined to allow. The connection of iritis with rheumatoid arthritis is less clear, and he leaves it to others to say whether there is, in the first place, any connection whatever, and if so, in the second place, whether the iritis is the result of the rheumatoid arthritis, or whether it and the rheumatoid are both the offspring of some common ancestor.

A Little-known Type of Amblyopia in Children.—S. Stevenson gives the histories of six cases. He notes that a child may be brought for advice on account of poor sight, often discovered for the first time during early school life. In the hurry of an out-patient department it may happen that the underlying condition is assumed to be one of ordinary ametropia. The relative visual acuity is probably recorded, and atropin is certainly prescribed for home use. Later, a careful estimation is made of the child's refraction. It is then found that the absolute visual acuity, despite correcting glasses, can perhaps be brought no higher than one-third or one-half normal, while the optic disks are grayer than they should be. The ophthalmoscopic condition, in short, is one familiar to every physician as "post-papillitic" or "post-neuritic" atrophy. The atrophic changes, nevertheless, are not complete, and may, indeed, be so slight as to escape recognition in the absence of careful ophthalmoscopic examination. In the cases which it is the more particular object of this communication to describe the appearances are best characterized as those of "incomplete post-papillitic atrophy of the optic disk." They are, so far as the author has seen, invariably bilateral, although possibly sometimes more pronounced in one eye than in the other. Inquiry into the patient's personal history often elicits the fact that when an infant there had been a "cerebral" or "meningitic" illness, marked by such symptoms as "fits," convulsions, headache, vomiting, constipation, retraction of the head, temporary paralysis, squint, unconsciousness, and so forth. On recovery from the attack, sight was found to be partially or totally lost, but has since been more or less regained. The conclusion is almost inevitable that an infantile meningitis or encephalitis was accompanied by optic papillitis, and that both the general and local condition had to some extent been recovered from. The incomplete optic atrophy seen later by the ophthalmic surgeon, then, is on this view to be regarded as a sequel to a meningitic papillitis.

Berliner klinische Wochenschrift, July 13, 1908.

Hemolysins in the Pancreatic Juice.—Wohlgemuth says that the unactivated pancreatic juice has no hemolytic action while possessing strong lypolytic properties. If it is treated by the addition of enterokinase or of calcium chloride, or simply allowed to stand for some length of time, it acquires the property of dissolving red blood cells under certain conditions. The addition of lecithin alone is quite sufficient to call forth this hemolytic action, although no power of tryptic digestion is lent to the juice by such addition in the absence of the enterokinase. The newly acquired property of the juice is probably to be traced to the production of lecithins.

Münchener medizinische Wochenschrift, July 14, 1908.

Periodic Acetonemia in Older Children.—Hecker says that recurrent vomiting accompanying the increased acetone-content of the blood is a typical picture in the diseases of children caused by disturbances in the excretion of acetone bodies. Boys are usually affected; the attacks of vomiting occur periodically; the vomitus contains at first half-digested food, then becomes mucous in character, and may be tinged with bile or blood; no dietetic or medicinal treatment avails to stop the attack; great loss of strength and weight occurs in a very short time, and the patients suffer from intense thirst, not being able to retain anything in the stomach. The attack lasts two or three days and complete convalescence is followed by a recurrence which runs the same typical course. During the attacks the breath has the sweet, fruity odor of acetone, the urine contains the same body in abundance as well as diacetic and oxybutyric acids, which all disappear with the cessation of the vomiting. Hecker reports six cases of the diseases observed by him and expresses his conviction that the vomiting is a secondary symptom caused by the acetanemia and not *vice versa*. The therapy of the condition is not satisfactory. In some cases where the nervous element is present, suggestion is in place. Dry diet, with the use of chocolate and white bread may be used during the attack. The administration of alkalis proved to be of especial value, sodium bicarbonate or Karlsbad water being used. Systematic dietetic and hygienic treatment is called for between the attacks.

The Demonstration of Blood in the Urine.—Schumm says that the spectroscopic examination is the most reliable test for the presence of blood in the urine, the hand spectroscope devised by him allowing direct examination of dark-colored urines in sufficient amounts. Unchanged hemoglobin may be demonstrated in the urine if contained in the amount of 0.004 per cent., which equals approximately one drop of blood in the daily quantity of urine. For this purpose a polarization tube may be filled with the urine, the layer being 20 c.c. in thickness. The "tannin method" is very unreliable and shows blood in proportion of about 1 : 5000, or 0.02 per cent. The "coagulation method" is troublesome and incorrect in the presence of small amounts of blood. The "acetate of zinc" method is quite simple and reliable if a spectroscopic examination cannot be made. If the hemoglobin is changed to methemoglobin or to hematin, the pigment must be extracted before the spectroscopic examination is made. All the methods mentioned by the author are given in detail in the article.

Book Reviews.

THE DISEASES OF CHILDREN. A Work for the Practising Physician. Edited by Dr. M. PFAUNDLER, Professor of Children's Diseases, and Director of the Children's Clinic at the University of Munich; and Dr. A. SCHLOSSMANN, Professor of Children's Diseases and Director of the Children's Clinic at the Medical Academy at Düsseldorf. English Translation, Edited by HENRY L. K. SHAW, M.D., Albany, N. Y., Clinical Professor, Diseases of Children, Albany Medical College; Physician-in-Charge, St. Margaret's House for Infants, Albany; and LINNAEUS LA FÉTRA, M.D., New York, N. Y., Instructor of Diseases of Children, Columbia University; Chief of Department of Diseases of Children, Vanderbilt Clinic; Assistant Attending Physician to the Babies' Hospital. With an Introduction by L. EMMETT HOLT, M.D., New York, N. Y., Professor of Pediatrics, Columbia University. In Four Volumes, Illustrated in Black and White and in Colors by 61 full-page plates and 430 text cuts. Philadelphia and London: J. B. Lippincott Company, 1908.

THIS encyclopedic treatise on the diseases of children is the work of over fifty authors, each contributor having written on the part of the general subject of pediatrics to which he has devoted himself with special success. The first volume is given up to the broad general questions of pediatric art and science. A short chapter on the "General Pathogenesis and Pathology of Childhood" from the pen of Dr. Franz Hamburger is followed by an exhaustive symptomatology of the diseases of children, compiled by Professor M. Pfaundler, one of the editors of the work. This chapter takes up over two hundred pages of text, and recounts the various signs and symptoms of disease, classified according to the anatomical and physiological apparatus involved. Each sign or symptom is defined in a few words, and is followed by the various conditions in which it is met, many hints for differential diagnosis being added. A special index closes this compilation and increases very much its value for quick reference. Chapters on General Prophylaxis and General Therapeutics are followed by an article on milk by Professor Raudnitz; nursing, metabolism, and nutrition during the first year of life, children's growth in weight and height, and nutrition after the first year form the subjects of the chapters that close the first volume. Diseases of the newborn, constitutional diseases, and acute and chronic infections form the subject of the second volume, which contains contributions from such well known authors as von Noorden, who writes on diabetes mellitus and diabetes insipidus; Moser, who writes on measles; von Pirquet, who considers scarlet fever; and Schlossmann, the second editor of the work, whose subject is tuberculosis. The greater part of the third volume is concerned with the diseases of the digestive system, the authors of special articles being Moro, Finkelstein, Fischl, Pfaundler, Selter, Langer, and Stoos. This division of the work is of special interest to American readers, for it contains the latest theories and data of German research into the pathology of nutrition. Diseases of the respiratory and circulatory system and the special conditions depending upon the impaired function of the thyroid gland are the subject of the rest of this volume. Volume IV is devoted to diseases of the genitourinary and nervous systems, the latter part of the book being given up to the consideration of the diseases of the skin met in childhood. The contributors to this volume are Langstein, Pfeister, Zappert, Thiemich, Galewsky, and Leiner.

Each volume is provided with a special index of its contents, while a general index is found at the close of the last volume. The various articles are sufficiently illustrated, the pictures aiming to give the clinical appearance of disease rather than the pathological lesions. In general, the work is most valuable. It serves as a resumé of the progress in practical and theoretical pediatrics since the inception almost of this special division of medicine, and cannot fail to be stimulating to the worker in this field; reflecting as it does the teachings of the German school of medicine, its value to the American worker is especially great. The usual faults of a work from the hands of many authors could not, of course, be escaped in this treatise; the inequality of style, occasional repetitions, rather disproportional amount of space devoted to some subjects, all are present here, as in all similar publications. A more important fault of the book, however, is the omission of all references to the literature of the subject. Instead of such references the pernicious custom of simply reciting the names of authors who have written on some subject is continuously followed. Recourse to the "Index Medicus" usually shows that the author in question has written on a great variety of subjects and the reference is worse than useless; moreover, quite a few have namesakes active in other fields of medicine, and the "practising physician," for whom the work is intended, is compelled to hunt through other bibliographies to look up any special question.

There is little to be said in regard to the translation of the work. Anyone who has had experience in this field can appreciate the large amount of work done by the translators and the editors in bringing it out in the English language. They, as well as the publishers, are to be congratulated upon the success in rendering these important contributions to the pediatric literature accessible to the English-speaking profession.

LUKE THE PHYSICIAN, the Author of the Third Gospel and the Acts of the Apostles. By ADOLPH HARNACK. Professor of Church History in the University of Berlin. Translated by the Rev. J. R. WILKINSON, M.A. Edited by the Rev. W. D. MORRISON, LL.D. New York: G. P. Putnam's Sons, 1907.

THEOLOGICAL works do not usually find their way to the office of a medical paper. In the present instance, however, part of the volume deals with the question as to whether the author of two of the books of the New Testament was a physician. This chapter will be appreciated by cultured and educated readers; and the writer of the volume gives many interesting details tending to show that whoever wrote the Gospel of St. Luke and the Acts of the Apostles was unusually well informed in medical terminology. Several quotations are given from the original Greek, showing the use of technical medical words, and parallelisms are found in the work of the old Greek medical writers, Aretæus, Dioscorides, Galen and Hippocrates. In many instances these medical terms are found nowhere else in biblical writings, and often do not occur outside of medical literature. The Greek type is very clear, and the whole chapter will be read by many who would not care to undertake a larger and more thorough treatise on the subject, such as Hobart's work on "The Medical Language of St. Luke."

OPERATIONS-KURSUS AN DER LEICHE; anleitende Vorlesungen von A. BIER und H. ROCHS. Fifth Edition. Berlin: August Hirschwald, 1908.

THE fifth edition of this book now appears with Bier and Rochs as the authors, the former taking the place of von Bergmann who recently died. It offers in addition to a revision of the original text a description of several new operations, among others, Riedel's method of tying the subclavian artery, various new operations for cerebellar tumors, Killian's operation for frontal sinus disease, and the various incisions devised for appendicectomy. The general plan of the book for teaching purposes is excellent. The authors usually confine themselves to one or two methods of operating for the same disease, an arrangement always helpful to the student who does better to learn one method well than to attempt ten different ones. The book can be commended to the student and post-graduate before taking up a course of operative surgery on the cadaver.

TRYPANOSOMES AND TRYPANOSOMIASES. By A. LAVERAN, Membre de l'Institut, et de l'Academie de Médecine, Paris, and F. MESNIL, Chef de laboratoire à l'Institut Pasteur. Translated and much enlarged by DAVID NABARRO, M.D., B.Sc., D.P.H., Lond., Member of the Royal College of Physicians, London; Assistant Professor of Pathology and Bacteriology University College, London; Scientific Assistant in Pathology at the University of London; Royal Society Commissioner for the Study of Sleeping Sickness in Uganda, 1903. Chicago: W. T. Keener & Co., 1907.

IN 1904 Laveran and Mesnil published a very important monograph on the trypanosomata. This volume has been translated and greatly enlarged so that it is in some points practically a new work. The translator has himself contributed much to our knowledge of trypanosomes, and he has therefore been in a position to expand the text to the greatest advantage where the knowledge gained in the last three years has rendered any change necessary. The amount of new material may be judged from the fact that over two hundred new papers have been considered by the translator in addition to those studied by the authors originally. Owing to the possible relationship between the trypanosomes and the spirochetes a short section has been added on spirochetes of various types, including the *Treponema pallidum*, and also a discussion of the significance of the Leishman-Donovan parasites. Much new matter has also been introduced on the treatment of trypanosomiasis and concerning the culture methods, in which the important contributions of American writers have been fully acknowledged. A practically new chapter on tsetse flies and the trypanosomes which are found in them completes the work. Among the illustrations is an excellent colored plate showing different species of trypanosomes.

Die Röntgentechnik. Ein Hilfsbuch für Aerzte. Von Dr. F. Davidsohn. Berlin: S. Karger, 1908.

This short book contains a detailed description of all the apparatus and how to use it in *x*-ray work. The author shows how street, static, and storage current may be employed. One is made to understand the difference between hard and soft tubes and which quality of tube is to be used for the various therapeutic and photographic work; the time of exposure which will give the best results is carefully specified. The author lays special stress on how to avoid burns and sterility. All conditions amenable to treatment with the rays are mentioned. He emphasizes the diagnostic value of the fluoroscope and acquaints one with the errors liable to be made in interpreting photographic negatives. It is an ideal work not only for the general practitioner who wishes to become acquainted with Röntgen technique but also for him who may only be occasionally called upon to fluoroscope a patient or interpret an *x*-ray plate.

Movable Kidney and Other Displacements and Malformations. By David Newman, M.D., F.F.P.S.G., Surgeon to the Glasgow Royal Infirmary; ex-President, Glasgow Medico-Chirurgical Society; Late Pathologist to, and Lecturer on Pathology at, The Glasgow Royal Infirmary; Fellow of the Royal Medical Society of London. New York, Bombay, and Calcutta: Longmans, Green & Co., 1907.

This book is largely devoted to the record of observations and cases, and is illustrated by twenty-five diagrams and cuts showing the relations of the kidney and the different malformations and malpositions of that organ. The first chapter treats of the classification of the displacements and malformations of the kidney, and the normal anatomy. The next four chapters deal with the etiology, progress, symptoms, and physical signs, and the palliative and operative treatment of movable kidney. Characteristic cases are quoted, illustrating the different symptoms and types of movable kidney. The sixth chapter treats of floating kidney, while the last chapter deals with malformations and malpositions. Dr. Newman restricts the term "floating kidney" to those cases in which there is a mesonephron, and the kidney lies within the peritoneal cavity. The term "movable kidney" is applied when the organ is movable outside the peritoneal cavity. The book is well written. Each subject is considered systematically and thoroughly. It should be of use to the general practitioner in his management of those rare but troublesome cases in which the vague symptoms of a floating kidney are often misinterpreted and set down to the imagination.

Syphilis in its Medical, Medico-Legal and Sociological Aspects. By A. Ravogli, M.D., Professor of Dermatology and Syphilology in the Medical College of Ohio, etc. New York: The Grafton Press, 1907.

This work on syphilis differs from the usual monograph on this disease because the malady is considered from the viewpoint of the physician, the jurist, and the sociologist. A historical sketch of the search for the causal agent of syphilis opens the volume. The recent work on the *Spirocheta pallida* is briefly reviewed. The illustration of this organism, Plate I, is not extraordinarily good. Next follow chapters on the mode of infection, etc., and on the various stages of the disease. In the section on treatment a large amount of information has been collected and the details of all the methods now in use have been described. In the main the author follows the school of Fournier in his therapeutics; but many points are given from a vast individual clinical experience.

In the second part of the book the medicolegal and sociological aspects of the subject are dealt with. Here the author considers in an interesting manner the questions of syphilis and marriage; syphilis in relation to degeneracy; syphilis and public health and the regulation of prostitution.

Dr. Ravogli's book is a very complete and comprehensive treatise on syphilis written by a man who has made a life-study of his subject and who knows how to write a good clear English sentence.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by W. T. Longcope, M.D., Philadelphia. Vol. IV, Seventeenth Series, 1907, and Vol. I, Eighteenth Series, 1908. Philadelphia and London: J. B. Lippincott Company, 1907 and 1908.

These two volumes of the International Clinics continue to keep up the general standard of excellence set by their predecessors. Among the contents of Vol. IV we notice an article on the Etiology and Treatment of Pulmonary Hemoptysis, by A. P. Francine, full of valuable suggestions for the practitioner confronted with this frequent and distressing symptom of tuberculosis. Professor A. Chantemesse gives his Five Years' Experience with the Use of an Antityphoid Serum; he had an average mortality of 3.7 per cent., while the general mortality of the disease in Paris reached 17.3 per cent. A. W. Hewlett contributes a scholarly article on The Common Cardiac Arrhythmias and gives the recent literature of the subject. Among other articles we find Surgical Syphilis, Perforation of Bowel in Typhoid Fever, Management of Pregnancy, Disorders of Sleep, and many others.

Vol. I, of the eighteenth series, opens with an authoritative article on The Sanatorium, by Lawrason Brown, which is illustrated with photographs and floor plans of the Adirondack Cottage Sanitarium at Saranac Lake. Dr. R. D. Rudolf of Canada gives his observations on the usual variations of temperature in the human being and questions the advisability of retaining on our clinical thermometers the line or arrow marking "normal temperature." Dr. Deaver speaks of the "Diseases of the Gall-bladder," Dr. Benjamin T. Tilton gives his deductions from a series of operations for perforated gastric and duodenal ulcers. Other articles discuss the care of the newborn, fracture of the spine, urinary acidity, etc., etc. The volume closes with reviews of the progress of medicine during 1907, Dr. A. A. Stevens writing on Treatment, Drs. David L. Edsall and Verner Nisbet on Medicine, and Dr. Bloodgood on Surgery. Most of the articles are extremely practical and up to date, and will save the practitioner much time and labor in acquainting him with the recent advances in medicine and surgery.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Volume I, General Medicine, edited by Frank Billings, M.S., M.D., head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine Chicago Clinical School. Volume II, General Surgery, edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in Rush Medical College (in affiliation with the University of Chicago). Chicago: The Year Book Publishers, 1908.

These are the first two volumes of this now well-known series of medical annals for 1908. The diseases referred to in the first volume are those in which special clinical or experimental work has been done, or notable advance made in the diagnosis or treatment. New signs and symptoms and rare cases are described. Tuberculosis and the diseases of the circulatory apparatus, and blood and blood-making organs are also thoroughly discussed.

The second volume has to do with the advances made in general surgery during the past year. The relative values and dangers of the various general and local anesthetics are discussed, and the technique, results, and dangers of spinal analgesia described. Space has been allotted to *x*-ray therapy, electrotherapy, new instruments, and the prevention and cure of postoperative vomiting. In the chapter on the diseases of nerves, cases are reported showing that in facial and infantile paralysis, even of long standing, there may be a restoration of function by nerve anastomosis. About 300 pages of the volume are devoted to abdominal surgery.

A Text-book of Clinical Medicine Treatment. By Clarence Bartlett, M.D. Professor of Medical Diagnosis and Clinical Medicine in the Hahnemann Medical College of Philadelphia; Visiting Physician to the Hahnemann Hospital. Philadelphia: Boericke & Tafel, 1908.

This is a work of over 1,200 octavo pages devoted entirely to the treatment of diseases. The author is a homeopath of the modern school who believes in the Hahnemannian principles and holds that "while the homeopathic application of drugs is the best in its results, we must bear in mind that medicines may be required for their palliative or mechanical effects." Accordingly he does not hesitate to give the salicylates the first place in the treatment of rheumatism, and quinine, in 15 to 20 grain doses, in that of malaria. In most cases, however, he gives preference to homeopathic remedies administered in the homeopathic way. An excellent feature of the book is the large amount of space given to a consideration of the dietetic, hygienic, and other nonmedicinal therapeutic measures. This feature is one that will render the work of service to practitioners of all schools, more valuable indeed than many of the treatises written by therapeutic nihilists of the regular school. The book will be found useful also by regular practitioners who desire to gain a knowledge of what intelligent homeopathic practice really is, but to whom the usual homeopathic handbooks of symptoms with their drug indications seem even more foolish than the "favorite prescription" manuals of their own school.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-Third Annual Meeting, Held in Washington, May 12 and 13, 1908.

THE PRESIDENT, DR. JAMES TYSON, PHILADELPHIA, IN THE CHAIR.

Tuesday, May 12—First Day.

President's Address.—Dr. JAMES TYSON of Philadelphia delivered this address. He became reminiscent, recalling former meetings, particularly the first meeting, twenty-three years ago, in the library of the Surgeon General's office. Dr. Delafield of New York was their first president, and in his address he said that all knew why they were assembled on that, the opening, day; it was because they wanted an association made up of representative men, men who would contribute something which would add to their knowledge; because they wanted a society in which they could learn something: that was the real object of inaugurating such an enterprise. The association had had printed twenty volumes; in them was contained much of the best work that had been accomplished during the past twenty-two years in the laboratories and clinics of both the United States and Canada. Dr. Tyson referred to the deaths of Dr. Charles Follen Folson of Boston and Dr. James Carrol of the United States Army, and gave a brief review of their lives.

Preliminary Report on the Result of Ligation of the Coronary Arteries in Dogs.—Drs. JOSEPH L. MILLER and S. A. MATTHEWS of Chicago made this report on experimental ligation of the coronary arteries in dogs with its bearing on the treatment of angina pectoris. Up to the present time the literature on this subject was not at all extensive. The results of their work so far had been quite uniform. After ligating one or more branches of the coronary artery in dogs the heart would cease to beat. Some investigators found that both ventricles stopped action at the same time. There was usually moderate bradycardia, with more or less arhythmia. When a large branch of the coronary artery was ligated, and the animal was killed from two to four weeks after, they found an area of necrosis in the ventricle which was very small compared to the area supplied by the ligated vessel. These animals, too, could live without giving evidences of any interference with the blood supply to the heart when the ligation was done at some distance from the heart. Hirsch and Spatleholz had concluded that the coronary arteries were not end arteries: that there was an anastomosis sufficient to allow the animal to live without showing any disturbance in the function of the heart. In 1884 Leyden declared that the cause of angina pectoris was an obstruction in the coronary arteries by a thrombus or embolus. Previous to that time the cause was given as neurotic. They attempted to produce in animals a similar condition to that which occurred in man. The first series of animals numbered nineteen, and a branch of the coronary artery was ligated, and the animals were allowed to live. On one group they tried nitroglycerin; on another group strophanthus. This enabled them to determine the amount of necrosis that occurred after ligation of the coronary arteries in dogs and the effect upon the area of necrosis of these various agents. The results had not yet been thoroughly worked out. Of the four animals that were allowed to live, three died a spontaneous death. Observations of the symptoms preceding death were only noted in one animal. This animal suffered from an intense dyspnea, and after its death they found an enormous dilatation of the right and left ventricles. The other animals were not observed at the time of death, yet the heart findings were similar to those found in the animal described. They probably died in the same way. In another group, of twenty-six dogs, an attempt was made to ligate the arteries successively until there occurred a marked disturbance in the heart's action. This was an incomplete systole of the left ventricle, an increased dilatation of the left ventricle and left auricle, then dilatation of the right ventricle and right auricle. Several branches were ligated successively until the animal showed signs of cardiac disturbances. These disturbances were treated with nitroglycerin, digitalis, or morphine. The nitroglycerin failed to restore the heart. When strophanthus was given intravenously almost immediately the systole became better until it reached the normal, the dilatation disappeared, the blood pressure even reaching a higher point than before the ligation.

Dr. WILLIAM H. WELSH of Baltimore said that this investigation should throw much light upon whether the intermuscular branches were terminal and the intercardial not. He asked Dr. Miller his opinion.

Dr. S. SOLIS COHEN of Philadelphia said that it was by no means certain that the lesions found postmortem represented the conditions present when the disease first manifested itself. They probably represented very largely the pathological results of the interference with the general nutrition through the coronary arteries, as well as other portions of the body. He believed there was a great difference between what was found in such experiments and what was found in the true disease; in the one the condition was permanent; whereas in the other it might be only temporary. In other words, the conditions between those necessarily fatal experiments and the conditions prevailing in the clinical course of the disease were so different that conclusions must be drawn with much reservation. The nitrites did exert a beneficial influence in averting paroxysms of angina pectoris.

Dr BABCOCK of Chicago said that at the present time he had under observation a patient, sixty years old, with a high blood pressure, whose attacks of angina pectoris were promptly relieved by the administration of nitroglycerin.

Dr. MILLER said he could not answer Dr. Welsh's query. It was interesting to note that the left ventricle stopped, while the right ventricle continued to beat for several minutes. In answer to Dr. Cohen he said that it seemed to him they were dealing with a transitory condition, and not exactly an obstruction of the coronary blood-vessel. Because it was transitory it did not mean, however, that they were not dealing with a permanent occlusion of the vessels. Whatever occurred in the heart, whether the condition was due to vasomotor spasm or to obstruction, it was a fact that they had to deal with an incomplete systole and a dropping of the blood pressure; therefore, the indication for treatment was to make the heart muscle better. Remedies should be given which improved the working power of the muscles of the heart.

Some Lesions of Experimental Nephritis.—Dr. H. A. CHRISTIAN of Boston spoke on this subject. Three lesions he had found in animals. First, a glomerulus lesion consisting of fine droplets, which were homogeneous, and which stained blue-black, these droplets occurring in the walls of the capillary tufts. The lesions were shown in photographs. They occurred in eleven of thirteen successive animals which received uranium nitrate in poisonous doses. Most of the animals were killed while in a toxic state. Only two out of the thirteen animals failed to show the lesions. Twelve other animals were used as control animals, each receiving other poisons, such as potassium bichromate, bichloride of mercury, Japan red, cantharides, etc. Of these twelve only two showed the lesions. Normal animals were studied as well, and in none were the lesions described found. Second, another lesion somwhat similar in structure, but occurring within the tubular epithelium. There were small hyaline droplets similar to the droplets found in some forms of acute nephritis, such, for instance, as followed scarlet fever. These lesions occurred when uranium nitrate was given. Photographs were shown of these lesions. Third, a

lesion that occurred mostly in the collecting tubules, and extended to the convoluted tubules. The tubular epithelium was distended with hyaline material, and there was as well a granular structure of the epithelium. There was a great increase in the thickness.

Concerning the Presence of Nephrotoxic and Hydrops-producing Substances in the Serum of Animals with Experimental Nephritis.—Dr. Richard M. Pearce and Dr. H. P. Sawyer presented this communication, which was read by title.

Review of Theoretical Considerations and Experimental Work Relative to Opsonins and Observations Made at the Saranac Laboratory.—Dr. Edwin R. Baldwin of Saranac Lake read this paper. He said that the original conception of opsonic activity as due to a distinct substance with independent functions had been modified by recent studies. Normal sera had been shown independently by Dean and Cowie and Chapin to exhibit a close parallel between opsonic functions and the reactions of normal amboceptor and complement to heat and absorption by bacteria. If not identical they were indistinguishable except in function. The phenomenon of phagocytosis was a physiochemical one. Immune opsonic activity was also closely related to immune amboceptors of bacteriolytic or cytolytic sera. There was a lack of correspondence in some particulars, and no necessary proof that opsonin was a distinct substance. Opsonic properties were also allied to agglutinative powers of sera, but were weakened more or less by complement. The weight of evidence was in favor of opsonins as amboceptor-complement in nature. Opsonic function as a measure of specific resistance was subject to limitations, but was applicable to mild infections. Recognition of specific opsonins in the diagnosis of tuberculosis as practised by C. P. Ritchie was referred to. The studies on the technique for the estimation of the index during past years had not increased confidence in its accuracy. The work at the Saranac Laboratory with inoculations of immune serum-opsonized tubercle bacilli had continued, and the results reported last year on rabbits had been confirmed. He reported the clinical work by Kinghorn and Twichell on the opsonic index in the diagnosis of tuberculosis by tuberculin. Their results did not encourage them to expect much practical use of the index in pulmonary cases in the usual method of its application. They had studied along two lines in the hope of obtaining comparisons between the normal and diseased individual which could be controlled with sufficient care to be of value. To this end they first estimated the tuberculo-opsonic index in sixty-three supposedly healthy individuals and thirty-six tuberculous patients, and always in comparison with the same normal serum. In the first it was found that the range given existed between 0.92 and 1.94 in health, taking a single normal as unity and including an unascertained extreme technical error of plus or minus 16 per cent. for a single test, or, according to Wright's standard, plus or minus 4 per cent., as an average. The mean of these normal sera was, however, 1.003. The index for the tuberculosis sera in five incipient cases ranged from 0.61 to 1.87; while in thirty-one advanced and far advanced cases, all with fever, it ranged from 0.26 to 2.26. They also made six or seven daily opsonic estimations before and after spontaneous tuberculin tests for diagnosis in seven persons. They obtained no regular growth, but the index was generally higher after the tuberculin reaction.

A Classification of Acidosis.—Dr. James Ewing of New York said that acid intoxication, or acidosis, occurred in diabetes, starvation, phosphorus poisoning, toxemia of pregnancy, cyclic vomiting of children, delayed chloroform poisoning, and many other diseases, in each of which the abstraction of fixed alkalies or the direct toxic action of salts of the acid compounds was supposed to contribute to or dominate the symptoms. The study of the pathological anatomy and chemistry of these diseases showed that there were two distinct classes of acidosis following two experimental prototypes: (1) Hydrochloric acid poisoning. Clinical forms: Diabetic coma; Kussmaul's coma; starvation. Pathological chemistry: Acetone compounds; ammonia proportional to the acids; amidoacid nitrogen slightly increased. Pathological anatomy: No lesions. (2) Extirpation of the liver, or Eck fistula. Clinical forms: Phosphorus poisoning; arsenic poisoning; toxemia of pregnancy; cyclic vomiting; delayed chloroform poisoning; acute yellow atrophy; pernicious anemia. Pathological chemistry: Lactic acid prominent; ammonia in excess of any fatty acids; ammonia primary; amidoacid nitrogen high. Pathological anatomy: Extensive fatty degeneration. Evidence was reviewed to show that these two types of acidosis were antagonistic in symptoms, origin, and pathogenesis, although combined forms existed. The urinary ammonia was accepted as the measure of acidosis, but there was reason to believe that its significance was quite different in the two conditions. The marked difference in the pathological anatomy of the two types was believed to further justify their separation.

Dr. David L. Edsall of Philadelphia said there was no doubt but that Dr. Ewing was right in pointing out these two classes of acidosis. It seemed hardly possible to attempt as yet, however, to indicate one type associated directly with lactic acid or other particular acids as causative of symptoms. In regard to the cyclic vomiting in children and such conditions, so far as their knowledge went, they could say nothing definite, or that there was an acid intoxication associated with it; but there was a general disturbance which might vary in type. An acid intoxication being a minor type, at the same time it might become so severe as to become an important matter. The ammonia question was also in decided doubt.

Dr. S. Solis Cohen asked Dr. Ewing what basis there was for estimating the amount or degree of acid or alkiline intoxication by the urine alone. It was certain that the alkali that was being excreted was not doing harm. He asked if there was not here a question of retention as well as the question of excretion. It had been proven that they might have an acid intoxication result from an excessive neutralization of the alkali, as well as the reverse.

Dr. Ewing said that in eclampsia they did get cases in which the ammonia was high, lactic acid only moderate in amount, and the acetone compounds absent. He wished to be understood that the classification presented by him was one looking towards the future. The toxicity of acetone was slight. The ammonia was looked upon as a compensatory process. At the same time the pathological and clinical indications were so clear that ammonia did have another significance that it inclined him to the view, although he was not able to prove it on chemical grounds. The acidosis was measured by the amount of ammonia in the urine, an indirect method, and the amount of acid required to neutralize it.

Experiments with an Ash-free Diet.—Drs. Elliott P. Joslin and Harry W. Goodall of Boston presented this communication. Two healthy men were fed on Taylor's ash-free diet (whites of eighteen eggs, 200 g. of crystalized sugar, 120 g. olive oil, freed from salts) until the daily excretion of chlorine was less than 0.3 gram. No symptoms of acid intoxication appeared, and at no time was acetone detected in the breath or urine. A marked loss of weight occurred, which was regained in the first experiment within four days after a return to an ordinary diet. In the second experiment the weight was nearly all recovered in three days, with the individual remaining on the same ash-free diet, plus 12 grams of salt daily. The assimilation of food was excellent. There was a marked diuresis, 4090 c.c. of urine, which occurred in the first case four days after a return to a regular diet. A third observation was made upon a case of diabetes with a minimum carbohydrate balance of over 50 grams. The chlorine in the urine gradually fell to less than 0.3 gram in twenty-four hours, but the change in acidosis was

insignificant and the condition of the patient was better than for some days.

Dr. D. L. Edsall of Philadelphia, Dr. James Ewing of New York, and Dr. E. P. Goslin of Boston discussed this paper.

An Unusual Paroxysmal Syndrome, Probably Allied to Recurrent Vomiting, with a Study of the Nitrogen Metabolism.—Drs. Theodore Janeway and H. O. Mosenthal of New York presented this communication. A school girl of sixteen, with no neurotic inheritance, had been subject to recurring attacks of a peculiar nature since infancy. These attacks formerly came every one to four months, but for a year increased to once a week for three months with absolute periodicity. Description of previous attacks tallied absolutely with those observed. The attacks began with epigastric discomfort, increasing to real pain in four to six hours, and severe abdominal pain, with pain in the shoulder, hips, etc., in eight to twelve hours. There was loss of appetite and salivation from the onset. In six to twelve hours the temperature began to rise and pulse became rapid, reaching their maximum in about four hours. As much as 104° and 140 pulse had been noted. Nausea, retching, and usually vomiting once or twice occurred at height of attack. Tongue was thickly coated and breath heavy, but not sweet. Abdomen was rigid and tender, most to right of umbilicus. The whole febrile period was eighteen to twenty-four hours, and, as a rule, in less than thirty-six hours she felt well and ravenously hungry. Marked polynuclear leucocytosis accompanied each paroxysm observed, with subsequent leucopenia for a few days. Weight was rapidly regained after the attack. Saliva was always acid. Vomitus contained abundant free HCl; stomach contents between attacks somewhat excessive HCl. Urine usually showed a trace of acetone, unrelated to the attacks, otherwise nothing. Metabolism study on a purin-free diet showed very little deviation from the normal, but uric acid was markedly decreased and ammonia somewhat increased with two attacks. A further study after a lapse of three months was now under way. Purgation, lavage of stomach, diet, all were without influence on the attacks. There was marked decrease in number and severity after period of observation with use of the alkalies; but renewed severity occurred later. The condition seemed most probably a toxemia allied to the recurrent vomiting of children.

Dr. Walter B. James of New York, Dr. Edsall of Philadelphia, and Dr. E. P. Joslin of Boston reported similar cases.

On the Relation of the Parathyroid Glands to Calcium Metabolism and the Nature of Tetany.—Drs. W. G. MacCallum and Carl Voegtlin of Baltimore made this report. They said that the convulsive and other symptoms of tetany which resulted from the extirpation of the parathyroid glands might be made rapidly to disappear by the administration of a soluble salt of calcium. This result was most quickly attained by the intravenous injection of the salt, but also followed its administration by mouth. Studies of the metabolism of dogs in tetany showed an excessive output of calcium, and the blood and tissues were found to contain a diminished amount of that substance. It seemed probable that the parathyroid glands exercised a control over the calcium metabolism, and that the loss of calcium from the brain and other tissues resulted in the phenomena of tetany.

Dr. John H. Musser of Philadelphia reported a case of adenocarcinoma which involved the thyroid and lymphatic glands and other structures in the neck. An operation was required to avoid strangulation and the parathyroids were removed. Five days after the operation tetany set in and pursued the course as noted in artificial tetany. There occurred an oppression and distress in the lower part of the abdomen and a band-like constriction, tremor of the tongue which was followed by the usual phenomena in the extremities, with the associated and well-known phenomena of tetany. This patient was given large doses of calcium lactate; as a result the symptoms were relieved, although morphine had to be given for a time as well. With the absolute cessation of the tetany the calcium salt was withdrawn, and, at the end of from forty-eight to seventy-two hours, the symptoms recurred. Again the administration of calcium lactate caused a cessation of the symptoms. Dr. Goodwin made a study of the urine during and after these attacks, and would report upon his findings later.

Dr. S. J. Meltzer of New York reported a case that occurred in the hands of Dr. Charles A. Elsberg of New York, the tetany following an operation for harelip. It was a case of tetany, and not one of tetanus. Calcium lactate was administered by mouth, and all the symptoms subsided in one or two days. The calcium lactate was then omitted and the symptoms returned. The salt was again given, and the symptoms again disappeared. This certainly showed that calcium exerted some influence on tetany. Dr. Meltzer said that the absence of calcium salts seemed to increase the irritability. He reported an experiment in which an animal was put into coma of an extreme degree by a magnesium salt. When calcium salt was introduced afterwards, in from fifteen to thirty seconds the animal was up and walking around. Calcium was capable probably of keeping up the balance of the inorganic salts. The effect of sodium, potassium, or magnesium was to produce either an increased or a diminished irritability; but the addition of the calcium salt caused a reestablishment of the irritability in both directions.

Dr. D. L. Edsall of Philadelphia reported a case of myasthenia gravis in which improvement followed the use of the calcium salt. Cases of acromegaly, and conditions associated with acidosis, were benefited by the administration of the calcium lactate.

Some Cases Presenting a Recurrent Syndrome, Apparently Due to Exposure to Heat.—Dr. D. L. Edsall of Philadelphia said that in 1904 he described two cases which were at the Episcopal Hospital, and in which he was struck by the puzzling clinical picture, which so closely resembled tetany. The condition was not accompanied by any increase in the reflexes or changes in the sensations which would indicate a central origin. These two patients had been exposed to an intense heat, one atmospheric, the other from fire. Last summer Dr. Edsall met with two more cases, much milder but of similar type. In these the same symptoms could be brought out by mechanical or electrical irritation of the muscles. Both men were firemen on stationary engines. He learned that the trouble was very common among firemen. He made quite an inquiry among those in the shipping service and locomotive firemen and iron workers. A description of this condition was seldom seen in the medical literature; in fact, he found but one short paper dealing with the subject. Exposure to extreme degrees of heat produced this condition, and he found it to be quite a common thing. The chief symptom was cramps, especially in the extremities, and resembling somewhat tetany, but which was not accompanied by the characteristic symptoms of tetany. He was told that in the navy from 400 to 1,000 cases occurred every year. Even deaths had occurred from this disease within one or a few hours after the onset of the symptoms. In the merchant marine service it was very common, because the men there worked under forced draught. He thought that probably it was toxic in origin. It might be due to an intense nervous irritation caused by the heat.

Non-fatal Coma in the Course of Diabetes.—Dr. C. N. B. Camac of New York reported a well marked case of diabetes occurring in an adult, observed for three and a half months, after which there was an onset of coma with marked urinary changes. The coma (not the Kussmaul type) was fully developed. Alkaline treatment was instituted, and only small doses were required to alkalinize the urine. The duration of the symptoms was one week. Recovery from the coma followed, and the urinary findings were as before the coma. Four months after the

coma hemiplegia occurred and death without coma. Dr. Camac said there were three distinct clinical subdivisions of coma, the Kussmaul, the alcoholic and the diabetic collapse, that were well known. This was but a single case; but it did not occur very often in their experiences to have a non-fatal case of diabetic coma which went to complete recovery, the patient dying of another condition, as shown at autopsy. There were found a chronic nephritis, cerebral softening, and a general arteriosclerosis. Whether the oxybutyric acid had anything to do with the production of these cases was still a question unanswered.

Dr. S. Solis Cohen of Philadelphia recalled a case seen in the early days of his practice. A woman had had diabetes fifteen years before she came under his observation and died twenty years later suddenly. She recovered from her diabetes and died twenty years after. The sugar had disappeared entirely from her urine five or six years before her death and was replaced by albumen. Her symptoms before death pointed to angina of the epigastric form. She was seventy-two years of age at the time of her death. He resorted to large quantities of alkalies by rectum and hypodermocylsis, and the urine was always kept alkaline in reaction. Sodium bicarbonate was taken in sufficient quantities to maintain the alkalinity of the urine.

He reported a second case, with equally marked symptoms and with an equally marked recovery. The woman was one of two sisters under his care for diabetes. The sugar disappeared under treatment, and she returned to a distant city where she lived. There she became careless as to her diet, and a condition of diabetic coma began to develop. She died three or four hours after her arrival in Philadelphia. The other sister had been ill with diabetes for ten years, and the sugar never entirely disappeared from her urine. She now was suffering from a stone in her kidney, as revealed by the *x*-ray. She had coma, from which she recovered. The symptoms of coma came on gradually. It was impossible to make the urine alkaline by anything given by mouth and, therefore, he used hypodermoclysis, and the patient made a recovery. This was one year ago, and she was still living, but had as much sugar as before. In this case the ammonia content was not increased.

A Study of the Atrioventricular Bundle, with Report of a Case.—Dr. Walter B. James of New York made a presentation of a specimen showing an ulcer on the interventricular septum completely cutting across the atrioventricular bundle, with complete dissociation of auricles and ventricles. More definite definition and limitation of the term Stokes-Adams syndrome should be demanded, with a discussion of cases simulating and often wrongly diagnosed as heart block. He suggested a possible atrioventricular delay as early evidence of acute myocarditis.

The Intraventricular Systole.—Dr. H. A. Stewart of Baltimore said that the development of pulmonary insufficiency when there was an increase of the pulmonic pressure, and its disappearance with the readjustment of the pulmonary circulation, had pointed to the important action which the pulmonary musculature must have in maintaining the competency of the valves of the artery. Similarly, in the case of aortic orifice, while it was not common, it was by no means rare, to note the disappearance of a diastolic murmur with an amelioration of the cardiac action. Clinically, he had noted the latter in cases of exophthalmic goiter, and experimentally in dogs when a diminution of the cardiac tone was produced. In view of these facts they were led to make a study of the action of the ventricular musculature surrounding the aortic orifice in dogs, in order to determine to what extent the valvular incompetency was dependent upon muscular action. For this purpose they devised an instrument by which the contraction of the ventricle internally could be recorded. The approximation of the opposing walls of the ventricle at different points from apex to base were noted. Special study was made of the sphincter-like muscle which surrounded the aortic outlet. This muscle had long been recognized, and was well described by MacCallum in Welsh's Festschrift (1900). The results of the investigation were, in brief, that the cavity of the ventricle was contracted first at the apex, the contraction passing upwards along the base. The contraction at the outlet appeared to be more complete than elsewhere. The contraction of the muscle mentioned above, viz., the aortic ring muscle, was prolonged into diastole.

Heart Sounds Heard in Early Diastole.—Dr. W. S. Thayer of Baltimore said that years ago he reported the results of some observations made upon dogs' hearts, and then mentioned that he had heard a third sound occurring after the second sound. It sounded like a snap. Many normal human beings had such a sound, which was quite audible, and in normal hearts. It was strange to him that such a sound had not been mentioned in the literature. This fall he came across one or two dogs showing the same sound in an apparently normal heart. Case I. This dog had a dilated heart. The third sound was present. The sound disappeared upon the administration of large doses of strychnine. Case II. An interesting point in this animal was that it showed a slight hitch at the beginning of diastole. His observations led him to think it might be interesting to go back over the human cases, as well as dogs, to determine the frequency of this sound in normal cases. During a period of four months he had taken the cases as they came to him in his consulting room and in the wards of the hospitals, and he said he had heard upwards of thirty instances of third sound in perfectly normal hearts in normal individuals. This sound was a soft sound, distinctly audible, and increased when the individual was upon the left side. This sound had been noted by certain men abroad. It was impossible to say to what it was due.

Dr. Augustus A. Eshner of Philadelphia discussed these cases.

A Study of Three Cases of Anemia in Children.—Dr. M. H. Fussell of Philadelphia reported these cases.

Case I. This patient was a boy, thirteen years of age. No venereal history could be obtained in either parent. The child had been breast fed, and during his entire life had had intestinal disturbances. When three months old he began to get pale and there was noted a tumor in his abdomen. Shortly before his death he had a marked enterocolitis. There was a very large splenic tumor. The boy died suddenly during an attack of vomiting. At autopsy all the tissues were found to be extremely palid and, with the exception of enlarged mesenteric glands and an enlarged spleen, there was absolutely nothing found pathologically. The blood examination showed 30 per cent. hemoglobin; 2,834,000 red cells, 56,400 whites. There was a 70 per cent. polymorphonuclear count, 6.8 per cent. small lymphocytes, 1.4 per cent. large lymphocytes, and 12 per cent. myelocytes. There were a few nucleated red cells. Histologically practically nothing was found except a hyperplasia of lymphatics in the spleen and enlarged lymph glands. There was some thickening of the blood-vessels. There was no sign during life or at autopsy of rickets.

Case II. This patient was a girl, seven years of age. There was no history given except that the child had vomited blood a number of times. She had been weak and pale, and she entered the hospital with all the physical signs of anemia, with enlarged heart and marked presystolic and systolic murmurs. There was also fever. There was no leucocytosis. He thought there might be a septic condition of the endocardium. This patient died after a large hemorrhage from the stomach. Just before death the hemoglobin was 20 per cent., the red cells numbered 1,376,000, the whites 6,000. The polymorphonuclear count was 60 per cent. At autopsy the liver was found to be enlarged, pale, and pinkish. The spleen

was large, pale, and smooth. At the cardiac end of the esophagus there were a number of dilated veins, and the bleeding occurred there.

Case III. No history could be obtained in this case, except that the child had suffered for three months. The patient was lemon-colored, and she gave distinct signs of rickets. The spleen was very large, reaching to the symphysis. The liver was felt one-half way between the xiphoid and the umbilicus. The hemoglobin was 24 per cent., the reds numbered 1,600,000, the whites 24,160. The polymorphonuclear count was 40 per cent., the small lymphocytes 4 per cent., and there was 2 per cent. myelocytes. The spleen capsule was trabeculated, but not increased in thickness or density. The Malpigian bodies were small. The lymph gland follicles were large. There was a slight endothelial increase. There was a moderate fat infiltration, especially in the periportal area. A cellular infiltration was found in the kidneys.

Splenic Anemia, Splenectomy, Recovery.—Dr. Morris J. Lewis of Philadelphia reported this interesting case. A study of the blood was made, which covered a period of seven years, four before and three following the operation. Slight enlargement of the spleen was first detected in 1900, with a gradual subsequent increase in size until in 1904, the year of operation. There was a moderate anemia of four years' duration, followed by profuse hematemesis, and by melena, which occurred shortly after an examination which proved the blood to be practically normal, viz., hemoglobin, 90 per cent. red cells 5,000,000, white cells 6,100. There was a rapid fall in hemoglobin to 18 per cent. and red cells to 1,100,000. There was a history of indigestion of long continuance. A gastroenterostomy was performed, on the theory of a possible gastric or duodenal ulcer, followed by a gradual gain in health, and practical cessation of melena. He asked if this gain was due to an accidentally performed Talma's operation, brought about by adhesions, or to an enforced quiet of the stomach. Splenectomy was done in 1904, four months later. An accurate study of the effects of splenectomy on the blood changes interfered with by inflammatory complications, viz., pleural effusion, pericarditis, and abscess in wound, was made. The high total leucocyte count immediately after the operation and during the time of complications, reaching 24,000 per cm. and rapidly falling during the convalescence to an average of 10,000, which average was still maintained, was recorded. Eosinophilia immediately after the operation was apparently modified by the complications, but reached its highest point, 1,300 per c.mm., two months later. Eosinophilia still persisted, three years after the operation, 570 per c.mm. There was but little change in the lymphocytes.

Dr. James B. Herrick of Chicago said that two years ago he examined a man, nineteen years of age, who was suffering from a pneumonia, and he noticed a scar in the abdomen and asked its cause. The patient, although slightly delirious, replied that a surgeon made it in operating for a tumor of the spleen. After he had passed through his pneumonia he inquired into details, and learned that, when thirteen years of age (six years prior) he had suffered from gastrointestinal disturbances, particularly from diarrhea. There was an enlargement in the abdomen, and a surgeon was consulted. The further details of the case were given by Dr. Oschner of Chicago, who confirmed the previous history given by this young man. The diagnosis was a primary splenomegaly, a splenectomy was performed, and the patient survived the operation.

Dr. Blackader of Montreal reported another successful case of splenectomy.

On the Relation of Urobilinuria to the Presence of Bile Pigment in the Blood.—Dr. L. A. Conner and Dr. J. C. Roper of New York presented this communication. Dr. Conner said that they had attempted to throw some light upon the perplexing subject of the source of the urinary urobilin. By the use, in a large number of pathological cases, of a clinical method of determining the presence and the amount of bile pigment in the blood serum they believed they had been able to demonstrate that, in most cases at least, the existence of urobilin and its chromogen in the urine bore a direct and quantitative relation to the presence of bilirubin in the blood; and that in such cases no urobilin was demonstrable in the blood. An exception to this rule had been found in the case of certain pneumonias in which, although no bile pigment could be detected in the blood, urobilin was present in both the blood and the urine. A possible explanation for this peculiarity was in the action of the pneumococcus. Again another possible explanation was that the urobilin might come from a reduction of the bile pigment, caused by the pneumococcus.

The Relation of the Auditory Area to Aphasia.—Dr. Adolf Meyer of New York said that Nature's experiments with man were largely injuries, vascular lesions and the like, that was, very coarse interference almost inevitably subcortical as well as cortical. Similarly the convolutional patterns commonly used in descriptions were far from allowing sufficiently reliable specifications. Descriptions were especially loose, and therefore interpretations difficult for the temporal lobe in which the essential receiving station was hidden, and therefore usually poorly described or pictured. The study of the cases of sensory aphasia in the collection of the Pathological Institute of the New York State Hospital showed: (1) The possibility of easy and efficient reconstruction from serial sections, rendering accurately the relation of the lesions to both the fiber paths, and especially also to define cortical areas, which were as easily demonstrable in the adult as with Flechsig's method in the infant's brain. (2) The probability that the extent of the lesion of the narrower auditory zone (the transverse temporal gyri) and its fiber supply went parallel with the extent of auditory word-imperception.

Observations on the Pathology of Exophthalmic Goiter, as Related to Clinical Symptoms.—Dr. Louis B. Wilson of Rochester, Minn., read this paper, illustrating it with lantern slide projections.

Erythromelalgia, Raynaud's Disease, and Allied Conditions in Their Relation to Vascular Diseases of the Extremities.—Dr. B. Sachs (in association with Dr. L. Buerger) of New York said that from a study of twenty cases it was proposed to show that these disorders could not be maintained as distinct clinical entities; that they constituted in the majority of instances symptom-groups merging into one another, and often representing varying degrees of the morbid process in the blood-vessels. Dr. Buerger's studies on the pathology of the blood-vessels in these conditions proved that the pathological process was not an obliterating endarteritis, but an obliterating thromboangeitis.

Wednesday, May 13—Second Day.

Report of Two Cases of Relapsing Fever, with Demonstration of the Spirochætæ in the Blood of Patients and of Inoculated Rats.—Drs. John W. Hunter and Thomas A. Cope of Philadelphia presented this communication. The paper consisted of a brief historical review of the disease, with a short *résumé* of the recent work done on the subject, including serum studies. The first case was imported from Europe, and the second patient, who had lived in this country for over a year, acquired the disease through sleeping with the first patient after he had developed fever. Both patients were natives of Turkey.

The Therapeutics of Self-repair.—Dr. S. J. Meltzer of New York read this paper. He said that numerous facts in biology justified the conception that the living organism represented a mechanism and was in very many respects comparable to a complex human-made machine. The efficient repair of a mechanism of a human-made

machine justly presupposes a familiarity with its normal structures and construction and also a complete understanding of the nature of the disorder. But what was the status of our understanding of the living machinery and its disorders? Well might we point with pride to the great strides we had recently made in this understanding. However, the actual extent of our knowledge, it must be admitted, was very small, and was only an infinitesimal fraction of that knowledge which would enable us to comprehend the living machine as a competent engineer understood the human-made machine. While no man would be permitted to meddle with some serious disorders of the human-made machine with only a fraction of knowledge of its construction, with the disorders of the mechanism of life for thousands of years millions of men meddled with their repair with a knowledge infinitesimally small indeed, even when compared only with the present-day understanding of the processes of life and their disorders. No man could doubt what the outcome would be in an ignorant meddling with the human-made machine; it would lead in the great majority of cases to its complete destruction. But with the human organism no such disastrous results followed the innumerable ignorant meddlings with its disorders. The truth of the matter was that with just regard to therapeutics the living animal body ought not and could not be compared with an artificial machine. No machine had yet been invented which could automatically repair its own disorders. The living organism, however, was well provided with such automatic arrangements for self-repair. He said there were two methods of treatment which competed in the past in the domain of internal medicine, the rational and the empirical, the former possessing only negative virtues, leading essentially to inactivity, the latter satisfying its followers by the activity to which it inspired. Many ailments and diseases terminated spontaneously in recovery; therefore it was evident that the animal organism must possess means and methods by which it accomplished these recoveries. Here, then, a competent school existed where therapy could be learned legitimately and efficiently. With this object in mind, the method of self-repair of the animal body becomes the object of profound scientific studies, and immunity became the third method of therapeutics. Dr. Meltzer said he feared that the aspect of the studies of immunity was not yet appreciated even by some of the leading pharmacologists. It was a good thing that the antitoxins were discovered; here was something which physiology could not claim as its own and pathology had not yet laid hands upon it. Here was something which the body in its efforts of defense and repair evidently manufactured anew. The present tendency in pathology was to consider every symptom as a manifestation of the efforts of the organism for defense and self-repair. All the signs of inflammation were now considered as factors in self-repair. He said it was interesting to observe how on the basis of this newest conception some of the very same signs which were previously considered as essential manifestations of the disease were now artificially produced for therapeutic purposes. The various attempts to influence favorably the course of infectious diseases by the artificial production of leucocytosis was another venture to utilize therapeutically one of the methods of defense and self-repair employed by the body against the cause of inflammation. Fever was another means of repair which was now being tried by various investigators as a curative agent. He referred to the experiments of Opie, in which tuberculosis of the pleura and lungs of dogs was cured or greatly mitigated by the intrapleural injection of sterile pus obtained from another animal. Learning the methods of nature should not imply that one had to follow them blindly. On the contrary, one should improve upon them. In studying self-repair, one need only to get a hint as to nature's methods; but he was a bad pupil who did not try to do better than his master. Nature strove only to avoid death; the physician had an additional duty, and that was to make life bearable. Among the new creations he mentioned the antitoxins, bacteriolysins, antiendotoxins, agglutinins, precipitins, and coagulins. The organism no doubt could reproduce other substances in its struggle against disease. Enumerated instances would suffice to prove his contention that the fact of spontaneous recovery of the organism from disease could be and had already been utilized with great profit in favor of scientific and practical therapeutics. Pathological therapeutics promised to be the most efficient method of studying therapy.

Dietetic and Hygienic Therapeutics.—Dr. David L. Edsall of Philadelphia said that there had been, during recent years, a great tendency towards what was considered heresy, gentlemen who rejoiced in the growing condemnation of drugs and the manner in which hygiene and diet were superseding the use of drugs. He had been interested during the past few years in learning just what the practitioner knew of diet and hygiene, especially the younger members of the profession, and they were frank in acknowledging that that could not get the same results from diet and hygiene that they could from the use of drugs. It was deplorable to learn how few families were instructed in the regulations of diet and the proper hygiene in cases of typhoid fever; not in 10 per cent. of the families in which he made inquiries was any suggestion as to diet and hygiene made. The use of drugs was presented to the students in a way whereby they could obtain an intelligent reason for using them. With regard to diet and hygiene it was by experience that they gathered together knowledge from many sources. In hygiene and, to a large extent in diet, it was not necessary to learn a large number of new facts, but to correlate the knowledge gained from physiology and pathology, and especially from etiology. There was in recent years such a strong interest in scientific matters that there was a tendency to overlook the commonplace, such as sex, age, occupation, etc., which could be studied with interest and profit. As a consequence of inability to correlate scientific knowledge with practical knowledge, the end result was that the use of diets and instruction in hygiene suffered. These things could be easily corrected by attention to the new knowledge. It was a very common thing to have foods administered without any conception of their food value, and this he believed to be a dangerous procedure.

Organotherapeutics.—Dr. Reid Hunt of Washington said there was an interesting group of secretions which had been called hormones, and should be studied along three lines: (1) There should be a more thorough study of the role of hormones in health and disease. (2) One should be able to obtain hormones in a suitable form for therapeutic purposes. (3) One should know more of the influence of hormones on the body itself. Much advance had been made in the knowledge of the thyroid in recent years, and very important advances had been made recently in recognizing the independent function of the parathyroids. It had also been shown that the pituitary body secretion had some effect upon urinary secretion. A very important discovery was that of secretion. Not much had been learned regarding the internal secretion of the pancreas. Advances had been made in the study of the internal secretion of the ovaries, and its influence upon the uterine muscle. Also that the secretion from the corpus luteum was necessary to effect a fixation of the embryo in the uterus. It was interesting to note that about 267 organotherapeutic products had been described in the medical journals and elsewhere. The majority had fallen into the hands of quacks who claimed to be able to cure all forms of disease. He believed that many of these products could be made synthetically and were of value. He called attention to the fact that many believed that hydrochloric acid had no action in the stomach but did have upon the mucous membrane of the dodenum, causing a stimulation of the pancreatic secretion. Iodine had a direct effect upon the thyroid, both clinically and experimentally.

He believed the activity of the thyroid ran parallel to the iodine content.

The Present Status of Serum and Vaccine Therapy.—Dr. Mark W. Richardson of Boston considered in general the antitoxins, bacteriolysins, antiendotoxins, opsonins, vaccines, filtrates, and residues. He said that one of the most important uses of fresh blood sera was in the prevention of hemorrhage. He considered briefly actinomycosis, anthrax, cancer serum, cerebrospinal meningitis (referring particularly to the work of Dr. Simon Flexner), cholera, infections due to the colon bacilli, typhoid fever, bacillary dysentery, erysipelas, exophthalmic goiter, gonorrheal infections, leprosy, leukemia, plague, pneumonia, sarcoma, antisnake venom, tetanus, tuberculosis, typhoid fever, etc.

Psychotherapeutics.—Dr. Llewellys F. Barker of Baltimore read a paper on this subject which included a brief historical résumé of the subject and a discussion of the advantages and limitations of the psychotherapeutic methods in vogue at present.

Radical Cure of Constipation by Psychotherapy.—Dr. Irving P. Lyon of Buffalo said that chronic constipation was generally looked upon and treated as a local disease of the intestine. This view was erroneous, and if strictly followed usually led to failure in treatment. Chronic constipation was generally a simple psychoneurosis—a mental habit or conviction of constipation, by which the normal innervation of the intestine was obstructed or altered. In the treatment, the psychical basis of the disordered function must be recognized, emphasized and utilized. Drugs and special local measures should be regarded as unnecessary, if not positively harmful. The patient's mentality or conviction of constipation should be changed at once, and at the first interview the patient ought to leave the doctor's office thoroughly convinced that constipation was merely a faulty habit that could be immediately overcome. With this new conviction impressed, it would be found easy to establish a new habit of regularity of function. The cure was established as a rule within a few days, often on the first day, seldom requiring more than a week or two. His personal experience with the method of treatment had been limited to the last two years in sixty-nine cases, with the following results: Complete cures, sixty-seven; partial cures, one; failures, one.

Physical Therapeutics.—Dr. R. Tait McKenzie of Philadelphia said that exercise as a therapeutic agent must include all means by which the body might be acted upon by movements active or passive, by the hand of the operator, or by a machine devised to replace it. Active exercises included games which preserved and cultivated the old coordinations of throwing, catching, striking, climbing, running, and leaping, necessary for the complete development of the individual, but difficult to get naturally under city conditions. Exercises he subdivided into those of effort and those of endurance. Under exercises of effort he included muscular action, violent, with concentration, and enormous increase of blood pressure which went down rapidly. The contraindications were arteriosclerosis and advancing age, valvular heart lesions, and active pulmonary tuberculosis. Under exercises of endurance he included easy movements, repeated till the onset of fatigue, with the blood pressure rising slowly and remaining high, pushed to the toxic dose, and fatigue fever from the accumulation of waste products. The contraindications were anemia and cachexia from any cause. In sound young men, in exercises combining both, like boat racing, no evil effects were to be found. The after-history of 'varsity crew men showed an increase of two to four years over expectation of selected lives as estimated by actuary tables of life insurance companies. Under duplicate movements he included direction of movement controlled and resistance prescribed, in other words, measuring the dose. The advantages of this were in accuracy, in specialization and isolation of muscle groups, and in stretching of contracted parts beyond voluntary power of the patient. In passive movements no will was required, and this acted on muscular nutrition mechanically. Under this was classed (*a*) massage: stroking, kneading, pinching, striking and shaking; (*b*) mechanotherapy: Zander's machines for massage and vibration. The greatest judgment and care were required to get the accurate kind and amount of exercise for the conditions to be treated. With regard to posture, faults were seen in the spine and the arch of the foot. In the spine, there were found exaggeration of the anteroposterior physiological curves, round, stoop shoulders, lateral deviations, scoliosis, always with rotation. Ninety per cent. of such cases were due to some form of fatigue. The treatment consisted in stretching the contracted parts, in the development of the normal muscle control. He emphasized the importance of isolating groups to be acted upon so as to postpone constitutional fatigue. Mechanical support was only necessary to retain the improvenment gained and to keep the original causes from acting. This was especially true in flat foot. In speaking of the heart and circulation he recalled Oertel's demonstration upon himself at the age of thirty. The possibility of climbing exercises, accompanied by limitations of fluids, and the establishment of his cure by physical training and "drying out" for heart and obesity cases were considered. The Schott brothers' treatment was by carbonated brine baths and duplicate movements. The effect of exercise was to slow and strengthen the pulse, with a reduction of dilatation. A contraindication was arteriosclerosis. In the reduction of obesity it was best undertaken up to the age of forty. Deposits of fat became localized in the pericardium, omentum, and mesentery, and daily treatment should last one month. The exercises should be trunk flexions and rotations, thigh abductions, flexions, etc., using the large muscle masses. This should be followed by hill climbing where it was possible. The diet should be regulated and organotherapy used in most cases. The contraindications were advancing age and lowered vitality. Constipation, when the result of sedentary habits, could be controlled by exercise. Horseback riding, Zander's machine, the "Camel," rotations and flexions of the trunk, massage of the abdomen following the course of the colon, were valuable. When hernia was due to atony of the abdominal muscles and a patulous abdominal ring, the cure was hastened by developing muscles which protected and closed the ring. Neuralgias and headaches were frequently controlled by exercises. In the later states of neurasthenia, rest cure massage to assist assimilation and the active exercise were beneficial. In infantile paralysis, massage would preserve nutrition and increase the circulation to the affected parts and prevent contractures, with active exercise when any power remained. He mentioned Hudson Makuen's theory of the relation of breathing and phonation to stammering, and their reeducation to coordination. In tabes dorsalis, the symptoms of ataxia were treated by exercise, to reeducate lost coordination. The work given should be very simple, such as rising and sitting down, walking forward, backward, and zigzag. Accuracy and difficulty were increased with improvement. Certain ingenious devices had been described by Frankel. The dangers of treatment depended on the constant loss of sensibility to fatigue and profound exhaustion, rapid feeble pulse, mental worry from repeated failures, etc. This should be looked for, and treatment should last only two or three minutes at first. There was usually a marked improvement in the ataxia, and this was usually retained for years. In summarizing he said that exercise in its application to pathological conditions of posture, circulation, nutrition and the nervous system, must depend for success on the accuracy of the dose, and persistency in following out the course of treatment, and careful observation during the progress of such a course.

Dr. Hobart A. Hare of Philadelphia thought that the most important thing that had been impressed upon the members of the Association and those in active practice was that there was still a wide breach between experimental pharmacology and bedside experience. A large amount of success in practice depended upon empiricism rather than upon a knowledge of the pharmacological action of remedies. He asked his hearers not to decry pharmacological research. One could not throw aside measures that had been used for years and with success, measures that had triumphed in past years. One thing had impressed itself forcibly upon him, one of the points that Dr. Meltzer had brought out, the extraordinary ability of the body to adjust itself to the onslaughts of disease. Dr. Hare said he was confident that many of the procedures used by our ancestors, but now given up, were based on good reasons, as, for example, the method used for the production of sweating in the early stages of acute infections and other conditions. Now we were in the habit of using drugs, like pilocarpine, which, in the hands of the skilful physician, would produce results beneficial and admirable. It was now taught that certain drugs did good by stimulating the heart muscle; that others like atropine did good by acting on the vasomotor system in conditions of shock, etc.; this was very crude and did not represent the true physiological action of the drugs at all. Veratrum viride was recommended in puerperal eclampsia, and far and wide physicians had claimed for it extraordinarily good results. Dr. Hare had never used it in this condition and did not know how it acted in such conditions. Psychotherapy was valuable, but should be used in conjunction with other measures. He closed by urging more pharmacological research and investigation, and not to give up the old methods until the newer remedies worthy of displacing the older ones had been found.

Election of Officers.—*President,* Dr. Victor C. Vaughan; *Vice-President,* Dr. Henry Hun of Albany; *Secretary,* Dr. Geo. M. Kober of Washington; *Recorder,* Dr. S. Solis Cohen of Philadelphia; *Treasurer,* Dr. J. P. Crozer Griffith of Philadelphia; *Councillor,* Dr. S. J. Meltzer of New York; *Representative on the Committee on Congress of American Physicians and Surgeons,* Dr. F. H. Williams; *Alternate,* Dr. W. S. Thayer.

The Clinical Value of the Tests of von Pirquet and Calmette.—Drs. Chas. L. Greene and Frank E. Burch of St. Paul presented this paper with the following summary: (*a*) The reaction was comparable and practically parallel to the old injections tests, inasmuch as the percentage of reactions closely approximated that obtained by Beck and others using the older method. (*b*) The two tests ran more nearly parallel than the reports of Wolff Eisner and others indicated. (*c*) The v. Pirquet was the more reliable and less subject to accidental error through fortuitous irritation. (*d*) Both active and arrested tuberculosis reacted to the tests. (*e*) The more vigorous reactions seemed to indicate greater individual resisting power and had a certain prognostic value. (*f*) The low reaction was more common in arrested tuberculosis. (*g*) The advanced cases with low resisting power afforded a slight reaction or none at all. Some showed a transient slight reaction reported by Wolff Eisner. (*h*) The positive reactions in the general clinical cases were so numerous as often to be merely suggestive and retrospective. (*i*) The negative value was extremely great and of high clinical utility. (*j*) The method of v. Pirquet seemed to be free from danger, but a sufficient number of bad results from the conjunctiva test had been reported to justify caution in its use. (*k*) The absence of local reaction signs, such as occurred in the old tuberculin tests, was more than compensated for by the lesser risk involved. (*l*) Relatively few cases reacted which did not show reasonably good evidences of past lung involvement, especially apex retraction as determined by Krönig's method. (*m*) The test was well worthy of, and adaptable to general use, but only with the full knowledge and appreciation of the other limitations.

A Comparison of the von Pirquet, Calmette and Moro Tuberculin Tests and Their Diagnostic Value.—Drs. S. McC. Hamill, Howard C. Carpenter, and Thomas A. Cope of Philadelphia presented this communication. The paper contained a brief review of the technique pursued in the carrying out of the various tests, a description of the class of cases in which they had been used, the results as applied to each class, and other matters, the gist of which was presented to the Association at its last meeting, and which had appeared in the report of that meeting in the Medical Record.

Tronchin: A Sketch of His Life.—Dr. F. C. Shattuck of Boston said that Tronchin was a great practitioner, who wrote an enormous number of letters and but one thesis, on "Colica Pictonum." He was born in Geneva of first-rate stock, and received the best education that Geneva afforded. Once, when in London, where he met Richard Mead and asked him to what he attributed his success, Mead replied: "I have perhaps not done much good, but I have tried not to do harm." This speech influenced Tronchin's future. He studied medicine for three years and then settled in Amsterdam, where he was twenty years in general practice. He was called to Paris to inoculate the children of the Duke of Orleans for smallpox. He then went to Geneva, where people from all over Europe flocked to him. In 1763 he returned to Paris for good, becoming the physician to the Duke of Orleans. He died in Paris. His claim for immortality was that he was a true follower of Hippocrates, and was one of the greatest practitioners the world ever saw.

Fatigue in School Children as Tested by the Ergograph.—Dr. Rowland G. Freeman of New York gave a description of the different forms of the ergograph which had been used, and reviewed the previous work with the ergograph to test fatigue. The Crampton test, he said, was of no value in children. The Story ergograph was of no value, because the accessory muscles were used. In his testing of the children of the New York public schools he found no such amount of fatigue as Christian found in the children in the Chicago schools.

Ascitic Exudate in Typhoid Fever.—Dr. Alexander McPhedran of Toronto reported four cases of typhoid fever in which well-marked signs of peritoneal effusion were present for about two weeks, disappearing in convalescence. There were no other indications of peritonitis.

Further Observations on Pleural Reflexes.—Drs. Joseph A. Capps and D. D. Lewis of Chicago said they had made a comparative study of the effect on blood pressure of irritating with various antiseptics the pleural cavity of healthy dogs and dogs with pleurisy. They also offered the results of a series of experiments to determine the effect on blood pressure of various irritants applied to the parietal pleura. Fifty cm. of the fluid used was injected; then the irritating fluid was washed out soon after with water. In the case of peroxide of hydrogen, great care was used to get rid of any gas. The dogs with pleurisy were really empyema dogs. The following table was presented, showing the results of their experiments:

Irritating fluid.	Condition of dogs.	Number of experiments.	Fall in blood pressure.	Falls per cent.
Hot water	Normal	8	0	0
Hot water	Pleurisy	5	0	0
Cold water	Normal	4	1	25
Cold water	Pleurisy	4	2	50
Formaline and glycerine	Normal	11	4	36
	Pleurisy	11	6	56
Iodine solution one per cent.	Normal	6	1	16
	Pleurisy	9	2	22
Peroxide of hydrogen	Normal	9	1	11
	Pleurisy	11	6	55

Acute Pancreatitis.—Dr. Joseph Sailer of Philadelphia read this paper. Pancreatitis was produced by the injections of oil into the duct of Wirsung. There was great rapidity of the process as well as completeness and

there was apparent absence of any specific toxic substance produced in the pancreas itself. An experimental pancreatitis might run a typical course without any bacterial infection. Certain ferments, particularly the fat-splitting ferments, might escape from the pancreas and digest suitable tissues in the vicinity of the pancreas. With regard to the views on pancreatitis it had been claimed by some that it was bacterial in nature; by others that it was due to the escape and activity of trypsin; again many believed that they were not in a position to make any definite statement.

Some Clinical Features of Pancreatitis.—Dr. JOHN H. MUSSER of Philadelphia gave some interesting results of the studies of nine cases of acute pancreatitis. In one case an early expression of carcinoma of the pancreas might be seen in an attack of acute pancreatitis. This patient was fifty-six years old, and he had definite symptoms of acute pancreatitis. These acute symptoms subsided at the end of three or four weeks and then the phenomena of carcinoma of the pancreas first arose. The primary focus was in the breast. In another case an acute pancreatitis with the occurrence of hemorrhage caused sudden death in the course of typhoid fever. The autopsy in this case showed a severe hemorrhage from the pancreas. In another case there were symptoms of a renal calculus occurring at the same time with symptoms of acute pancreatitis. Notwithstanding the complication and the disagreeable features in this case they had the temerity to advise operation. They found quite a large collection of fluid in the layers of the omental cavity hemorrhagic in nature. This was the first case ever diagnosticated in Philadelphia. The patient died of peritonitis. Patients might recover from acute pancreatitis. The diagnosis of pancreatitis must be based upon the previous history, the acute symptoms, the symptoms of inflammation behind the stomach, and by the abdominal symptoms, with which all were familiar. In two of the nine cases, the patients were treated for diarrhea. An acute anemia was characteristic in five out of the nine cases. A subnormal temperature occurred in five cases, occurring in from one to five days after the onset of the disease. Then a gradual rise took place. Dyspnea occurred in eight out of the nine. There was an increased pulse rate in all the cases. The Cambridge test was positive in all the cases.

Dr. S. J. MELTZER of New York called attention to the findings at the autopsy of the late von Bergmann. The diagnosis prior to his death was a kink of the colon producing peritonitis, but the autopsy findings showed that in all probability he died of an acute pancreatitis.

Hypernephroma of the Kidney, with Metastasis to the Sternum, Simulating Aneurysm of the Aorta.—Dr. AUGUSTUS A. ESHNER of Philadelphia said that hypernephroma was a tumor of adrenal structure, involving the adrenal gland itself, or situated in some other organ or tissue. It might be small and benign and remain encapsulated, or large and malignant and give rise to metastasis. The primary growth was often situated in the kidney, while secondary growths had been observed in many structures, and especially in the bones. The symptoms did not differ essentially from those of other forms of neoplasm. In the case reported by Dr. Eshner a pulsatile elastic tumor of the manubrium sterni, in the course of the aorta, and yielding a systolic murmur on auscultation, was found after death to be a metastatic growth secondary to a hypernephroma of the kidney.

The Importance of the Consideration of Negative Results in Blood Cultures.—Dr. E. LIBMAN of New York said that in all the culture work up to this present time stress had been laid upon the positive findings. As the result of a study of a large number of blood cultures the writer had found that the absence of bacteria was very often significant in giving diagnostic and therapeutic indications. Negative blood cultures were important in the diagnosis of endocarditis and abdominal disease.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 1, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	461	154
Diphtheria	187	17
Measles	153	11
Scarlet Fever	123	4
Smallpox	—	—
Varicella	14	—
Typhoid Fever	76	13
Whooping Cough	29	4
Cerebrospinal Meningitis	12	11
Malarial Fever	—	—
Totals	1055	214

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending July 31, 1908:

SMALLPOX—UNITED STATES.

		Cases.	Deaths.
Illinois, Chicago	July 11–18	1	..
Indiana, Fort Wayne	June 27–July 4	1	..
Indianapolis	July 12–19	17	..
Lafayette	July 13–20	1	..
South Bend	July 11–18	4	..
Kansas, Wichita	July 11–18	1	..
Louisiana, New Orleans	July 11–18	1	..
Ohio, Cincinnati	July 10–17	1	..
Springfield	July 11–18	1	..
Toledo	June 27–July 11	7	..
Washington, Spokane	July 4–11	7	..
Wisconsin, La Crosse	July 11–18	6	..

SMALLPOX—FOREIGN.

Algeria, Algeirs	June 27–July 4	..	2
Arabia, Aden	June 15–29	..	8
Brazil, Bahia	June 1–30	115	1
Para	June 27–July 4	2	2
Rio de Janeiro	July 14–21	378	151
Santos	July 15–21	..	1
Canada, Halifax	July 4–11	1	..
China, Foochow	June 6–13	..	Present
Nanking	June 4–11	..	Epidemic
Egypt, Cairo	June 17–July 1	7	4
Suez	May 27–June 24	4	..
India, Bombay	June 9–23	..	49
Calcutta	May 31–June 13	..	25
Italy, Genoa	May 1–31	2	..
Naples	June 20–July 4	12	..
Palermo	June 20–July 4	6	1
Japan, Kobe	June 13–20	4	..
Osaka	June 6–20	13	4
Java, Batavia	May 31–June 13	7	..
Mexico, Aguascalientes	July 5–12	..	1
Mexico City	May 31–June 6	..	16
Peru, Lima	June 27	1	..
Portugal, Lisbon	June 27–July 4	2	..
Russia, Moscow	June 20–27	24	7
Odessa	June 20–27	3	..
Riga	June 27–July 11	6	..
St. Petersburg	June 13–27	117	21
Warsaw	May 23–30	..	7
Siberia, Vladivostok	June 4–14	3	..
Spain, Valencia	June 27–July 4	4	1
Straits Settlements, Singapore	May 31–June 13	..	2
Turkey in Europe, Constantinople	June 28–July 5	..	10
Turkey in Asia, Bagdad	May 16–June 21	89	19

YELLOW FEVER.

Brazil, Manaos	June 13–27	14	14
Para	June 20–27	2	2
Rio de Janeiro	June 14–21	1	..
Cuba, Daiquiri	July 28	2	1
Mexico, Laguna	June 27–July 4	1	..
Vera Cruz	July 14–17	2	..

CHOLERA.

Ceylon, Colombo	June 6–13	..	3
India, Bombay	June 9–16	..	1
Calcutta	May 31–June 6	..	52
Rangoon	May 31–June 13	..	14

PLAGUE—UNITED STATES.

California, Alameda County—			
Oakland	July 21	1	1
Contra Costa County—			
Concord	July 15	1	1
Prenois Valley	July 24	1	1

10 miles from Martinez.

PLAGUE—FOREIGN.

China, Canton	June 13–20	..	Present
India, Bombay	June 9–23	..	69
Calcutta	May 31–June 6	..	45
Rangoon	May 31–June 13	..	68
Indo-China, Saigon	May 31–June 13	30	26
Japan, Osaka	June 6–20	2	3
Peru, General	June 20–27	53	16
Callao	June 20–27	1	..
Turkey in Asia, Bagdad	May 16–June 21	36	23
Venezuela, Caracas	July 18–23	..	Present
La Guaira	July 18–23	..	"

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Original Articles.

THE SURGICAL TREATMENT OF EMPYEMA.

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SURGICAL procedure, if not based upon thoroughly scientific principles, will not bear the analysis of time. Method, technique, and certain other factors may change, but the principles upon which those rest, if rational and effective, always remain the same. The struggle of the ages in medicine, as in other departments of science, has been the emancipation of truth from authority. Therefore, in order to discuss intelligently the subject under consideration, we must appeal to a law that existed before the ordinances of man—we mean, the law of eternal truth.

The surgical treatment of empyema dates back to the time of Hippocrates. We have read of the Alexandrian merchant, who was suffering from an accumulation of fluid in the pleural cavity, with signs and symptoms indicative of an aggravated form of compression of the lung. He had submitted to all manner and form of internal and external medication. The holy incantations of Egypt were recited in his behalf, and even the sacred Apis bull was printed upon his chest, all without relief. This suggests the thought of seeing the afflicted individual standing before the ancient sphinx of Oedipus, listening to the voice of Memnon floating over the twilight of the Nile—a voice which seemed to whisper in his ear: "To Hippocrates for relief. The mere despair of surgery he cures." Subsequent events proved that he must have heeded the voice, for later on he knelt at the feet of Hippocrates for treatment. The master mind of this great genius, after a careful physical examination, made a diagnosis of empyema. Operative measures were advised and accepted. The plan of procedure followed was: Free incision down to the ribs, trephining the latter, incision of the pleura, and evacuation of pus. Hippocrates, by this operation, led his disciples from the borderland which separates the visible from the invisible, the palpable from the impalpable, drew aside the veil of Isis, and demonstrated to them and the profession that there was one, and only one rational and effective plan of treatment for empyema; that was, incision, trephining the rib, incision of the pleura with knife or actual cautery, gradually allowing the pus to escape, thus giving nature an opportunity to re-establish her normal condition. Down through the ages, up to the time of Lister, we find no improvement in the operation as performed by Hippocrates.

Paget, in his work, "Surgery of the Chest" (1897), says: "If we look again at history, we find whole ages of neglect or perversion of the truth and it is impossible to understand how this Hippocratic treatment of empyema became so hopelessly lost, when we find the description of it in the works of Hippocrates himself. If it be true that Galen invented the aspirating syringe, this was probably the beginning of the evil; the Hippocratic operation fell into disrepute, and there was no method to take its place; incision, either with the knife or actual cautery, was almost wholly abandoned, save by some of the Arabian physicians. By the time of the Renaissance, with return to Greek art and literature, it was too late to go back to Hippocrates. Surgery had become embarrassed by the bad results of septic wounds, and it was held as dangerous to let air into the pleura as to leave an effusion unrelieved, nor was the difference between serous effusion and purulent effusion properly understood or recognized. Thus it happened that our art drifted, in spite of Ambroise Paré and Guy de Chauliac, into that disastrous period when empyema was treated by simple puncture; and not even Laënnec could save it. The doctrine that puncture for serous effusion would convert it into a purulent effusion, and that the entry of a few air-bubbles into the pleura might set up a fulminating suppuration, blocked the way; and blocked it still might be, but for Lister.

The history of the treatment of empyema, from Hippocrates to Lister, would justify a revival of the oath of Hippocrates, "In purity will I practise my art," if it were understood that the purity must be not only a clean life, but also a method of operation. For example, as late as 1872, M. Bouchut published, as an instance of good, profitable surgery, a case of empyema in a boy, age nine, cured in 16 months after 58 punctures. In another case, he punctured the chest in 11 months, 123 times. Lilly records a case in which he made 56 punctures. Gimbert, in a child 11 years old, made 74 punctures in nine months, obtaining a grand total of 30 pints of pus. And the worst of it all is, out of 48 patients thus tormented, only six were saved. Nor did freer incision, before Lister, fare much better. Out of 12 patients under the care of Velpeau, not one recovered; out of 58 under the care of Dupuytren, all but two died; and Sir Astley Cooper complained that he could never get a single cure. There are three series of cases, less than 25 years ago, whose lives might have been saved if they had been under the care of Hippocrates. The old routine treatment by repeated puncture or aspiration has, happily, gone forever.

In the early sixties of the past century, or, more correctly speaking about 1868-1870, Lister, after a life's work of careful preparation and research, partly based upon the experimental work and researches of Pasteur, advocated the principles and practice of antiseptic surgery. With the introduction of this wonderful epoch-making achievement

*Read before the New Haven County Medical Association, April 23, 1908.

of Lister, surgery was taken out of the field of empiricism, away from medicine, and placed upon a firm and lasting foundation. Medicine has had more centuries of evolution than has surgery. We can trace it back to the beginning of the Christian era; back to the time of Hippocrates; beyond the

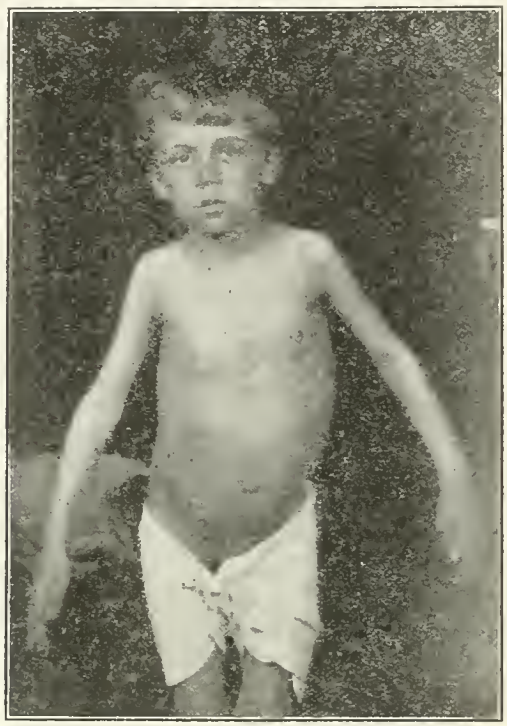

Fig. 1.—Showing extreme prominence of the left side of the chest, with bulging of the intracostal spaces, indicating accumulation of fluid in this, the sound side. Note secession of the ribs on the right, the affected side, suggestive of no accumulation of fluid—a condition exactly the reverse of the usual order or of what might be expected.

time of Hippocrates until it is lost in the twilight of fable. The opsonic index seems to be a step in the right direction. With further development it may, at least we hope so, do for medicine what Listerianism has done for surgery, place it upon a more thorough and scientific basis. Subsequently, bacteriology had become established as an essential department in medicine, and soon began to cast the rays of its powerful searchlight in certain directions and to illuminate the valleys of darkness. This, in turn, paved the way for asepsis which supplanted antisepsis. Up to the time, and immediately following the latter event, American surgeons had not received the proper attention that the character and importance of their work deserved. From the date of the first edition (1888) the standard classic of Jacobson's "Operations of Surgery," conceded the best general treatise on surgical operations in the English language, no other writer has done more to bring home to operating surgeons how much can be gained by their turning their eyes to the advances made by Trans-Atlantic surgeons, as well as by those on the continent of Europe. In other words before the advent of this book, the prestige of the surgeons of America had had scant justice in comparison with that of the surgeons of Germany and France. In 1889, within a space of twenty years since the establishment of antiseptic surgery, Prof. Arpad G. Gerster brought forward his epoch-making work on "The Principles and Practice of Antiseptic and Aseptic Surgery." He taught us that if we were aseptic in our work, there was little, if any, need of antiseptic, unless it be in an area already infected.

The aseptic teaching of Gerster was evolved from the antiseptic doctrine of Lister. Following the introduction of aseptic principles and practice came a complete revolution in surgery and surgical technique, so that to-day there is scarcely an organ or tissue of the body that cannot be manipulated with a fair degree of impunity. At the time asepsis was established as an essential department of modern surgery, America had to contend with England, France and Germany in the lead. While the latter country was concentrating her energy, strength and application upon the minutiæ, she seemed to have lost sight of the perspective. Finally the rare intellect of the Mayos began to assert itself, those trained minds, with generations of culture back of them, working side by side, progressing step by step—not by leaps and bounds. They (of course with others) have placed American surgery upon a higher plane of thought, reason and action, until to-day she stands alone amid the nations of the earth, like Pompey's column at Alexandria, towering above them all.

Under the old order of things, the practical value of a surgical procedure was notoriously based upon erroneous premises, namely: What is your mortality? This will no longer stand the test of modern times, with the rapid advancement of surgery and technic. The surgeon obviously assumes great responsibility and is confronted with three important factors; (a) mortality, (b) disability, (c) permanency of cure. Those are the conditions upon which will rest the triumphs of future progress. The mutilating operations of Estlander and Schule have served their purpose and are now of historical interest only. They are a reflection upon both med-

Fig. 2.—Showing the pronounced lateral curvature of the spinal column which might be mistaken for tuberculous caries of the dorsal vertebræ. The curve was even more pronounced than is shown in the picture.

icine and surgery. The former failed to make a diagnosis during the acute and curable stage. The latter disabled and disfigured the patient, with a high mortality, too often with no permanency of cure.

The physician who fails or neglects to make a

positive diagnosis of empyema during the acute and curable stage, commits a crime almost approaching criminal negligence. Should the refinements of physical examination leave him in doubt, he has at his disposal the aspirating needle, which can be used with aseptic precautions and will clear up the situation at once. When the existence of fluid is diagnosed or suspected, by exploratory puncture its presence and character are determined. We are in accord with Kocher ("Operative Surgery", 1903) who, in quoting Broca, says: "Broca is right in saying that empyema necessitatis should never be allowed to develop. A purulent pleural exudate cannot be too early evacuated, for it is only in the recent empyemata that there is a prospect of the lung fully expanding again. Physicians do not yet sufficiently appreciate that this complete mobility and expansion of the lungs is obtained by early thorough operation." Kocher also mentions Beck of New York who has published statistics which prove the value of early operation, including resection of rib. Of 110 uncomplicated cases under his observation, when the diagnosis was made early, all recovered.

Fig. 3.—Showing the normal contour of the chest, right and left sides, after the operation.

Pulmonary Decortication. George R. Fowler (*Medical News*, June 15, 1901; American Year Book of Medicine and Surgery, 1902) performed this operation in 1893 with very gratifying results. He writes: "An elliptical shaped incision was made to include the orifice of the sinus, the soft parts cleared, and about 3 1-2 inches of the fifth and sixth ribs removed. Commencing at the site of the opening of the chest wall, the pleura was isolated in the direction of the diaphragm until the latter was reached. It was then peeled off the latter until its limit towards the medium line was reached, where it was found to rest against the displaced pericardium, from which, after much difficulty, it was finally detached. This dissection was greatly impeded by the movements of the diaphragm as well as those of the heart. The dissection was completed by lifting the mass and finally detaching it from the lung above. Considerable expansion of the lung followed at once, and in the course of 28 days this was so far complete that the normal vesicular murmur was present to the level of the seventh rib. Save for a slight sinking of the chest wall at the site of the resection of the ribs there is nothing to suggest the previous existence of empyema." Fowler's original paper was published in the Medical Record, December 30, 1893.

Delorme, in 1894, performed an operation very similar to that of Fowler (American Year Book of Medicine and Surgery, 1902), and did it successfully under cocainization. Out of 29 cases of decortication by the Fowler method, the functional results were 11 cured, 6 improved, 9 unimproved, 3 died. As regards the cure of the empyema, 17 were cured, 9 unimproved, 3 died. (Delorme's original paper appeared in the Gazette des Hôpiteaux, 1894, No. 11.) Delorme has devised a method of temporary resection of the chest wall; this being done, he decorticates the lung, cleans the empyema cavity, and replaces the flap of

Fig. 4.—Showing the perpendicular line of the spinal column, restored to its normal condition after the operation.

the chest wall, providing, of course, for drainage. This operation has not found much favor. To these must be added one by Dr. Joseph Ransohoff of Cincinnati, in the *Annals of Surgery*, April, 1906, which is simply a modification of the Fowler-Delorme method. This he calls "Discission of the Pulmonary Pleura." It consists of "gridironing" the pulmonary pleura with many parallel incisions, removed from each other about a quarter of an inch, and crossing these obliquely, or at right angles, with other parallel cuts.

All these methods are indicated in chronic empyemas, where operation has been delayed, and in cases where the lung fails to expand after adequate drainage of the pleural sac, subsequent to primary operation. They are based upon the idea that when the lung has once completely collapsed and become firmly fixed the pulmonary pleura has lost its expansibility, owing to inflammatory thickening, so that it will not allow sufficient amount of re-expansion to permit the pulmonary and parietal surfaces to come into contact. Lloyd, whose name is well associated with surgery of the chest, especially that of empyema, in a very instructive article in *Annals of Surgery*, March, 1907, says: "It is now over fif-

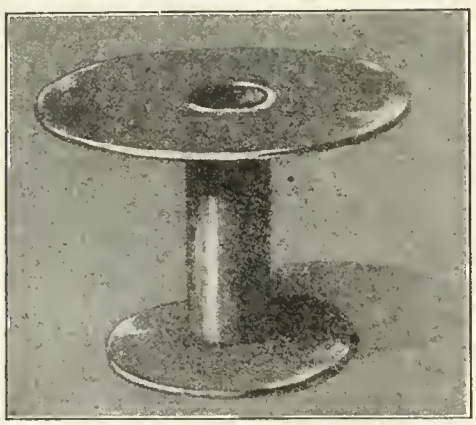

Fig. 5.—Double-flanged empyema tube. This is simply a piece of rubber tubing with a flat piece of rubber on either end. The smaller flange rests against the inner surface of the chest wall, while the larger flange rests upon the skin and prevents the tube from slipping into the pleural cavity.

teen years since I began to experiment on these cases in order to determine if there was not some way to bring about this complete expansion of the lung without extensive and mutilating operations upon the chest wall. In 1893-4, respectively, when Fowler and Delorme suggested their method, I discontinued experimental work for a short time and adopted their method of decortication. It was not long, however, before I was convinced that the difficulties attending the freeing of the lung from its pleural covering were so great, and the result following the attempt was so often unsatisfactory that I took up again this experimental work." We have been informed by an able colleague who had operated on a case of chronic empyema and insisted at the time of operation there was secondary rib formation, the result of the chronic process; subsequently the patient was sent to one of the New York hospitals, and the attending surgeon was informed of the findings at the first operation, but the latter laughed in derision at such unique condition of things. Later, however, the New York surgeon operated on the patient, and informed *our* colleague that the latter was right in his diagnosis; there was a secondary rib formation. In this, however, we cannot concur, and do not believe that such was exactly the condition found to exist at either operation. While at the Mayo Clinic in connection with St. Mary's Hospital, Rochester, Minn., June to September, 1907, it was our privilege to observe Dr. Charles H. Mayo operate upon a chronic case of empyema of long standing. In the region of the right nipple there was a chronic discharging sinus. This case necessitated a most radical operation, consequently the anterior lateral incision was made which exposed the entire right chest cavity. No normal lung was found to exist. The remnant of a once normal lung, reduced to a ribbon-like mass running parallel with the spinal column, and attached firmly from apex to diaphragm, in such a way that had it contained any vitality, expansion was practically impossible. The pleura was very much thickened and, in certain places, folded upon itself in such a manner as, owing to calcareous deposits (calcification), gave the appearance of secondary rib formation. The pleura, with the ribs, were thoroughly resected, and the flap replaced. Lloyd has recently advocated a method of primary operation by which he believes that the permanently collapsed and cirrhotic condition of the lung can be avoided. He makes a sufficiently large opening into the chest to enable him to introduce one or more fingers, or the entire hand into the pleural cavity. After the pus has been drained away the anaesthetic is suspended and the entire lung separated from the chest wall by breaking down all adhesions. This manipulation causes the patient to cough violently, which by increasing the intra-tracheal pressure causes an immediate expansion of the lung. He reports over 200 cases treated by this method with a mortality of about 20 per cent.

Thoracotomy, with resection of a rib, according to Brewer (Keen's "Surgery", Vol. III.) is the operation of choice in all cases where drainage of the pleural cavity is required. The extra time consumed in the resection of the ribs is not more than two minutes, and most surgeons now adopt this procedure in preference to simple thoracotomy. The site of operation and the position of the patient are the same as in thoracotomy. The operation can be performed with local anesthesia, but in children and in nervous individuals general anesthesia is to be preferred. A cutaneous incision, four or five c.m. in length, is made directly over the rib to be resected. The tissues, including the periosteum, are divided to the bone, the periosteum is then stripped from the bone by a raspatory or periosteal elevator both in front and behind, care being taken in removing the membrane from the groove on the inferior border of the rib to avoid wounding the intercostal vessels and nerves. As soon as the bone is freed from its periosteum, a segment of the rib, three or four c.m. in length, is removed with bone forceps or the Gigli saw. When the bleeding has been arrested the cavity is opened by an incision through the periosteum, internal intercostal aponeurosis, and parietal layers of the pleura. One or more drainage tubes should then be introduced, or the Wilson's double-flanged tube. It is sometimes necessary to excise more than one rib to allow digital exploration of the thoracic cavity or other intrapleural manipulation. This can generally be accomplished through one incision, made somewhat longer to allow greater retraction of the soft parts. Each rib should be exposed and resected subperiosteally in the same manner as indicated above.

Byrant, in a recent article (Jacobi "Festschrift") has advocated aspiration drainage of the chest in empyema by means of a collapsible rubber bulb,

which he attaches to the outer extremity of a drainage tube. The latter should reach to the bottom of the suppurating cavity, and should accurately fit the opening in the chest wall, and near its attachment to the bulb should be fitted with a stopcock, which permits the removal and emptying of the bulb without admitting air to the chest. The tube and the bulb are strapped to the chest wall and covered by the usual dressings and binder. In case of acute empyema, the Mayos in their clinic use the double-flanged drainage tube (Fig. V.) which they consider simple, practicable and efficient. This is simply a piece of rubber tubing with a flat piece of rubber on either end, made in different lengths to fit different thicknesses of chest wall. In appearance it is very similar to a spool. The smaller flange of this tube rests against the inner wall of the chest, while the outer and larger flange rests against the skin and prevents the drainage tube from falling into the pleural cavity.

The writer, while at Ochsner's clinic, in connection with the Augustana Hospital, Chicago, September to October, 1907, has observed that he is a great advocate of, and practises through-and-through drainage. After making the usual rib resection, the pleura is penetrated and a counter opening may seem desirable. To make this, pass a forceps through the wound, through the cavity, and with its point elevate the tissues at the position selected. Cut down on the forceps, and push them through the new wound. Grasp the perforated rubber tube in the jaws of the forceps and pull the tube through the cavity. Sometimes two tubes are used in the same manner. We then have established efficient through and through drainage. If at any time it is desired to withdraw the tube and introduce another, fasten a stout thread to the end of it, and in withdrawing the tube pull the thread through the cavity: with this thread in situ, it is easy to introduce another tube. Later the tube may be displaced by a few strands of silkworm gut. Tubular drainage must be kept up until all the discharge has ceased.

The case we present here, with illustrations, being out of the usual order of things: presenting conditions directly the reverse of what might be expected, may perhaps be worthy of further consideration, as showing what can be accomplished, even in an aggravated form of empyema, by prompt diagnosis and early thorough surgical operation.

Herbert R., aged 8 years, was taken ill with pneumonia March 6 to March 14, 1907, inclusive, from which he made an uneventful recovery. Five weeks later his mother observed that the boy walked lame and that it was impossible for him to stand erect. The case was in the service of Dr. B. A. O'Hara, who kindly asked the writer in consultation. After a careful physical examination, we arrived at a diagnosis of empyema, which, of course, was corroborated by the aspirating needle drawing off about an ounce of pus. A specimen of the latter was sent to the pathologist of the Waterbury Hospital, Dr. Charles Engelke, for bacteriological examination, who reported as follows: "Examination of pus from empyema thoracis. Fluid found to be free from microorganisms. Cultures made in broth and on serum gelatin and agar media. After three days, no signs of growth of organisms."

Operation was advised, which was at first refused by the family, but after a few days of further deliberation they finally consented. Consequently, five days later, April 27, 1907, about three inches of the seventh rib, in the region of the posterior axillary line was resected subperiosteally. The pleura was then incised and an enormous quantity of pus gradually allowed to escape. The lung was compressed against the spinal column, adherent from apex to diaphragm. The adhesions were thoroughly broken up by digital manipulation and with a curved periosteotome, and immediate expansion of the lung followed. Large masses of coagulated lymph were scraped away, using a spoon as a curette. The excess of coagulated lymph that was set free during the course of manipulation was washed out of the pleural cavity by pouring hot saline solution into the wound from a pitcher. In this way there is no increase in hydrostatic pressure, and the fluid poured in is washed around by the expanding lung and flows out again through the free opening at each expansion. As soon as the lung had fairly well expanded, two drainage tubes were inserted, the skin closed around the tubes, and a liberal dressing applied.

In conclusion we find that simple incision lacks the fundamental principles of surgery, and most advanced modern surgeons do not consider it a recognized method of procedure for the surgical treatment of empyema. The established plan of procedure, which has withstood the test of time, is that laid down by Hippocrates, with one exception. Hippocrates trephined the rib to avoid injury of the intercostal vessels and nerves, while we, with a more perfect knowledge of anatomy, prefer to resect a portion of one or more ribs, thus enabling the surgeon to introduce one or more fingers, or the whole hand, into the pleural cavity, and by intrapleural manipulation break up all adhesions, remove the large masses of coagulated lymph, and thereby accomplish a more thorough surgical operation.

TREATMENT OF NEGLIGENT SPEECH BY THE GENERAL PRACTITIONER.*

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THE mechanism of speech includes (1) the organs for producing spoken sounds, (2) the ear, (3) the nervous and mental mechanism of control.

These organs may all be in such a condition that they can act normally and can produce correct sounds, and yet they may fail to do so because some part of the mechanism of control does not act with precision. This results in what may be called "negligent speech." I shall now pass briefly in review some of the most common defects of negligent speech and shall describe methods of cure that can be used by every practitioner. These defects are different from those that characterize hyperphonia (stuttering and stammering), which I have discussed in a previous publication.†

FIG. 1.

FIG. 2.

*Read before the Medical Society of the County of New York, May 23, 1908.

†Treatment of Hyperphonia, MEDICAL RECORD, March 21, 1908.

Lip Defects.

Some persons use "v" for "w." For "v" the lower lip should be against the upper teeth (Fig. 1); for "w" the two lips are brought near each other (Fig. 2). To correct the fault, tell the patient to say "well, word, wind," etc.; just as he starts to say "v," press his lower lip down with your finger or a stick; he will be forced to say "w" instead.

Tongue Defects.

The most common are:

1. *"s-t" lisping.*—The patient says "toap" for "soap," "tun" for "sun," etc. The defect is quite frequent among normal children; I have had a number of them in my Speech Clinic on Randall's Island. In saying "s" the tip of the tongue is brought against the palate (Fig. 3), but a small channel is

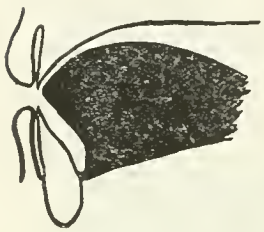

Fig. 3.

Fig. 4.

left in the middle so that a jet of air is blown through. The patient merely presses his tongue a little too hard, so that it closes the channel; this is the position that produces a "t" (Fig. 4). The cure consists in inserting a probe just over the middle of the tongue and pressing it down as the person tries to say "t"; this makes a small channel and he is thus forced to say "s."

2. *"th-t" and "th-d" lisping.*—Still more common are the children who say "tin, tree, tumb" for "thin, three, thumb," and "dis, dick, dee" for "this, thick, the." For both the sounds of "th" the tongue must be put so lightly against the palate that air escapes at the sides. The defect arises from pressing the tongue too tightly; this makes a "t" or a "d" just as in the previous case. The cure consists in inserting a probe or a stick at the side of the mouth above the tongue. When the patient tries to say "t," his tongue is pressed down at the side and he is forced to say "th."

3. *"s-th" lisping.*—"People thay I lithp but I don't pertheive it," remarked one young man. The tongue does not rise sufficiently at the edges in front to cut off the air at the sides while leaving a small channel in the middle. Tongue-tied people usually lisp in this way because they must make an excessive effort to press the tongue. Such people are cured by inserting the probe to make a well defined channel as in the s-t lisping (No. 1 above).

The frenum should be cut, if too short. This is, according to my experience, the only defect that arises from "tongue-tie." There is an antiquated belief that it causes stuttering. Among the hundreds of stutterers that pass through my hands at the Speech Clinic in the Vanderbilt Clinic, I have never seen one that was tongue-tied.

4. *"t-th" lisping.*—The patient says "wather" instead of "water," that is, he fails to close the tongue tightly across at the front. Ordinarily it is sufficient to explain to him that there are two classes of sounds called "occlusives" and "fricatives." For the occlusives the current of air passing through the mouth must be cut off at some point; for the occlusive "t" the tip of the tongue must close firmly against the palate. When it does not do so firmly, it produces the fricative sound "th."

5. *"r" defects.*—The usual one is the use of "w" for "r." The cure consists in getting the tongue in the right place for "r." One method is to teach the "rolled r," which is the regular "r" in French, German, and Italian. When the person cannot get the tongue right for this, it is useful to use another sound that requires the point of the tongue against the palate. For example, he is told to repeat "sun, run, sun, run," etc., or "tun, run, tun, run," etc.

6. *Various substitutions.*—"t" for "k." The child says, for example, "tandy" for "kandy" while he says "car" correctly. That is, although he is able to make th sound of "k" he replaces it by "t" in some words through pure negligence. Both "t" and "k" are occlusives, that is, the current of air is shut off entirely during the sound; for "k" this is done by the back of the tongue (Fig. 5). While

Fig. 5.

for "t" it is done by the front (Fig. 4). The cure consists in having the patient repeat the "k" sound before various vowels and gradually pass over to the incorrect words, *e.g.* "kah, kah, kah, ka-ka-kan, ka-ka-ka-kandy."

Velum Defects.

For most sounds the velum must be raised so as to cut off the nasal passage from the mouth. When this is not done, the sound is changed to a nasal; thus "b" is changed to the corresponding nasal "m," "t" to "n," etc. In mild cases I use a nasal indicator which shows when air issues from the nose.

There are two convenient forms of this breath indicator which anyone can make. The one shown (Fig. 6) consists of a thistle funnel over the top

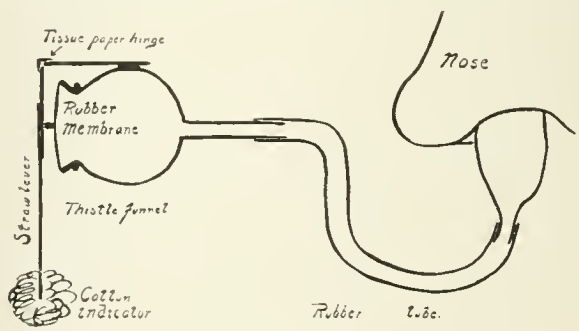

Fig. 6.—Breath Indicator.

of which a rubber finger cap is placed. A strip of visiting card is cut across and joined with tissue paper to make a hinge. A piece of wax holds one piece of the card to the funnel while the other one hangs in front of the rubber membrane. A drop of paste connects the hanging piece to the membrane. A light straw is fastened to the hanging piece and a bit of cotton is added at the bottom. The funnel is connected by a rubber tube to a nasal tip. When any air issues from the nose, it goes

into the funnel and moves the rubber membrane; the movement is indicated by the cotton.

Another form of indicator is shown in Fig. 7. The rubber tube from the nasal tip ends in a straight glass tube whose end just touches the flame

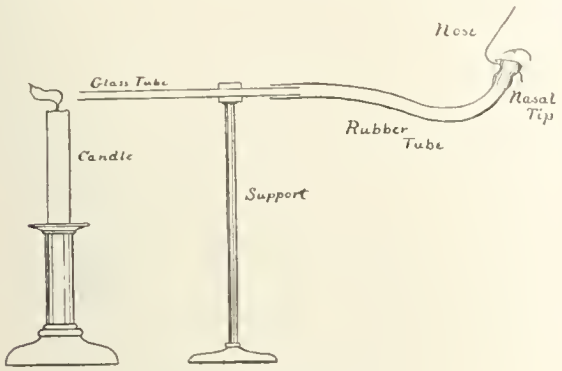

Fig. 7.—Breath Indicator.

of a candle. When the air rushes from the nose, the flame flickers.

The patient must learn to say "p, b, t, d, . . ., a, o, . . ." without moving the indicator.

In cases where the velar action is very defective, as after operations for cleft palate, I tell the patient to do things that oblige him to keep the nasal passage closed, *e.g.*, to play a mouth-harmonica, or the like. This idea I got from a little boy who found it possible to play on his harmonica by holding his nose with his fingrs.

Laryngeal Defects.

1. *Laxness of the vocal cords.*—This trouble shows itself in breathiness of the voice. I have no means of indicating this by instruments but it is readily detected by the ear. The defect is present in many singers and in nearly every case of abnormal speech; all epileptics and many stutterers have this laxness. It also occurs as an independent form of negligent speech. Large numbers of the children at Randall's Island have this defect with or without other speech defect.

The defect is due to insufficient closure of the glottis by the vocal cords. In most cases the cords are bowed open at the center. The most effective treatment is staccato singing, practicing notes on the vowel "ah," imitating the speech of the megaphone man, etc.

2. *Laryngeal Monotony.*—The vocal cords are stretched by several muscles. The tighter they are stretched, the higher is the pitch of the note. In singing they are stretched to a definite degree and the resulting tone is held steady. In speaking, the tone of the voice rises and falls at every instant, even in a single vowel. For example, if I say "How do you do" with a pitch indicated in the top line of Fig. 8, I speak in a perfect monotone, or chant. If I say it as indicated in the second line, I sing it. When I speak it, my voice rises and falls continuously as indicated in the last line.

To speak normally the laryngeal muscles must act quickly and readily. When there is the slightest awkwardness or stiffness, the tone will not rise and fall at every instant. The epileptic moves his muscles sluggishly and adopts a monotonous and flat melody. This is true without exception in every case of epilepsy I have ever seen. The habit remains after the fits have disappeared. It has been found it in the case of a valedictorian of one of our foremost colleges three years after the last fit and two years after the last dose of bromide. The defect is due to pure negligence in the nervous stimulation of the laryngeal muscles. In epileptics the fault can be corrected instantly. It is only necessary to point out to the patient the difference between his speech and the normal speech. He then speaks correctly. Epileptics usually do not care much about the character of their voices, and will

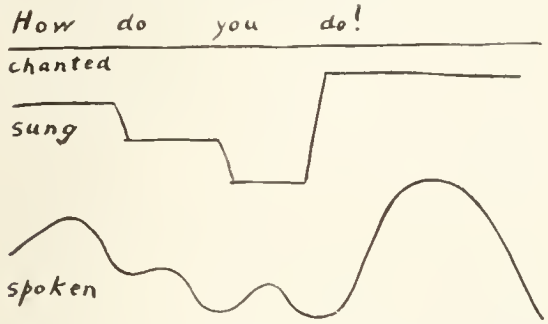

Fig. 8.

not take the trouble to keep up the correct melody. For private patients it is, however, important to remove the vocal defect that lets every one know that there is something queer about them.

Stutterers also have a monotonous speech which usually falls at the end of each sentence by a minor third. This gives a melancholy tinge to their conversation. I know one little girl whose voice moves in a most melancholy melody although she is perfectly happy. The laryngeal monotony in stutterers is due to excessive tension of the laryngeal muscles; it is not a defect due to negligence; I have discussed it in a previous paper.

Ear Defects.

Many children cannot speak properly because they do not hear properly. Up to the present all I have done for such cases is to teach them the various sounds while talking very loudly. I also let them see that for "m" my lips come together, that for "t" the tip of the tongue is raised, etc.

Nervous and Mental Defects.

1. *Inattention.*—Inability to fix the attention long enough to learn a sound naturally leads to incorrectness of the most varied kinds. Here is a little boy who can say "b" perfectly in the word "baba"; but he says "hoy" instead of "boy." No amount of repetition makes any difference. You tell him to look at your lips while you say "boy," but you notice that before you can get started his eyes wander away. It is the same way with "m," "t," etc. What is to be done? Here is the method I have employed. A little rubber bulb (Fig. 9) is

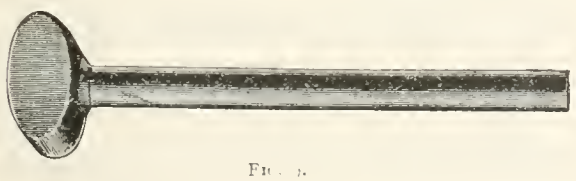

Fig. 9.

placed between the lips. It is connected to an indicator of the kind described above (Figs. 6, 7). The patient is shown that when he presses the bulb with his lips the indicator moves. He must then say "boy" in such a way as to move the indicator. To teach the correct tongue action for "t," "k," etc., the bulb is placed at the proper point in the mouth.

2. *Hastiness.*—In nervous children there may arise a habit of speaking so quickly that the speech becomes jumbled and defective. The patient then loses his correct notions of sounds, or, if the trouble is with him from the start, he gets only incorrect ones. He must be taught to speak slowly, *e.g.* by

reciting verses of which each word is printed on a card and turned over singly. He is also trained to make each sound of the language clearly and distinctly.

General Considerations.

Not long ago there appeared at the Vanderbilt Clinic a teacher with ten stuttering boys behind her and a list of thirty other stutterers and lispers from the same school who were to arrive in the next consignment. I was forced to say to her that my clinic was already as large as I could handle, and that the addition of forty more from each school in the city—that is a total of, say, 8,000—would make too great a load.

What is to be done with the 25,000 stutterers and lispers in this city? Stuttering is a distinct form of nervous disease, as I showed in my previous paper; it can be properly and legally treated only by a physician. Negligent speech can also be best treated by the practitioner. The care of a specialist is needful only in obstinate cases. The methods required for most cases can be made, as I have shown you in my two lectures, so simple that a physician or a medical student can learn them in six or eight exercises. Courses should be provided in our medical schools. Until this is done nothing will give me greater pleasure than to demonstrate the methods at the Vanderbilt Clinic every Wednesday and Friday to any physicians who will do me the honor of attending.

87 Madison Avenue.

THE HOSPITAL AND THE PROFESSIONAL ANESTHETIST.

By ALGERNON T. BRISTOW, M.D.,

Brooklyn, New York.

The hospitals of any community usually represent the best in medicine and surgery of which the community is capable. Even in those happily rare instances where politics exerts an influence in the matter of appointments, although political influence may play some part in the way of preference, the professional politician will rarely be found urging the appointment of a manifestly unfit or incompetent candidate. He may have his choice, but in the experience of the writer it is between the fit, and not between the fit and the unfit. Thus we carefully guard the portal of our hospital wards and seek to secure for the sick the highest degree of skill attainable in the visiting staff. There is one important part of our hospital work, however, which has been for many years entirely neglected. At least we have taken little pains to see that it has been in competent hands. I refer to the administration of anesthetics. That this is an important part of our work does not seem to need argument or proof. The administration of a general anesthetic is always a misfortune, even when well done. Under our present system it is too often a calamity, which proves to be without remedy. How often do we hear it said that the patient is too weak to stand an anesthetic; how often does the very life of the patient hang on the method of anesthesia, or rather in the manner in which a particular method is used, whether intelligently or carelessly. Hospitals exercise the greatest care in the selecting of the visiting surgeon. How many hospitals have a visiting anesthetist? I should like to ask the visiting surgeons in our hospitals were they themselves or a member of their families to be the patient whether a young house officer recently graduated would be their choice for anesthetist. I have not found it so. Why, then, should we treat the patients in our wards in any manner different from that in which we would be treated ourselves? Why select an expert for one part and a tyro for another part of the work which in effect may be of vital importance? It is a fact that at least until very recently in all hospitals and even now in most hospitals the anesthetic has been entrusted to a member of the house staff, usually the junior. Even when the anesthetist has been of higher grade than this, he has still been a member of the house staff and of little experience for the important work entrusted to him. What he knows is largely the result of theory aided by a rather limited observation. That serious accidents do not happen more frequently is strong testimony of the intelligence and care of our young house officers. But serious consequences from the anesthetic do not occur on the operating table alone. A patient may die from an anesthetic badly given long after the ordeal of the operation is passed. Ether pneumonia, ether shock, postoperative vomiting of obstinate character all follow in the wake of an improperly given anesthetic. There are many questions regarding anesthetics which the skilled man can answer, but which the young interne either is not allowed to answer or is incapable of answering. Chloroform is far safer in some cases than ether, and ethyl chloride or gas than either of the others. Shall I willingly entrust the administration of so powerful and tricky an agent as the first named to a tyro, even when it is indicated? Should I do so? How much of the agent used should be given to maintain surgical anesthesia per hour? It means a great deal to the patient not to have been over saturated with a narcotic vapor. It means much to the comfort and freedom of the surgeon to have his patient always sufficiently under the influence of the anesthetic as to be quiet and yet not too deeply narcotized. It has been too common in the past and is still too common for the operator to be compelled to keep one eye on the man with the ether cone and the other on his work. As a result of this bad system it often happens that the narcosis is either insufficient at critical moments or needlessly profound or the patient stops breathing altogether and all hands proceed to artificial respiration. We have all of us seen such scenes, yes, and been actors therein much oftener than we would willingly admit. Nor do these facts apply to New York hospitals alone. While writing this paper, the writer received a reprint from Dr. John B. Roberts of Philadelphia, entitled "The Anesthesia Peril of American Hospitals." When a man of Dr. Roberts' weight and conservatism thinks the facts justify such a title as this, it is high time that we woke up to the evils in the present system and set about their correction.

It is not the intention of the writer, however, in discussing this subject to depend on bald assertion. Not that he believes that the profession will seriously dispute the truth of the statement that the present system is faulty. He prefers to offer some statistics which it seems to him carry their own conclusions. In a broad way a fair method of comparison as between the methods of the professional anesthetist and the less trained hospital junior would be to contrast the amount of ether used by the two classes of men. When one averages up a large number of cases the amount used per hour would be as fair a test of the efficiency and skill of the administrator as any rather rough and ready means could be. From the hospital standpoint the man who can use the smallest quantity of a drug which is rather costly and get the required results

is better from the economical standpoint than a man who uses twice or three times the quantity. From the standpoint of the patient, that individual who receives twice as much ether as is necessary to maintain surgical anesthesia is far more likely to suffer from the unpleasant after-effects of the anesthetic than a patient who receives just enough and no more. We desire to submit the following figures which have been collated for us by the kindness of Dr. A. F. Erdmann, anesthetist to the Long Island College Hospital. First, we include fifteen replies received from members of the Brooklyn Society of Anesthetists, tabulated and averaged as follows:

Ques. 1.—How long does it take you to induce an anesthesia?

Straight ether:

Shortest time, 2 minutes; average shortest time, 4½ minutes.

Longest time, 15 minutes; average longest time, 10 minutes.

General average time, 7¼ minutes.

Ether preceded by gas or ethyl chloride:

Average time, 3½ minutes.

Ques. 2.—How much of the anesthetic do you use in the induction?

Straight ether:

Smallest amount, 90 grm.; average smallest amount, 40 grm.

Largest amount, 90 grm.; average largest amount, 75 grm.

General average, 60 grm.

Ether preceded by gas of ethyl chloride.

Average amount of gas, 4 gal.

Average amount of ether, 25 grm.

Ques. 3.—How much of the anesthetic do you use for one hour?

Smallest quantity, 75 grm.

Largest quantity, 180 grm.

General average, 150 grm.

Vapor method, 90 grm.

For the purposes of comparison I place in juxtaposition the following statistics from hospitals which I designate by letter. Here I condense somewhat and restrict the figures to the quantity per hour.

A.—57 ether anesthesias, one anesthetist, no alcoholics; open methods, Esmarch's mask. Quantity per hour, 281 grams.

B.—100 anesthesias, ether preceded by gas, Allis inhaler. Quantity per hour, 297¼ grams.

C.—100 ether anesthesias, Fowler inhaler. Per hour, 325 grams.

D.—500 cases, Allis inhaler. Per hour, 336 grams.

E.—100 cases, Allis inhaler. Per hour, 435 grams.

F.—100 cases, 375 grams.

The figures from the Society of Anesthetists include about 10,000 cases. The hospital figures about 900. The amount of ether per hour as given by members of the house staff in the hospitals more than doubles the average quantity used by the professional anesthetists—341 grams per hour, as against 150 grams per hour. These figures may be interpreted in either of two ways, neither of which, however, is a credit to the system. The ether is either wasted by the use of large quantities by the open method, with a consequent loss from evaporation—which is, of course, bad economy for the hospital; or the patient gets far more ether than is required, which is a bad thing for the patient. Whether the first deduction be true or not, there can be little doubt of the truth of the latter. Perhaps both are true.

It seems fair to conclude, from what has been said, that there really is just as much reason for appointing a visiting anesthetist to a hospital as for making any other professional appointment on the staff. It is necessary to provide for two things in making such an appointment: In the first place, the internes must receive the instruction to which they are entitled as a part of their hospital training. It is far better, however, for them to receive this instruction at the hands of an expert, than to learn by experience at the expense of the patient and the patience of the operator. Also, it is absurd to expect a man to attend long hospital clinics as anesthetist, if he is not in some way to get remuneration for his services; for if he is to be of value to the hospital he must be a specialist in the administration of anesthetics; and if he is this he cannot do much private practice for his livelihood.

As for the anesthetist, then, there are two ways of providing for him: The hospital may pay him a salary, which he may supplement by private work in the same field. This is done in both Philadelphia and Boston. The hospital may recoup itself by making a regular charge to all private patients for the administration of the anesthetic. Another method would be for the anesthetist to receive his payment directly from all private patients operated on in the hospital. Some arrangement of this sort is evidently necessary if we are to expect any real reform in our methods.

We should have recognized long ago, and ought to recognize now, the peculiar value of skilled work in this field, which consists in the ability of the anesthetist to make a proper choice of the method, the agent, and to recognize the necessity of changing either or both at any time. Also, the ability to gauge the proper amount of the agent to be used and the ability to recognize any abnormal symptoms and to meet the emergency promptly. As a member of the Society of Anesthetists said to me—willingness to see and know nothing except the anesthesia, is an essential characteristic of a good anesthetist.

To keep in good condition for good work necessitates doing much work; to do much work means being unable to do much other work. It seems only fair to give the work to the man who deprives himself of other income to enable himself to be the best workman.

234 Clinton Street.

THE IMPROVEMENT OF GENERAL ANESTHESIA ON BASIS OF THE PRINCIPLE OF ADAPTING THE BOILING POINT OF THE ANESTHETIC TO THE TEMPERATURE OF THE BODY (SCHLEICH)—TEN YEARS' EXPERIENCE AT THE GERMAN HOSPITAL.

By WILLY MEYER, M.D.,

NEW YORK.

PROFESSOR OF SURGERY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING SURGEON TO THE GERMAN HOSPITAL; CONSULTING SURGEON TO THE NEW YORK SKIN AND CANCER HOSPITAL AND NEW YORK INFIRMARY.

As is well known, Schleich attempted to improve general anesthesia on a physical basis, namely, by adapting the boiling point of the narcotic to the temperature of the body. Of course, he did not ignore any of the other important points in administering the anesthetic: careful preparation of the patient, drop method, etc. Schleich, by the way, is the same surgeon who originated the solution for local anesthesia known under his name, and now used the world over.

Chloroform has a boiling point of 149° F.—con-

siderably above the body temperature; ether, one of 93.2° F.—somewhat below the same. Therefore, Schleich argued, that chloroform, when administered for narcosis, is absorbed by the blood in larger amount than is necessary for the purpose. It leaves the organism only by degrees and, in doing so, overtaxes all the parenchymatous organs, especially heart, kidneys and liver, thereby injuring their cells.

Ether, on the other hand, with its boiling point of 93.2° F. is converted into vapor so rapidly when inhaled into the lungs with their temperature of 100.4° F., that it would not enter the blood at all—loosely bound as it is—if the alveoli did not first become overfilled with carbonic acid gas, producing primary cyanosis and dyspnea. It is with the onset of this cyanotic condition, it seems, that the narcotic effect of the sulphuric ether begins. Although the elimination of ether almost keeps pace with its absorption, the slight excess that remains in the blood is sufficient to affect the brain and produce unconsciousness. The greatly accelerated rhythm of breathing, which increases the amount of oxygen inhaled, facilitates the elimination of carbonic acid, by the laws of diffusion of gases involved in normal respiration. Incidentally the elimination of ether is also facilitated. For this reason death from ether on the operating table is almost impossible, as long as respiration is efficient.

On the other hand, all these processes just described account for the fact that ether narcosis sometimes has such deleterious effects on patients suffering from lung trouble. The primary and altogether essential condition for the regular elimination of the ether vapors is an absolutely intact lung—a lung that is able, if necessary, to do more than the usual amount of work.

On the strength of this reasoning, supported as it was by practical experience with chloroform and ether, Schleich started out to find a safer narcotic which would not tax the parenchymatous organs of the body, nor the lung tissue, and the boiling point of which would correspond to the temperature of the body, so that the amount eliminated during expiration would be about equal that absorbed during inspiration. Such new anesthetic, he was convinced, could be found in a combination of anesthetics only. After considerable experimenting, he finally selected chloroform, sulphuric ether, and petrolic ether (benzin), the latter with a boiling point equal to that of chloroform, i. e. about 149° F. The action of the latter, as Schleich himself stated, is indifferent as regards any narcotizing effect; it was added merely for the purpose of diluting the chloroform; that is to say, with the idea of diminishing the latter's poisonous effects upon the system. He used three mixtures, the boiling point of which ranged between 100° and 107° F.

That 43 parts of chloroform and 57 parts of ether when mixed form a stable molecular *solution* with a boiling point of 125° F. was determined by the late H. P. Weidig, Ph. D., of Newark, a fact which Schleich does not seem to have been aware of. This solution constitutes an excellent anesthetic.

On analyzing Schleich's mixtures, Dr. Weidig found that they contain this fixed molecular solution of chloroform and ether, plus 36 to 53 per cent. (in volume) of free ether, plus petrolic ether, both the latter most probably not in chemical combination. Therefore, patients subjected to general anesthesia by means of Schleich's mixtures, inhale in the beginning of the narcosis pure ether plus the molecular solution, plus petrolic ether. After the ether and petrolic ether have become evaporated, the narcosis continues with the molecular solution, which has a boiling point of 125° F.

This petrolic ether which Schleich, unfortunately, selected as the third ingredient of his mixtures, not only has no narcotizing power, but, according to the experiments of Dr. S. J. Meltzer, of New York, produces paralysis of the respiratory muscles, if administered in larger amount.

Considering Schleich's principle of improving general anesthesia on a physical basis to be correct, being unwilling, however, in view of Dr. Meltzer's findings, to accept the mixtures proposed by the former, Dr. Weidig and myself after numerous experiments during 1897 and 1898 tried ethyl chloride with a boiling point of 59° F. as a substitute for the petrolic ether, and found that 17 per cent. volume of ethyl chloride mixed with 83 per cent. volume of the molecular solution of chloroform and ether, reduces the boiling point of the latter solution (125.6° F.) to 104° F.* The three substances, chloroform, ether and ethyl chloride, in the proportions stated, form a chemical combination, not a mixture.

This chemical combination was trade-marked "anesthol" by the manufacturers, much against my will.

Anesthol has a specific gravity of 1045, which is very close to that of the blood (1056-1059). According to volume, it contains 17 per cent. of ethyl chloride, 35.89 per cent. of chloroform and 47.11 per cent. of ether, representing, as will be seen, a proportion of about 1:2:3.† For a complete description of the drug and its effect, I would refer to my former article in the *Journal of the American Medical Association*, February 28, 1903.

I have used this preparation in my hospital and private work for the last ten years (for the first time Oct. 15, 1898). It is also extensively employed by my colleagues at the German Hospital. Early in the fall of 1899, we introduced the rule of giving a hypodermic of morphine about one hour prior to the administration of the general anesthetic. We had learned by experience that in this way anesthesia is much more speedily induced and, besides, less of the narcotic is required in the course of the operation. We try to keep the patient just sufficiently under the influence of the drug to render him unconscious and thoroughly relaxed, but ready to wake up very soon after the administration of the narcotic is discontinued.

With this anesthetic, administered by means of the drop method and an Esmarch inhaler, the gauze of which is covered by some impermeable material with a cut-out in the center, it will be observed that

1. Surgical anesthesia is established in the majority of cases in about eight minutes. If mor-

*It had been found in course of the experimenting that, according to the amount of ethyl chloride added, the boiling point of the combination could be varied. We selected the proportion above stated, giving the solution a boiling point of 104° F., experience having shown that of an anesthetic with a slightly higher boiling point than the body temperature less is required than of one that exactly corresponds to the same. Lately Schleich has also adopted this combination, substituting ethyl chloride for petrolic ether. He again proposes three different mixtures, which, however, is not practical.

†It certainly is of interest and worthy of note that the proportion of the renowned English A. C. E. mixture is the same. The latter, however, was constructed in an empirical way, while the mixture of chloroform, ether, and ethyl chloride is based on scientific principles, being the result of an attempt of adapting the boiling point of an anesthetic chemical combination of chloroform and ether to the temperature of the human body.

phine is previously administered, even this time is very frequently reduced by a few minutes.

2. The stage of excitation, if it sets in at all, is of very short duration.

3. Complete anesthesia, having been gradually induced, the pulse is full and slow,—of the chloroform-anesthesia type—and respiration regular, not stertorous.

4. In no instance has there been an increase in salivation or bronchial mucus during narcosis.

5. The face presents a healthy color. There is no pallor nor cyanosis.

6. If too little of the anesthetic is given, the patient will begin to gag or vomit, as with chloroform; if too much is administered, respiration will become shallow and, eventually if still more is poured on the mask stop altogether, but the pulse will not be interfered with. In other words, the respiratory and not the circulatory center is first affected by an *overdose*. There is, therefore, not the danger of the dreaded syncope, as with chloroform. The tendency throughout the narcosis is toward recovery from the effect of the anesthetic, not toward a profounder anesthesia; hence the advisability of administering it constantly, at a suitable rate and drop by drop. Of course, a careless narcotizer can kill a patient with this as well as any other anesthetic.

7. After the anesthetic has been stopped, the patient soon comes to, sometimes even while still on the operating table. If he sleeps longer, it is usually on account of the previously administered morphine.

8. Vomiting occurs in a small percentage of cases after return to consciousness. It is, however, not of a prolonged or distressing type.

9. Untoward aftereffects, such as bronchitis, pneumonia, nephritis, are not seen as a result of anesthesia with this mixture. A preexisting catarrh of the bronchi or inflamation of the kidneys may, of course, become somewhat aggravated for a few days, but never to the extent as happens after the inhalation of other gaseous substances. These complications certainly are never produced by this anesthetic.

10. Patients afflicted with serious valvular cardiac lesions, chronic pulmonary affections, atheromatosis, diabetes, profound anemia or other complications of serious character, have stood this preparation most satisfactorily; contrary to what one would be justified in expecting in such cases, a better circulatory and respiratory condition was induced during anesthesia.

11. The total quantity used is generally small. Our narcotizers very often carry a patient through an anesthesia lasting from one to two hours, with two to three ounces.

There are other interesting characteristics of this anesthetic agent. It would lead me too far, however, to enumerate all of them here to-night.

*Note at time of correcting proof: Every general anesthesia is a temporary poisoning of the system, hence vomiting can never be entirely avoided. We are able to reduce it in frequency and severity, however, by means of improving general anesthesia as such. It will be worth while to try in this respect the method recently proposed by C. Ritter in the *Centralblatt für Chirurgie*, July 11, 1908. He makes a rather pronounced degree of head hyperemia with the elastic neckband at the completion of the operation, and has seen, at least after superficial ether anesthesia, that vomiting then did not set in. It certainly would be most interesting if experience should prove that Bier's artificial hyperemia can also bring improvement in one of the most distressing after-effects of general anesthesia.

We have used the chloroform, ether and ethyl chloride mixture* in many thousands of cases at the German Hospital within the last ten years and consider it, when preceded by a hypodermic of morphine, the least dangerous of all anesthetics thus far known, especially in the hands of comparatively inexperienced anesthetists, and this not only as regards the safety of the patient while on the operating table, but principally as to the after-effects of the anesthetic.

The value of the improvement of general anesthesia brought about on the principle of adapting the boiling point of the anesthetic to the temperature of the body has, I think, been sufficiently demonstrated to merit the full and careful consideration of the profession.

700 Madison Avenue.

ANESTHESIA AT ST. LUKE'S HOSPITAL.

By ROBERT ABBE, M.D.,

NEW YORK.

The importance of anesthesia is ever present in the mind of the surgeon and often brings up for discussion the question of a permanent anesthetist in the general routine of hospital work.

The two ruling motives in the conduct of institutional work are (1) subserving the patients' best interests; (2) thorough training of the ever changing corps of intelligent resident doctors and nurses. The only *constant* factor in the professional work is the surgeon in charge, who gives his experience year in and year out for a lifetime, often. At St. Luke's Hospital we have always been inclined to consider the etherization of the patient as one of the surgeon's important responsibilities. To watch and to teach, is as much a part of his work as to operate. The rôle of the general surgeon must remain supervisory in the highest degree.

Each year the younger surgeons leave their service equipped to go here and there over the country, trained to use the experience there acquired. There is no more important part of their training than a knowledge of the seriousness of giving ether.

The idiosyncrasies of the patient, the nature and effect of the anesthetic itself cannot be taught by books alone. Day after day patients are seen, each one differing in disease, in vital force, in severity of the operation. This one is an old alcoholic, the next a feeble elderly woman, then a little child.

One lies down and inhales ether is if going to sleep; the next fights for time as a coward; the third is frightened almost to death, before starting in, and has to be hypnotized to quiescence by the kindly or ingenious and soothing suggestive words of the etherizer.

Never shall I forget an old sailor many years ago who came to the etherizing room so frightened because it was Friday, that his trembling, pallor, faint heart, and terrified appeals absolutely forbade my proceeding in the face of the same degree of shock, "moral shock," which in operating might have cost him his life.

Quite recently I had to postpone indefinitely an operation upon a frail lady, advanced in life, who gave evidence of low vitality at the onset of ether-

*It should be stated that while we use this preparation in nearly all cases, we also employ local and spinal anesthesia wherever these are indicated. A fact which deserves special mention is, that alcoholics, too, can usually be brought fully under the influence if the anesthetic is preceded by a hypodermic injection of ½ grain of morphine. Only in very exceptional cases was chloroform needed. The use of ether has been entirely discarded by us.

ization, instead of the usual stimulating effect. The jaw dropped, the skin showed relaxation, the cutaneous capillaries blanched and a waxy cadaveric appearance ensued which, I felt sure, would have resulted fatally had the shock of operation been superadded. Yet her heart action seemed adequate. The watchful care of the surgeon is given with paternal solicitude and is an invaluable asset in the education of the younger surgeon. Not only the operator, but the senior and other assistants, who have received the same drill, are ever watchful of the patient's welfare.

It soon comes to be understood that safe anesthesia is maintained only when the patient is not given too much. When the saturation point is reached, the etherizer is taught to keep the patient simply asleep.

It frequently happens that one of the superior officers, who is always present, gives much needed aid in moments that might be perilous—even in anesthesia by ether, which is universally admitted to be the safest agent. In this way the danger is reduced to almost nothing, but it is only by safeguarding the unconscious patient, that mishap can be averted. It may be fairly said there is no anesthetic yet known, by which a fatality may not be invited if closest scrutiny of the patient and supervision of the anesthesia is not maintained. Therefore it becomes as much the imperative duty of the surgeon to impart the training in anesthesia as in surgical technique to his staff of resident assistants. Undoubtedly the ideal condition is in having a specialist in anesthesia always present. For obvious reasons this is impossible in all conditions of practical surgery. Thus conducted, our hospital patients are safeguarded; were it not so, one could not conscientiously carry on the grave responsibilities of the care of the public.

In a continued service of twenty-four years at St. Luke's, speaking only for my own work, I have seen but two deaths directly from the anesthetic in perhaps twelve or fifteen thousand anesthetizations. One occurred under chloroform—which I rarely use, but which was chosen because of the extreme atheroma of the old man's arteries. He had undoubtedly myocarditis, which was not identified beforehand, though his heart, as usual, had been carefully examined. After a half hour's operation he succumbed to heart failure in spite of prolonged radical efforts to revive him. One other death can be credited to ether, in a woman, who in much the same way failed to rally at the end of a prolonged operation for extensive mammary cancer. I can truthfully say that no other death from *anesthesia directly*, has ever come under my notice.

The greatly improved method of giving nitrous oxide gas prior to ether by the admirable inhaler of Dr. Bennett has my unqualified endorsement, and has been universally adopted for many years. We have tried to initiate the staff in the so-called "drop method" from time to time, but have given it up as time consuming and often failing in efficiency.

The Crile method of anesthesia through nasal tubes, packed about with gauge in the throat, is always adopted in bloody operations about the head, and is greatly to the advantage of the surgeon and patient.

Finally the widening use of cocaine and novocaine with adrenalin, which reduces their toxicity to a minimum, has given advantages in operating which cannot be realized by those who have not tried them. It often happens in major operations that a very few whiffs of ether will carry a patient through when cocaine is not quite adequate—and thus profound anesthesia is unnecessary.

Spinal anesthesia I have resorted to but seldom—believing that as yet its relative safety is not established, and we cannot rightly experiment on our confiding patients—unless the peril of general anesthesia is greater in the particular case in hand. Finally I place the greatest importance on an entirely empty stomach for anesthesia. If vomiting or gas distention has preexisted gastric lavage is imperative. Under other circumstances, if, at the end of operation the patient regurgitates fluid deeply bilious, as occasionally happens, one should insist on stomach washing, inasmuch as bile retained in the stomach seems to have a peculiarly depressing and poisonous effect.

The advantage of the subsequent study of cases which the staff follow in hospital, added to the very frequent anesthetizations by the master expert on private cases, seems to me to give a practical solution to the correct hospital service.

13 West Fiftieth Street.

THE ADMINISTRATION OF ANESTHETICS AT MT. SINAI HOSPITAL.

By Howard Lilienthal, M.D.,

New York.

In December, 1886, when I had served my first day as the lowest member of the house staff of Mt. Sinai Hospital, one of my senior surgeons requested me to anesthetize an old man for the reduction of a dislocated shoulder. I had just come from Boston, the home of ether, and was considerably frightened at the idea of administering chloroform which I had been taught to look upon with dread. "You'll have no trouble," said the surgeon, "just take this mask, hold it about an inch from his face, pour on the chloroform a few drops at a time, and I'll do the rest." For me it was like the commission of a first sin, and, as is usually the case with those who sin for the first time, no punishment was forthcoming. An easy, pleasant primary anesthesia, the surgeons' stockinged-foot in the patient's axilla—an atrocious method even then—and in a few seconds the little operation was finished with the patient awake and the dressing in place. It all seemed very easy, and I began to have my first distrust of my Harvard teaching that ether was good and chloroform wicked.

A short time afterward the house surgeon performed an operation for the relief of strangulated hernia in an old man, emphysematous and asthmatic, and I administered ether, using the old-fashioned Allis' inhaler, drenching the apparatus with many ounces of the anesthetic and closing the open end in order the more quickly to secure narcosis. Throughout the operation the breathing was labored and stertorous, with a loud wheeze at the end of expiration. The breathing became even worse after the operation, the patient's lungs seemed flooded with secretion, and in a few hours death came. It seemed even to my inexperienced observation that the ether was certainly to blame.

Gradually chloroform became my favorite anesthetic, for in spite of statistics, its dangers seemed exaggerated. Then, one day, a young strong man, with an abscess of the neck, died after a few inhalations of the drug—by great good fortune not administered by me. Again, but some years later, an old man with intestinal obstruction, succumbed soon after the beginning of an operation under

chloroform. It seemed as if the postoperative dangers of ether were after all preferable to the sudden shocking end of all things on the operating table. You felt that you at least had a chance to do something for the patient in pneumonia or nephritis, while in chloroform syncope the fatality was there almost before you knew it.

From the beginning of my serious operative work my principal anxiety has been the narcosis, but extended observation has led me to conclude that an immediate death, whether due to ether, chloroform, or any other general anesthetic, almost never occurs when the anesthetist is expecting it. It has been my habit to impress on the men of my staff that if they keep constantly before them the idea that the particular patient in hand is in danger of dying on the table, such a calamity will probably be avoided. Even in those cases in which the death occurs in the very beginning of the narcosis, there are warnings which the more careful or "timid" anesthetist will note and heed. One of the best men I know began his duties with such obvious lack of self-confidence that it was painful to watch his work. Gradually his assurance became established, while the carefulness born of his timidity remained. He had a wholesome respect for the responsibilities of his office which was very reassuring to the operator.

The advent of the specialist in this branch of the profession, with his skill, great care, and experience, has given to the surgeon a new sense of security, yet it must not be forgotten that when fatality occurs no matter how much responsibility the anesthetist may be willing to shoulder, it is the surgeon's patient who has died and the surgeon's name which is connected with the catastrophe.

Following the old Allis's inhaler we had a brief period at Mt. Sinai when Clover's apparatus was used, with marked diminution of annoying symptoms and sequelæ. Then in the early '90's the gas-ether sequence made things more agreeable for the patient, but the nitrous oxide had to be followed suddenly by full ether inhalations, and frequently enough there was deep and long-continued cyanosis which was very disturbing. Not until the Bennett inhaler came was it possible to administer the sequence in a truly scientific manner.

At present, nitrous oxide, the gas-ether sequence, and chloroform, or their various combinations are practically the only general anesthetics in use at Mt. Sinai Hospital. The selection is made by the surgeon if a member of the house staff is to be the anesthetist, but when we are fortunate enough to have the services of a specialist he usually selects the drug after being put in possession of the important facts in the case. By far the greater number of anesthesias are begun with nitrous oxide and ether, afterward changing to chloroform if respiratory disturbances seem to demand it. Chloroform given after the patient has been put to sleep with the safer drugs does not appear to be so dangerous as when it is primarily administered. Again I repeat, however, that chloroform, *skilfully given in suitable cases* has proven itself thoroughly satisfactory. In tumors and abscesses about the neck, especially when the air current is ever so little impeded, this chemical seems to be particularly dangerous, as is also the case when the patient is terror-stricken. In pulmonary trouble chloroform is the anesthetic of choice and ether is greatly to be feared.

Nitrous oxide alone or mixed with air is excellent when ether or chloroform must not be used and yet unconsciousness is desired. In diabetics, and particularly in acetonemics, this is of especial value. Indeed, acetone is not a rare constituent of the urine after the absorption of the anesthetics, especially chloroform, even in persons supposed to be constitutionally healthy.

In 1884 I first saw ether administered by the rectum in the Boston City Hospital. We tried it at Mt. Sinai for a few years, but discarded it because of the danger of proctitis in spite of washing out the superfluous gas, and because of the slow absorption and still slower elimination of the drug, rendering the control of the narcosis very doubtful and much inferior to that obtained by inhalation. As to the present method with pressure gauge, it appears to me that little is gained over the old way. Ether at the same temperature is pretty apt to liberate vapor at the same pressure.* I remember at that time we had several bad "scares" and deaths were reported in the literature. It requires very large numbers of cases for us to deduce valuable statistics of anesthesia. One hundred or five hundred cases without a death means very little to the surgeon.

A few of our men have employed spinal analgesia with varying success. I have never given it a trial and fear it less for its danger to life than for the more or less permanent injury which it may inflict. Paraplegia and incontinence of feces are not agreeable sequelæ to an operation designed to make life more comfortable.

Local anesthesia, the discovery of Carl Koller, at at present one of the surgeons of Mt. Sinai Hospital, continues to prove its great usefulness. Koller is known to be the discoverer of the surgical application of cocaine, but he is more than that—he is the discoverer of local anesthesia.

Gastrostomy for esophageal stenosis if performed under ether or chloroform is nearly always followed by an aspiration pneumonia, frequently fatal. With local anesthesia the operation is safe. Diabetics and arteriosclerotics are bad subjects for local anesthesia by subcutaneous injection because sloughing is apt to follow. In aneurysm of the large thoracic vessels Wyeth has ligated the subclavian artery with the aid of cocaine alone.

But I need not proceed farther in this strain, since the usual indications for the various drugs and methods are well known to all. The principal thing is the recognition of the extreme responsibility of the anesthetist's work. To set an untaught junior this serious task is not fair to him nor to the patient. We have certainly progressed in this respect. For the past five or six years we have made it a rule that a man of some experience must be present together with the junior at each anesthetrization. I am glad to say, too, that our Board of Directors have recently made a generous provision for two paid anesthetists to serve continuously as principals or instructors for the first two of every six months when the house staff changes. It has been noted in the past that at the time of this change of staff there is an especial liability to accidents, and it is hoped that with the creation of this important new office our nerves may be spared and the lives of our patients saved.

115 East Seventy-third Street.

*Note: It is perhaps not quite fair for me to express an opinion on the new method of rectal etherization, for the reason that I have never tried it.

Kidney Tumors.—Sarcoma of the kidney is generally accompanied by pronounced emaciation, hematuria, and a moderate grade anemia, whereas congenital cystic kidney seldom causes much emaciation and rarely hematuria.—*Southern Medicine and Surgery.*

ANESTHETICS AT THE HOSPITAL FOR RUPTURED AND CRIPPLED.

By V. P. GIBNEY, M.D.,

NEW YORK.

Among the first in this city to employ one skilled in the administration of anesthetics was the Hospital for Ruptured and Crippled, and among the first of the operating-rooms to give Dr. Bennett an opportunity of demonstrating the value of such service was the one at the hospital I represent this evening.

The reported safety of chloroform as an anesthetic in children was long before this date discredited among the members of our staff, and ether, despite its many drawbacks, has persistently held its own in all of our major operations. An operating-room was provided for the first time in the winter of 1887-8, and while minor operations were performed during the early years of the hospital, say from 1865 to 1887, anesthetics were administered very sparingly and not often beyond the primary stage. In explanation of this statement, let me say that prior to 1888 the mechanical side of orthopedic surgery prevailed to the exclusion of the operative, and achillotomies and fasciotomies were performed as adjuncts to the better employment of apparatus. Herniotomies were never performed in those days. But when active operative surgeons were added to the staff, an operating-room became a necessity.

The junior assistant, fresh from the medical school, in our earlier years of operative work, was the anesthetist, and the operator was unable to give his entire time and attention to the site of operation. We have, during the last decade or two, appreciated the value of having an anesthetist properly trained at the head of the patient. The title given to the officer was and is now, Anesthetist and Instructor in Anesthetics. It is his duty to instruct the members of the house-staff and particularly the resident junior in the principles of anesthesia, to stand by him and give real clinical instruction. He is held responsible for whatever agent is employed. He is selected usually from a number of candidates, and the salary was found a necessary incentive. As emergency work is not a feature in a hospital for chronic invalids, we can get along with two operating days a week, one for the orthopedic and one for the hernia work. Hence the service of the anesthetist is not required more than five or six hours a week, but those are very active hours, as two tables are under his divided supervision. From six to twelve operations are performed on the orthopedic days and from four to eight on the hernia days. A resident student is under instruction at the same time, and as his time of service extends over three or four years, he becomes a valuable aid to the chief.

After various attempts to secure accuracy in records, we have finally come down to an anesthetic-card, which is begun in the ward by the house-surgeon, is pinned on the breast of the patient before he is taken to the waiting-room of the operating-suite, and is completed by the anesthetist. From this the appropriate column in the operating-book is filled out and the card is pasted on the history sheet. With a large corps of assistants and nurses we are enabled to work expeditiously, and the aim of the operators, without an exception, is to shorten the time the individual patient is under the anesthetic. It seldom happens that the surgeon is not ready to begin just as soon as the patient is pronounced "ready," and the final preparation of the operating-room nurse is begun before the anesthesia is complete, believing as we do that these preparations assist materially in getting the patient "under."

The agents employed at present are, in order of their frequency, (1) ether, (2) nitrous oxide, (3) ethyl chloride, (4) somnoform, (5) chloroform. Prior to 1904 nitrous oxide was used to precede ether, and since that year kelen (ethyl chloride) has almost supplanted the nitrous oxide as a preliminary agent. We employ this in the wards as a local anesthetic and for minor operations on the older children and on adults, while ether to the primary stage is used in the very young children. Somnoform was used for a short period, but was discontinued because it was found to possess no advantage not possessed by ethyl chloride and because it was regarded as dangerous. Chloroform is rarely used at all and only when ether is contra-indicated.

Methods.—We begin with ethyl chloride in either the Esmarch or Bennett inhaler, and ether soon follows with the same inhaler, the towel cone, or the drop method.* The amount of ether required is from 5 to 6 c.c. in children, 8 to 9 c.c. in adults. The time required for full anesthesia is from 2 to 3 minutes with the Bennett and from 4 to 5 minutes with the Esmarch or with the drop method. During the last year and a half, morphine, grain ¼, and scopolamine, grain 1-100, have been administered 15 or 20 minutes before ether anesthesia is begun, in about 30 adults with very happy results. One-third the amount of ether was necessary. The duration of anesthesia in orthopedic operations is usually from 5 to 20 minutes, occasionally from ½ hour to 1½ hours, but these long operations are exceptional. The hernia operations occupy from 8 to 15 minutes, except in cases of double ventral or umbilical which last from 40 minutes to 1½ hours.

Casualties.—In looking over the records and consulting the traditions of the hospital, I find that there have been four deaths, 2 of which were undoubtedly due to the anesthetic, and 2 are doubtful. I present some of the details:

Case I. On February 27, 1894, a male child was anesthetized for a herniotomy. Five weeks before the operation the child had measles, and pediatrists have told us that the exanthemata lesson the resisting power, or to use a modern phrase, lower the opsonic index. This child took the ether very badly and developed pneumonia a day or two later, and died on the eighth day. The autopsy confirmed the diagnosis of double pneumonia. There was no infection whatever about the wound. So this may be put down to a postanesthetic death.

Case II. A girl, 4 years of age, was put on the table on July 28, 1899, for a preliminary stretching for congenital dislocation of the hip. Nitrous oxide was used and 10 minutes was the duration. The operation was completed, the cone was removed from the face, and a plaster-of-Paris spica was just under way when the child stopped breathing, and all efforts at resuscitation failed. This then may be put down as death from nitrous oxide.

Case III. On October 9, 1905, a little girl 7½ years of age, who had been in the hospital since April, 1904, suffering with Pott's disease, with compression paraplegia and abscess, was given ethyl chloride in the usual way, but died before we could

*We have found it very essential in the drop method to get the patient thoroughly anesthetized before the dropping is begun. It is then very easy to keep the patient anesthetized with the minimum amount of ether.

get her off the table. Her condition at the time was extremely poor, she was much exhausted, her nutrition was bad, and she had numerous bed sores.

Case IV. A boy, 4 years of age, was operated on in February, 1908, for hernia. Ethyl chloride and ether were administered and taken very well. Nothing out of the ordinary was noticed until the following day, when the child became depressed and exhausted and died four days later. No cause was found. Dr. Coley, who was in charge of the case and watched it very closely, came to the conclusion that it was a case of acetonuria.

16 Park Avenue.

AMPUTATION IN DIABETIC GANGRENE.*

By EUGENE H. EISING, M.D.,

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Several hundred years ago it was discovered in England that the urine in diabetes had a sweetish taste. This fact had however been known in India and since forgotten one thousand years previously (Wood). This simple technique of diagnosis has since fallen into disrepute and has been replaced by chemical methods. About one hundred years ago Dobson of England discovered that sugar occurred in the urine of most diabetics; this type of diabetes was later called diabetes mellitus. Such is the early history of one of the most difficult problems of biological chemistry.

During the last half century physiologists have been untiring in their application to the problem of the rôle of the sugars in tissue metabolism. Much of the physiology of the glycogenic function remains unsolved, but infinitely more of the pathology of that function. Advances in physiological chemistry have contributed much to our knowledge of diabetes mellitus, and by its aid we are in a position more accurately to determine the extent of the perversion of the metabolic processes in that disease.

I have set for myself the task of gathering and correlating the data obtainable in any case of diabetes with gangrene in order if possible to determine the standards by means of which one may more intelligently advise for or against surgical interference. This study I have based upon the material collected from twelve cases more or less carefully studied and from a free use of the literature. I shall refrain from incorporating in this rather theoretical essay the details of my own cases.

Consideration of the age, of the general condition, and of complicating disease while of extreme importance may be left out of this discussion.

I shall attempt to outline the rôle of the following factors and to attach to each of them their relative importance: (1) Glycosuria, (2) the acetone bodies, (3) ammonia excretion, 4) kidney complication, (5) arteriosclerosis, (6) blood pressure, and, finally, a summary of these factors in relation to gangrene.

The problem of the glycogenic function not only deals with the question of the occurrence of sugar and of its excess, and whether the aberration is one of increased production, or diminished consumption, but also, as Edsall states, "includes an inhibiting action preventing a flooding of the organism with acid substances elaborated from other carbohydrate materials." That sugar occurs in the blood under normal circumstances and in excess in diabetes has often been demonstrated. The blood of diabetics contains from 0.2 to 0.8 per cent. of sugar but rarely exceeds 0.5 per cent. Krehl estimates the normal glycemia for man at 0.1 per cent.

The blood of a normal dog, according to Herter, contains from 0.05 to 0.20 per cent. If this percentage be increased to 0.30 per cent. by intravenous injection of a glucose solution, the urine will contain sugar so long as there is an elevation of the sugar content in the blood. In other words the normal kidneys readily permit the escape of sugar so long as there is a hyperglycemia.

Herter furthermore makes the assertion that "it is clear that diabetes is not the consequence of an increased production of sugar. The alternative is that the disease depends on a diminished combustion of sugar in the organism, and there is no doubt whatever that this is the correct explanation of the increased sugar content of the blood." From our accumulated clinical experience it would seem that the mere presence of an excess of sugar in the blood is not of vital consequence, many diabetics exhibiting this phenomenon for years with but little discomfort.

On the other hand, however, Fritz Grossman has shown that the hyperglycemia in the presence of gangrene even though it be of low grade is a formidable factor inasmuch as this increased sugar content converts the body fluids and tissues into a more vulnerable medium for the invasion of pyogenic organisms. The hyperglycemia *per se*, however, is one of the more tractable factors and usually yields in large measure to diet and medication.

It seemed for a time that the key to the question of diabetic coma and of gangrene rested with the acetone bodies. These bodies, whose occurrence in the urine and formation in the organisms have been the subject of much investigation, occur in the urine especially in diabetes mellitus, but also in other diseases and conditions.

According to v. Jaksch and others, acetone is a constituent of normal urine, occurring in very small quantities (0.01 gm. in twenty-four hours). In regard to the origin of these bodies, there seems to be abundant evidence against the earlier ideas of v. Jaksch and Fr. Müller who considered the increase in acetone to be the result of an increased proteid destruction. To quote Hammersten: "At the present time the tendency is more and more to the view that the acetone bodies do not originate from the proteids but from the fats; if these are not the only source they are at least the most important." And Waldvogel states definitely that the acetone bodies originate from the fats which suffer in their oxidation just as do the sugars in diabetes.

To speak more definitely, the term, acetone bodies, according to Krehl, is used collectively for the three substances β-oxybutyric acid, diacetic acid, and acetone, which represent three stages in the process of oxidation of the same substances, and which under normal circumstances is carried to complete combustion, the final products being carbon dioxide and water. Acetone is not a very toxic agent, in fact it may be given, even intravenously, in quantities far in excess of that occurring in the course of diabetes without causing symptoms of toxicity. This fact would rather indicate that it is not a prime factor in the disturbed metabolism. That this substance is not a concomitant solely of diabetes has long been known. According to Kelly acetone occurs, besides in diabetes, in starvation, malignant growths, digestive disturbances, septic

*Read before the Metropolitan Medical Society of New York, May 26, 1908.

processes (general and local), infectious fevers, pregnancy with dead fetus, certain psychoses, autointoxications, chronic morphinism, phosphorus poisoning, injury to the cerebrospinal system, shock from injury, cases associated with fatty liver, uremia, and following anesthesia.

At this point it may not be amiss to digress in the discussion of acetone and look into its relation to anesthetics.

That acetone is the result of a disturbed fat metabolism is further suggested by the effect of chloroform and ether anesthesia upon its formation. It has recently been brought out that the anesthetic value of volatile substances is almost in direct ratio with their fat-dissolving powers. Young and Williams report that in fifty-two abdominal sections two patients had acetonuria before operation and twenty-seven in the same series after operation. In another series of seventy cases post-operative acetonuria was found twenty-six times. Stiles and McDonald have studied this question and conclude that acetonuria results from the decomposition of fats in the process of degeneration resulting from chloroform poisoning, the symptoms of chloroform poisoning being those of a toxemia produced by some of the antecedents of acetone in the process of the breaking up of the fats. This observation which is probably true in health, seems to be none the less so in diabetes. The increased fat destruction from the anesthetic acting in combination with the pathological fat metabolism of the diabetes, produces often a toxemia sufficient to determine a fatal issue.

Acetoacetic or diacetic acid has not been observed as a physiological constituent of the urine. It occurs in the urine chiefly under the same conditions as does acetone. Like acetone, acetoacetic acid occurs often in children, especially in high fevers, acute exanthemata, etc. It decomposes readily into acetone. According to Araki it occurs in all probability as an intermediate product in the oxidation of -oxybutyric acid in the body. This substance is a colorless and strongly acid fluid which when boiled with water or acids decomposes into carbon dioxide and acetone. The occurrence in the urine of β-oxybutyric acid was first definitely shown by Minkowski, Kulz, and Stadelmann. It occurs especially in severe cases of diabetes, when it may form the largest portion of the acetone bodies (Magnus-Levy, Geelmuyden). It has also been observed in scarlet fever, measles, and scurvy, and in some diseases of the brain. It seems always to be associated with diacetic acid.

β-oxybutyric acid usually forms an odorless syrup, but may be obtained as crystals. It is levorotatory and disturbs the polariscopic determination of sugar. It yields acetone on oxidation with chromic acid. It is probably the chief pathological acid occurring in the blood in diabetes, and being unburned in the body enters into combination with ammonia and appears in the urine. This acid occurs in abundance in diabetes, varying in amount from 15 or 20 gm. up to 60 gm. per day in severe cases.

It is more than likely that it is this substance that acts as a local poison in the tissues and contributes the baneful chemical factor determining gangrene. Klemperer divides diabetic gangrene into two varieties, the one without acidosis, and the other with acidosis. The former he finds amenable to dietary and medicinal treatment, and followed by demarcation and spontaneous amputation. The latter pursues a different course. Neither dietary nor medicinal treatment is of avail, and demarcation does not occur. He concludes that the patient's one chance lies in amputation.

This condition, properly named "acidosis," manifests itself by an increase in the excretion of ammonium in the urine, in that the acids which appear in the blood are combined with ammonium (Leube). The amount of the ammonia carried out of the system may be very large, and when the acid is so abundant as to exhaust the amount of available ammonia, other alkaline bases are called upon to supply the deficiency. These bases are, according to Herter, the sodium and potassium of the blood plasma and the calcium and magnesium of the bones. It becomes evident, therefore, that the amount of ammonia excretion gives us an approximate estimation of the pathological acid.

Ammonia is always present in normal urine. Spaeth finds that the quantity varies in health from 0.6 to 0.8 gm., but may rise to 1.2 gm. in the twenty-four hours. Under ordinary conditions the ammonia content of the urine varies with diet and drink and the air breathed. A meat diet raises, whereas a pure vegetable diet lowers the excretion of ammonia. A diet of radishes increases the amount of ammonia excreted as does also the inhalation of tobacco smoke and the ingestion of many drugs.

In the body ammonia comes chiefly from the disintegration of albuminous materials. The administration of acids increases the excretion of ammonia, owing to the attempt on the part of the organism to maintain within normal limits the chemical reactions of the fluids and tissues. The administration of alkalies on the other hand diminishes the excretion of ammonia. It must be added in this connection that the excretion of ammonia is increased in diseases other than diabetes, among which may be mentioned the large group of the infectious diseases, pneumonia, diseases of the liver, and many of the acute fevers. Phillips advises against operation, save in the greatest emergency, when the ammonia excretion in diabetes reaches 1.0 gm. in twenty-four hours. Spaeth, as mentioned above, states that this amount of excretion may occur in health.

Renal disease in diabetes is a complicating factor, and its etiological relation to the diabetes is not so readily determined. Several recent English authors have recklessly asserted that it occurs as a terminal result in the course of diabetes, being due to the irritation of the kidney epithelium by the unburned products of metabolism. This seems, however, not to be true. Simple epithelial changes consisting in glycogenic degeneration of Henle's loops and fatty degeneration or infiltration of the convoluted tubules are well known pathological changes in diabetic kidneys, but these pathological changes do not constitute a nephritis nor need they be accompanied by albuminuria. Upon this basis, however, a nephritis may supervene, especially in young individuals in whom an advanced arteriosclerosis may be excluded. To this type of kidney Naunyn has given the name "diabetes-kidney."

Diabetes with true nephritis occurs in a large proportion of the cases. It is usually engrafted upon an arteriosclerotic basis and the kidney is of the contracted type. According to Nothnagel the condition may be suspected when albumin is found in addition to sugar for a protracted period with few or no morphological elements. The urine is often of low specific gravity notwithstanding its sugar content. The diagnosis becomes assured if there is hypertrophy of the left side of the heart not due to valvular lesion.

It has often been observed that when albumin makes its appearance, the sugar excretion diminishes, or may even for a time entirely disappear. This, according to Naunyn, is in no way due to any reciprocal relation between the sugar metabolism and albumin. Any newly engrafted depleting condition that wears upon the health of the diabetic is likely to diminish the excretion of sugar, and such subsidence is to be viewed in the light of portending evil. Again, to quote Naunyn, "the occurrence of a true granular atrophy of the kidney, not on an arteriosclerotic basis is of great rarity in diabetes. In fact, the earliest symptoms of the nephritis often antedate those of the diabetes."

The relation of arteriosclerosis to diabetes has been scantily treated in the literature in comparison to the voluminous writings upon both diabetes and arteriosclerosis independently. That these two conditions occur together has long been known, and this combination has been variously estimated at from 40 to 80 per cent. of all diabetics. A discussion of the etiology of arteriosclerosis, itself a disputed question, need not be taken up here. It seems likely, however, that the diabetes itself does not weigh in the etiology of the arteriosclerosis, but, on the other hand, after once the disease is established, the diabetes seems to determine its character.

It seems more than probable that arteriosclerosis advances in a centripetal manner, beginning primarily in the smallest vessels of the various organs and tissues, and extending upward into the larger vascular trunks. It has been shown by Adler and others "that every arteriosclerotic vessel is associated with more or less complete fibrous induration of the territory it supplies." This insidious fibrosis probably begins in years long antedating the earliest advent of symptoms referable to arteriosclerosis, and probably therefore also antedating by many years in most instances even the earliest symptoms of aberrant sugar metabolism.

If now we consider the question of gangrene from this double viewpoint, regarding the subcutaneous tissues and the extremities as peripheral organs, we realize readily the interaction of the two morbific forces; on the one hand, a tissue reduced in vitality owing to a slowly advancing arteriocapillary thrombosis, and on the other hand a blood plasma of inferior quality. The relative value of these two factors varies in every case, but as regards the relative importance of the two factors in determining a gangrene, it seems to me the evidence is overwhelmingly in favor of arteriosclerosis.

We would be in error were we to consider the arteriosclerotic process as effecting only the periphery, however true this may be in some of the slowly gangrenous processes in diabetics, as exemplified in the second case of Davis's series, in which the process lasted about four years. The artery supplying the affected area shows arteriosclerosis in the vast majority of cases, according to Osler, and in many instances is thrombosed. Lloyd asserts that gangrene is usually due to thrombosis in the popliteal artery, with atheroma and calcification in a large percentage of cases.

Naunyn states that he has never failed to find obliteration of the pulse in the early stages of this complication. Von Noorden, in discussing whether to amputate the diseased portion in gangrene at once or to wait for demarcation, advises that we be guided by the same indications as for senile gangrene. This indirect answer teaches one but little. It has been said and frequently repeated that senile and diabetic gangrene are identical. This is certainly an error, although the difference is not marked. The protracted course of pure arteriosclerosis terminating in senile gangrene, gives the impression of a slow ischemic process. For months or years preceding the occurrence of gangrene there may be pain and claudication, and the process is usually unaccompanied by constitutional symptoms. The gangrene is of the dry variety and does not invite infection. Treatment is ineffectual and spontaneous amputation is the result.

Gangrene in the diabetic may be identical with that just described, if the arteriosclerosis is advanced and the diabetes mild. These are the cases, as will be seen later, in which recovery occurs with spontaneous amputation under dietetic treatment.

If the grade of diabetes is more severe, the arteriosclerosis may be less marked as a cause of gangrene, the arteriosclerotic process falling more in the background and the diabetic characters of the gangrene becoming more prominent. If prodromal pains were present they were probably ascribed to the diabetes. The dorsalis pedis pulse, if present, is much impeded. Gangrene is often preceded by a more or less diffuse mottling of the extremity. The gangrene less often involves the toes, but not infrequently occurs upon the plantar or dorsal surface of the feet.

When once gangrene is determined it seems to occur not so much by a slow ischemia, but suddenly, as though it occurred in a tissue partially devitalized and becoming suddenly completely so. The gangrene is usually of the moist character. It is accompanied often by excruciating pain. The process invites septic infection and constitutional symptoms. Ochsner, in a discussion of Halstead's paper, states that, "although pathologically there is no difference, there is a very decided and definite clinical difference between diabetic gangrene and arteriosclerotic gangrene. If in a diabetic one disposes of the diabetes, the tendency of the gangrene to spread subsides at once. On the other hand, if one does not dispose of the diabetes, there is a progression of the gangrene." He says, furthermore, that "by dietary treatment the gangrene can sometimes be made to subside, and the patient remains well."

The earlier inquiries concerning the blood pressure in diabetes were conflicting in their results. Potain, in 1902, and Teissier, in 1904, asserted that the blood pressure in diabetes was as high as, or higher than, in chronic nephritis. This was soon denied by Vaquez. Ott, in 1902, reported a wide variation in blood pressure in diabetes. One case occurring in an old man with albuminuria and glycosuria, in whom the systolic arterial tension was 225 mm., and a second case occurring in a young man of forty years, without albuminuria, but with a glycosuria of 6 per cent., in whom the systolic pressure was 105 mm. Since these early reports there have been many observations recorded. Janeway reports cases of both high and low blood pressure in diabetes. He has seen low pressure in severe cases of diabetes with marked emaciation and diacetic acid in the urine, and he has seen high blood pressure in mild forms of the disease in stout elderly people in whom chronic nephritis or arteriosclerosis existed. Elliott's series of twenty-five cases is very instructive; he believes, with Janeway, that the progressive emaciation and cardiac weakness, rather than the acid intoxication, cause the hypotension in the severe cases of diabetes.

The facts regarding arterial tension seem to be about as follows: The glycosuria seems to have little or no influence upon blood pressure. The acetone bodies seem to have no direct action upon the blood tension. The hypotension occurring in the

asthenic stages of diabetes is due in large measure to secondary cardiac weakness, and not directly to the diabetes. The hypertension occurring in diabetes is due practically to the arteriosclerosis and chronic nephritis.

Applying these facts to the question of diabetic gangrene, and with this conclusion my personal experience leads me to agree, a moderately high arterial tension is in the main to be accepted as more favorable than either excessively high or low tension.

In summing up the evidence in regard to these various factors in their relation to diabetic gangrene, we may deduce the following facts:

1. The hyperglycemia is not an important factor in the induction of the gangrene, but looms into importance after gangrene has been established in so far that it invites septic infection and encourages the occurrence of phlegmon.

2. Of the three acid bodies occurring in diabetes, acetone has a very low degree of toxicity, and probably does not contribute to the production of gangrene. Diacetic acid is always to be looked upon as a pathological ingredient of itself not very harmful and indicates that β-oxybutyric acid is being oxidized. β-oxybutyric acid, when present in the urine, is to be viewed as the special chemical agent fostering gangrene, which, however, is ineffectual in bringing about that result if acting alone in the absence of arteriocapillary sclerosis.

3. The quantitative ammonia excretion is the expression of measure of the amount of unburned β-oxybutyric acid. It is not an accurate standard of measurement, always registering too little. The excretion of one gram in twenty-four hours is to be looked upon as contraindicating operation except in great emergency.

4. Nephritis is to be looked upon as a complicating circumstance, having little direct bearing upon the occurrence or course of the gangrene. It is to be considered, however, as an element of added danger in regard to operation and anesthesia.

5. Arteriosclerosis is the most important single factor determining gangrene in diabetes. Arterial disease is not caused by the diabetes; many protracted cases of diabetes are unaccompanied by arterial degeneration. The course of arteriosclerosis in the presence of diabetes is somewhat different from that unattended by diabetes. This difference is probably due to the presence of β-oxybutyric acid in the blood in the latter instance. There is a difference between senile gangrene and diabetic gangrene. Senile gangrene is due to an endarterial ischemia, the gangrene of diabetes is due to the same cause plus a devitalizing factor acting probably chemically.

6. A knowledge of the tension is of value as a prognostic sign. Excessively high arterial tension is to be interpreted as an indication of advanced arterial change and probably interstitial nephritis. A low arterial tension indicates weakness from asthenia and secondary causes.

Armed now with these facts determinable in any given case of diabetes we may apply them in the following manner: First, prognostically, before the occurrence of gangrene even in the presence of a high glycosuria, a marked acidosis (which means diacetic acid alone or diacetic acid and β-oxybutyric acid), and advanced age, in the absence of arteriosclerosis and high blood pressure, we may look upon our patient as being not of the type to develop gangrene. And again, from the prognostic standpoint, a patient not past forty years, with a low percentage of sugar, with no acidosis, but with an interstitial nephritis and a marked arteriosclerosis, we may look upon as belonging to the type of those who may acquire gangrene.

The advisability of operating must be estimated for each case independently. In regard to this question the amount of suger excretion may be ignored, but every attempt should be made to reduce it. A great and sudden falling off of the amount of sugar excretion is a warning of danger. A high excretion of sugar does not necessarily contraindicate operation.

The value of a knowledge of the acetone bodies in its application to the question of amputation is limited. In the absence of this reaction, or when it is not marked, even though other symptoms of diabetes are severe, there is a strong likelihood that with a fair trial of medicinal and dietetic measures, the gangrene will not advance, and in time spontaneous amputation will occur. The extreme view adopted by Klemperer is significant, and suggests a conservative attitude regarding operation, to which views my experience would also tend to lead. There is usually no serious loss of time unless phlegmon be present in this type of case, and astonishing results may occur with the employment of rational conservatism. Even when the acidosis is severe it is wise to allot a reasonable time to a faithful trial of nonoperative methods; these failing, however, amputation becomes then our sole recourse.

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18 EAST SIXTIETH STREET.

ANESTHESIA BY MEANS OF CHLOROFORM AND ETHER.

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This subject is of great importance and interest, not only to the anesthetist, but to the general practitioner as well. It is my desire to present a few facts that will be helpful in the administration of chloroform and ether. If possible, the patient should enter a hospital at least six days prior to the operation. He should be given plenty of good, nutritious food, easily digested, and should drink plenty of water. An examination of the urine should be made at least twice, and if any trace of albumin is found, ether is contraindicated. The heart should be carefully examined, and if any lesion is found, under no circumstances shall chloroform be given. If any disease of the lungs is present ether is contraindicated.

When the patient first enters the hospital a half-dozen broken doses of calomel with soda should be given, followed the next morning before breakfast by a saline, which will wash away all the bile that has been thrown out during the night. The patient should be encouraged to drink a glass of water every half hour, for two or three days; in this way the kidneys will get a good flushing. No solid food should be taken into the stomach six hours previous to the administration of an anesthetic. The night before the operation the patient should have a mild saline cathartic, and on the following morning receive an enema of warm soap suds 1 quart, glycerin 1 ounce, and turpentine 1 dram. Before one takes an anesthetic the surgeon should always see that the stomach, bowels, and bladder are empty.

At times it is very hard to decide just which anesthetic is best to give, but each case should be a law unto itself. Let the anesthetizer study his patient carefully; be careful in getting the history, the habits of the patient, nature of the operation, and its probable duration. Care should be taken in examining the heart, lungs, and kidneys. If the patient is an alcoholic, or is suffering from aneurism, kidney disease of any type, or an atheromatous condition of any of the arteries, it is best to give chloroform. The danger of chloroform is in the early stage, and death from this agent is due to respiratory paralysis; in some cases it is really safer than ether on account of the after-effects produced. Pneumonia, following the administration of an anesthetic, especially ether, is not due so much to the irritating fumes of the ether, but to the exposure; hence the patient's chest and arms should be well covered; and when being moved through hallways he should be covered with a blanket.

When giving an anesthetic there are two dangerous symptoms to watch for, and when either is discovered the anesthetic should be discontinued or suspended. These symptoms are: Sudden dilatation of the pupil and hiccough. The stomach should be washed out with plain warm water, especially before an abdominal operation, and it is desired to keep the abdominal viscera as quiet as possible, for by so doing the patient is less likely to vomit. A hypodermic of sulphate of atropine 1/100 grain, given thirty minutes previous to an anesthetic, will diminish the amount of mucus in the mouth and pharynx, and will retard the tendency to vomit. It also acts as a respiratory stimulant. Before an anesthetic is given the mouth should be examined for artificial teeth and foreign bodies, such as chewing gum or tobacco.

The patient should lie recumbent, and, if possible and convenient, in the Trendelenburg position. It should be impressed upon the patient's mind that there is practically no danger. Everything should be loose around the neck, chest, and abdomen. The face should be anointed with vaselin, especially around the eyes, nose, and mouth.

Ether given by the drop method is more satisfactory than the use of the closed cone. Nephritis is more likely to occur after ether than chloroform. Often it is due to the shock following the operation. When ether is given slowly there is no respiratory spasm or coughing.

Chloroform is best given by the drop method, using the Allis inhaler. The Gwathmey apparatus is also considered good for chloroform.

"W. Hunter, in discussing chloroform in the *Lancet*, April 4, 1908, says that vomiting occurring after the administration of chloroform is not of nervous origin, but essentially toxemic, due to the profound depression of liver function, with consequent diminution of its antitoxic function during the period of its administration of the chloroform."

No anesthetic should be administered without having the following articles on hand, on a table near the anesthetizer: One hypodermic syringe loaded with nitroglycerin, 1/100 grain; one loaded with strychnine sulph., 1/30 grain, and atrophine sulphate, 1/150 grain; one loaded with ether or brandy; ½ dozen pearls nitrite amyl; an ounce of vaselin for the patient's face; eight ounces of ether; eight ounces of chloroform; one mouth gag; one pus basin; two long sponge forceps and gauze for mopping the mouth and pharynx; one tongue forceps; one large needle threaded with heavy silk; three towels. Before giving an anesthetic it is well to wrap the patient's head in a sterile towel. Especially is this necessary if the operation is to be about the face or neck, as it prevents the hair from getting soiled.

Commence by giving only a few drops at first of ether or chloroform; hold the inhaler about two inches from the patient's face, and tell him to breathe naturally. Do not tell the patient to take deep breaths, for this will only cause coughing and struggling. Every half-minute add five or six drops, telling the patient to go to sleep. The inhaler can be held in the left hand, and with the fingers of the right hand resting and pressing forward on the angle of the jaw. Keep the index finger constantly on the temporal artery. Do not watch the chest to see if the patient is breathing, but put the ear over the inhaler and you can tell better. Care should be taken in putting the fingers on the conjunctiva to see if the reflex is lost, for serious inflammation may result from too frequent and rough handling of the conjunctiva. When you lift up the patient's arm, and it falls limp, it is a pretty sure sign that the patient is ready. Some surgeons make the skin incision before the patient is thoroughly anesthetized. This causes the patient to move and breathe deeper, thereby getting under the influence of the anesthetic sooner. It is not necessary to carry the patient to the third stage of anesthesia, but only so much shall be given as to keep him from suffering or struggling. The anesthetist should go with the patient to the ward after the operation is over, constantly pressing on the angle of the jaw, so that the tongue may not fall over the glottis. The patient should be left in the hands of a competent nurse, who should stay by the bedside until the patient is thoroughly conscious.

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LUMBAR ANESTHESIA.

LUMBAR ANESTHESIA has found great favor in Germany, surgeons of such standing as Bier, v. Rosthorn, Witzel, and Sellheim using it continuously in their practice, and studying the value of the various modifications of the methods, as well as of the drugs used in this connection. The amount of material observed may be judged from an article by Dr. Holzbach in the *Münchener medizinische Wochenschrift* for July 14, 1908, which gives the experience obtained from over one thousand lumbar anesthesias, two-thirds of which were employed for the performance of laparotomies. Holzbach says that the following points must be fulfilled by any anesthesia, whether local or general: Absolute freedom from pain during the whole duration of the operation; such effect upon the tissues of the operation field that the technique of the procedure is rendered as easy as possible; the smallest possible danger from the use of the anesthetic during and after the operation; the absence of unpleasant sensations at the beginning of the anesthesia and following it; the least possible influence upon the postoperative course of the disease.

So far as the first requirement is concerned, lumbar anesthesia is not as reliable as inhalation narcosis, in every case of which complete freedom from pain may be promised to the patient. Of some 250 specially studied cases, in nine lumbar anesthesia proved to be a complete failure, in a few others the course of the operation was disturbed, in still others, amounting to 16.4 per cent., ether or chloroform had to be used to complete the narcosis begun by the lumbar injection. The second condition is fulfilled by the newer method of narcosis much better than by the old; muscular relaxation is much earlier attained and the involuntary spasms of the diaphragm affecting the contents of the peritoneal cavity are very seldom observed in lumbar anesthesia. Moreover, the surgeon need no longer divide his attention between the operation itself and the anesthesia; there is no occasional choking, no vomiting, no falling back of the tongue, no such danger of sudden death from paralysis of the respiratory center. On the other hand, various trophic disturbances, transitory albuminuria, even inflammation of the kidneys, obstinate pain in the head and neck are still quite frequent sequences of lumbar anesthesia, though with the improvement in technique they are observed much more rarely than formerly. So far as freedom from unpleasant sensations and feelings in the beginning of the narcosis is concerned, the use of morphine in connection with the anesthesia allows the attainment of this end in either type of narcosis. As this seems to be less dangerous in the case of lumbar anesthesia than with the use of ether or chloroform, which of itself has a dangerous effect upon the respiratory and circulatory centers, the former method enjoys some advantage over inhalation anesthesia. The postoperative course, the last point considered by Holzbach, is certainly less disturbed in the case of lumbar narcosis; vomiting is extremely rare, lung complications are also infrequent, and the patient may be allowed to leave the bed in much shorter time than is usual with the employment of ether or chloroform. The one desideratum, according to Holzbach, is the care in the details of the technique of producing spinal anesthesia, and to obtain this, one who has made a special study of the art and practice of this field of medicine should be called upon to perform the work. The latter suggestion applies to inhalation narcosis, perhaps, as much as to the newer method of anesthesia. The technique of inhalation narcosis is, however, so much simpler than the puncture of the spinal canal required in the production of lumbar anesthesia, that the former method will always be preferred in emergency work and in those hospitals where the untrained internes are required to administer the anesthetic.

How far the newer method will supplant the old in selected cases and in the presence of special arrangements for its successful use remains to be seen. In a private letter from Berlin it is stated that general narcosis with ether or chloroform has almost entirely been given up in the clinics under the direction of Professor v. Bier, lumbar narcosis or local anesthesia produced by intravenous injections of narcotics being used; the advantages claimed for the latter methods are such as to warrant a trial by American surgeons on a more extensive scale, so that they may decide for themselves how applicable it is to the different conditions which govern surgical practice on this side of the ocean.

THE INTERNATIONAL LANGUAGE QUESTION.

THE holding of the first American Esperanto conference at Chautauqua a few weeks ago has directed attention anew to the ever-present problem of an international language. The question is one that interests everyone—the business man, the scientist, the traveler, the millionaire with marriageable daughters—in fact, all who have or hope to have business or social relations with persons speaking another language than their own. The need of a common medium for the communication of ideas will be emphasized again next month when the International Tuberculosis Congress meets in Washington. There will be speakers in French, German, English, and perhaps other languages, and what they say will be understood fully by some, more or less imperfectly by some others, and not at all by a great many. How much more fruitful the addresses and discussions would be if every member of the Congress, no matter what his native tongue, had a fluent use of some language common to all and this language was employed exclusively in all the scientific work of the meetings, is something that needs no argument.

There is and can be no dispute as to the desirability of a world language supplementary to the national idiom of each country; the only question is as to the choice of this common tongue.

There is hardly a language spoken by civilized people on the face of the earth, not to mention the one hundred and fifty or more artificial languages that have been invented during the past two centuries, that has not been proposed at one time or another for adoption as this supplementary speech. Latin once held this place, and five hundred years ago educated men could communicate through this medium freely and intelligibly, orally or in writing, with their fellows in any part of Western Europe. Later French, the lingua franca, became the universal language of polite society and diplomacy, but this, too, has lost its supremacy, and Babel reigns once more. The claim is frequently made, by those whose vernacular it is, that English is making rapid headway as an international speech, but this is true to the extent only that it is the native tongue of a constantly increasing number of the inhabitants of the earth. A business man in England, or North America, or Australia, may address his foreign correspondents in English, but nine times out of ten they will reply in German, or French, or Spanish; and the scientist who would keep himself informed of progress in his special branch must have a reading knowledge at least of two or three languages other than his own.

There is no living language that would not serve the purpose of international communication if universally taught, the question of relative ease or difficulty of acquirement being entirely negligible if the language were learned in infancy at the same time and in the same way as the mother tongue and its use were continued in the school curriculum in the teaching of history and of physics, chemistry, and the other scientific branches. The problem is then to select from among the living tongues the one best adapted to the purpose, irrespective of its difficulty or ease of acquisition by adult students—which is more apparent than real if the study be approached in the proper way—or of the number of persons now speaking it.

The choice should be of a living language. A return to Latin is still advocated by a few enthusiasts. But Latin is dead—as dead as the Cæsar who glorified himself in it. In spite of the efforts of those who would modernize it and adapt it to the needs of expression of the twentieth century man of science or of business, the tongue is too stiff for modern use. Moreover, it lacks the authority which only every-day use, by those who possess it as their own, and a living modern literature can give it. The choice should be also of a real language. The objection of the lack of authority applies with equal, if not greater, force to an artificial language that it does to Latin. Latin at least has a literature, unsuited as it may be as a model for present use, by which irregularities and unwarranted neologisms might be in a measure checked, but Esperanto, the only artificial language now claiming recognition, has none, save a few good and many bad translations and the ephemeral articles in its periodical publications. It has, moverover, what impresses many of its students as the fatal defect of being a mere Frankenstein creation, related to nothing else in the world and void of an informing soul. It is, indeed, a wonderful creation, and admirable as a linguistic *tour de force;* it is logical in its formation and comparatively easy for adults to learn—to read, and many who have progressed thus far are vociferous in its praise. There are, nevertheless, many defects in its construction, and already a quarrel is hatching between the would-be reformers and the "stand-patters" in Esperantism. This is the rock on which Volapük split at a time when it seemed to be almost on the point of acceptance by the business world, and until Esperanto has weathered this storm, if it does, its adoption as a world language does not seem advisable or likely.

The choice should be of a language, if such there be, that is already universal in its root-forms and a part of the speech of the entire civilized world. There is such a language—the Greek. Not only is Greek the basis of the vocabulary of every science, it is constantly on the tongue of the business man, the society woman, even the school child—sadly twisted and shamefully maltreated oftentimes, even by the man of scientific education, but still Greek. The root is there and ready to send up its branches and blossom forth into the flower of a beautiful speech if only cultivated. For twenty years the Medical Record has held that this incomparable language was the one best fitted for use as the world language of science; and it is equally adapted for commercial and other purposes. It is the second language, when not the first, of all the dwellers on the eastern Mediterranean shores from the Piræus all the way to Alexandria, and it answers perfectly the needs of these eminently commercial peoples. This is not the Greek of Homer, of course, nor even that of the New Testament, but the Greek of the cultivated people of Athens and Constantinople and Smyrna. It differs but little from the so-called ancient Greek—no more than, if as much as, the English of Chaucer or Spenser does from the English of to-day; but what difference there is, is all on the side of simplicity. It is less difficult to learn, even for an adult, than French or German, and if it were taught in all the elementary schools of the world as a living tongue, not as an exercise for translation merely, the coming generation would use it as fluently and as naturally as it would the national speech.

The suggestion to adopt modern Greek as a second tongue for all the nations of the civilized world is not novel; it was made by Voltaire even at a time when his own French was the language of the Prussian court and was almost an international tongue. Before and since his day other men of practical experience in the work of the world have made the same suggestion, which is, indeed, one worthy of the consideration of those who recognize the necessity of a common medium of communication and who are tempted to turn to Esperanto in ignorance of anything better. But even Esperanto, or Volapük, or Chinese, would be better than nothing, for the impediment to the diffusion of knowledge and the crippling of business which the lack of a world language causes are very real and lamentable.

PASTEURIZATION OF MILK IN GREAT BRITAIN.

Much difference of opinion exists even yet among medical men regarding the pasteurization of milk. It is conceded that the method when properly carried out destroys most of the harmful germs of milk, but it is contended by the opponents of pasteurization that although the process is so far effective, at the same time it affects injuriously the nutritive qualities of milk. Medical authorities in this country do not look on pasteurization with the disfavor with which it is generally regarded by their British confrères. Here the view held by the majority of physicians may be said to be that pasteurization is the lesser of two evils, that it is better that young children should drink the milk thus treated, albeit it may not be so nourishing as is the same food in a natural state, rather than to be fed on contaminated milk. It must be borne in mind that in cities in hot weather it is virtually impossible for poor persons to obtain a clean milk.

In England, however, where prejudice against pasteurization is still widespread, there appear to be signs that medical opinion is changing in this respect. Mr. Henry Kenwood, professor of hygiene in the University of London, and one who should understand his subject thoroughly, believes in pasteurization; at least, he thinks it is wiser to feed infants and young children on milk which has undergone this form of purifying by heat than to give them raw milk, in most instances full of germs more or less noxious. He broadly defines pasteurization as the exposure of milk, previously cleansed by filtration or centrifugalization, to a temperature not exceeding 70° C. for a short period; and then its rapid cooling to a temperature as much below 16° C. as possible. He holds that under such conditions it is possible (1) to reduce the microorganisms which are capable of being cultivated on artificial media to less than 5 per cent. of those which can be cultivated from the original milk and thereby to destroy or inhibit the fermentation bacteria so as to delay the natural souring of the milk some twenty-four hours or longer, the milk meanwhile keeping perfectly wholesome; (2) to destroy the specific organism of tuberculosis, diphtheria, typhoid fever, cholera, and dysentery, and, doubtless also in large measure, those organisms that are causal of diarrhea; (3) to do away with the necessity for drugging the milk with harmful chemical preservatives. Mr. Kenwood holds decided views as to the dangers incurred by feeding children on pasteurized milk, and feels convinced that such dangers have been greatly overrated. He states that the available evidence goes to show that pasteurized milk very rarely causes infantile scurvy, that the physical changes brought about by the process are practically nil, that digestibility is increased. He is, of course, in favor of using every possible means to ensure a milk supply clean from the source, and of employing every effort to transport, distribute and deliver it uncontaminated, but holds that in England, at any rate, such an ideal state of affairs is still far away. It may be said that there are many medical men of note in Great Britain who, while perhaps not going quite so far as Prof. Kenwood in their advocacy of pasteurization, nevertheless agree in the main with his views. Mr. Nathan Straus has established depots for pasteurizing milk in various large British cities and has given great impetus to the movement.

Syphilis and Tabes Dorsalis.

The relation of locomotor ataxia to syphilis has been recently studied with the help of the Wassermann method of demonstrating syphilitic antibodies in the fluids of the organism. The work is of practical importance, the demonstration of the antibodies being a sign that antiluetic treatment is still indicated; it is, at the same time, of the greatest theoretical interest, for it may solve the final significance of a syphilitic infection in the etiology of locomotor ataxia and of general paralysis, and thus decide whether these two diseases are parasyphilitic conditions only or may be caused by other etiological factors. Dr. Albert Schütze (*Zeitschrift für klinische Medizin*, Vol. LXV., Nos. 5 and 6) has examined one hundred patients in whom the clinical diagnosis of locomotor ataxia was made, using either the blood serum or the spinal fluid for the determination of the specific reaction for syphilitic antibodies. In sixty-nine patients such reaction was positive, showing the great value of the procedure in demonstrating that a syphilitic infection had taken place in the past, quite a few of the positive results being obtained in patients denying such infection. Only a few cases were examined before and after the specific treatment for syphilis, but all of these leave the impression that such treatment markedly diminishes the strength of the reaction; moreover, quite a number of cases with a history of protracted and thorough treatment for the infection in the past gave negative results in the examination for the specific reaction of syphilis, while those untreated or unsufficiently treated gave usually a very marked reaction; thus the specific value of the antisyphilitic treatment is corroborated by these laboratory findings. Of course, all of these observations are neither complete nor numerous enough to allow of final conclusions; sufficient work, however, has been done to prove that Wassermann's reaction for the antibodies of syphilis, if it is finally definitely proven to be specific, will be one of the most valuable results of the recent studies in immunity.

Operative Treatment of Sciatica.

Neuritis involving the sciatic nerve or its cords of origin is one of the most obstinate and trying affections, making an invalid of the patient in many cases and always interfering with his general physical and mental wellbeing. The host of remedies proposed in the treatment of the affection shows how little reliance can be placed upon any one of them in the individual case, natural remissions in this chronic disease having been often looked upon by some enthusiastic supporter of a special drug as the result of medication. Nerve stretching has been successful in many instances, and in the *Deutsche medizinische Wochenschrift* for July 16, 1908, Dr. Alfred Pers claims that the mere freeing of the nerve from adhesions to the surrounding tissues is curative, especially if practised in such place as the sciatic foramen, where adhesions may quickly result in undue pressure upon the nerve. The author had operated according to his method upon forty-three patients, thirteen of whom were completely incapacitated by the disease, while the remaining thirty could not walk without limping. His results

were certainly encouraging; prompt relief followed the operations, forty patients being cured of their trouble, both recent and old standing cases responding in a similar manner to the treatment. Three patients were later attacked with recurrence of symptoms, a percentage that is much lower than in cases in which stretching of the nerve has been the procedure chosen. The results after the operation are such as to lead the author to conclude that the neuritis is only of a slight grade in this affection; the chief lesion is a perineuritis, and the freeing of the nerve from adhesions is the most rational procedure in this pathological condition.

The Tuberculosis of Mammals and of Birds.

Ever since Koch's well known announcement that the bacillus of bovine tuberculosis is not pathogenic for man, the question of the relations between the three main varieties of tuberculosis, of man, of cattle, and of birds, has been warmly debated. In the *Centralblatt für Bakteriologie, etc.,* Band XLVI, Heft 6, Oluf Bang tells of his study of the behavior of mammals toward avian bacilli, and of birds toward the bacilli of mammalian tuberculosis. He succeeded in infecting healthy fowls with twelve species of tubercle bacilli derived from tuberculous horses, cattle, and men. Six other species could not be thus transferred. Thus 60 per cent. of the species of bacilli examined proved to be equally pathogenic for fowls and for mammals. Moreover, in most of these cases the author succeeded in showing that the mammalian tubercle bacilli after passing through the organism of the fowl assumed the characteristics of avian bacilli; they became morphologically similar to the latter, grew very pathogenic for fowls, and gradually diminished in virulence for guinea-pigs. The opposite experiments, those of infecting mammals with avian bacilli, were also successful in many cases, young animals proving to be especially susceptible to the action of the bacilli; it was, however, impossible to decide whether such bacilli underwent any metamorphosis into mammalian types in their passage through the bodies of mammals. In the light of this and other facts it seems justifiable to say that the burden of proof, at least, lies with those who deny the pathogenicity of bovine bacilli for human beings, or their capacity of being transformed into other types after passing through a different species of animals.

News of the Week.

City Hospital Reforms.—Two years ago Mayor McClellan appointed a committee of nineteen to investigate hospital facilities and administration in New York. This committee has just made its formal report. As regards the distribution of hospital facilities the commission gives the following figures: Manhattan, with 50 per cent. of the city's population, has 57 per cent. of the hospital beds. The Bronx, with 8 per cent., has 12 per cent. of the beds; Brooklyn, with 34 per cent., has 26 per cent. of the beds; Queens, with 5 per cent., has 3 per cent. of the beds, and Richmond, with 3 per cent., has 2 per cent. of the beds. A very general reorganization of the hospital system, so far as the city controls it, is recommended, together with its centralization and unification, and control and extension of the ambulance system. The point is made that with the present system the public hospitals are administered under three heads, the metropolitan and city hospitals under the Department of Charities, the hospitals for contagious diseases under the Board of Health, and Bellevue and the allied hospitals under a board of trustees. This, of course, is responsible for duplication and for omission, and for the lack of any definite policy to meet the growing needs of the city. The committee therefore recommends the establishment of a Department of Hospitals, to be administered by a Commissioner aided by an advisory board. All the public hospitals of the city and the entire ambulance service should be in charge of this department. Other recommendations are for the establishment of relief stations for the treatment of minor injuries, the establishment of a central ambulance bureau to receive all calls, a special service for the transfer of patients, city ownership of all ambulances and horses, and prompt extension of hospital facilities.

Tuberculosis Campaign.—Because of the success of the traveling tuberculosis exhibits which have been shown in many of the larger cities, the State Charities Association is now having prepared six educational exhibits which are to be sent on tours through New York State, with stops at thirty-six different county fairs. Many new features are to be included in these exhibits, on which experts have been at work for many months. Models of perfectly lighted and ventilated factories will be contrasted with models of sweatshops where the disease flourishes. Maps and diagrams showing the prevalence of tuberculosis in each county, pictures, and painted mottos will be displayed. In addition large phonographs will be employed, with records which will give important information, alternated with records of popular music. A missing-word contest is also to be included, with prizes sufficient to be attractive.

Tuberculosis Day Camp at Vanderbilt Clinic.—The Board of Managers of the Vanderbilt Clinic, New York, have decided to extend the work of the clinic by establishing a day camp on the roof of the clinic building for the use of tuberculous patients. Changes are now being made to permit of the utilization of the roof for this purpose, and it is hoped that the camp will be opened on October 1. The New York County Branch of the Red Cross has agreed to provide the funds necessary for the maintenance of the camp after it is constructed, and the executive work will be largely in the hands of the Women's Auxiliary Committee of the Vanderbilt Clinic, an organization recently formed to direct and assist in the work of the Department of Visiting Nursing, subject to the control of the physicians and managers of the clinic. The roof of the clinic is well adapted for the purposes of a day camp. The building is situated near the river and is considerably higher than those surrounding it, so that to the west a clear sweep is obtained. This work of supporting day camps for patients suffering with tuberculosis is planned to carry out the decision reached at the International Red Cross Conference in London in 1907, when it was unanimously agreed that all Red Cross societies should cooperate in the anti-tuberculosis campaign. So far as is possible, the direction of all camps which may be established will be left in the hands of those already familiar with the work, while the Red Cross will provide the funds for the maintenance of the camps. Interior changes will be made in the Vanderbilt Clinic at the same time so as to provide more room for the work. The additional space will make it possible to set up mechanico-therapeutic apparatus for the orthopedic department, and will also provide for a much needed en-

largement of the laboratory devoted to the teaching of clinical pathology.

To Color Soldiers' Underwear.—The War Department is preparing to test the efficiency of underwear which has been dyed a blood-orange color as a protection against tropical sunlight. Five thousand suits are being prepared in Philadelphia and will be sent to the Philippines for actual test. In the same way an orange-red hat lining is being prepared as an experiment.

Marines Threatened with Rabies.—Major G. H. Russell and ten privates of the Marine Corps, all of whom were bitten by a dog which appeared in Camp Diabolo on the Isthmus of Panama on July 21, arrived recently in New York to receive treatment. The men were ordered north by the War Department as soon as examination showed that the dog had had rabies. On arriving here they were sent to the Naval School Medical Hospital at Washington, where serum had been prepared and everything was ready for immediate treatment.

Surgery at Sea.—While in midocean the steamship *Cedric* was stopped for two hours to permit the ship's surgeon, assisted by Dr. Halsted of Johns Hopkins, to perform an operation on one of the cabin passengers. The condition of the patient necessitated an immediate operation, and for nearly three hours the steamship was held until the surgeons and nurses had finished their work and the patient had rallied.

Quinine in Italy.—The Government controls the sale of quinine in Italy and uses the profit to fight the mosquitos in the malarious districts. Last year the net profit on the sales was about $75,000 and this was employed in draining and filling in the breeding pools and improving the land in various ways. The impossibility of persuading the peasants to screen their houses or even to use the screens provided, or in any way to protect themselves, makes the elimination of the marshes the only means of combating the disease.

Draining Mosquito Pools.—The Board of Health of New York has undertaken the work of compelling the owners of property in the Flushing meadows to drain off the stagnant water pools in which thousands of mosquitos breed. There are a large number of such pools all over Long Island, and a strong wind sweeping over them often drives the mosquitos to Manhattan and the Bronx. The Board of Health announces that there is no larger number of cases of malaria now than in any other year.

Civil Service Examinations.—The New York State Civil Service Commission will hold examinations on September 5, 1908, to fill the following positions: Assistant physician to the Rome State Custodial Asylum, at a salary of $600 to $900 per annum and maintenance, and trained nurse at a salary of $420 to $600 per annum and maintenance. Applications for these positions must be filed before August 30, and blanks and full information will be forwarded upon application to the Chief Examiner of the Commission at Albany.

Infant Mortality in Chicago.—Six hundred and sixty-nine babies died during the month of July in Chicago. Probably two-thirds of these deaths could have been avoided, and most of them may be attributed to ignorance and neglect of the parents. The Department of Health is now directing the work of seventy-five physicians in the crowded districts of the city, educating mothers in the proper care of their children.

Chicago School of Civics and Philanthropy.—Sixty students have enrolled in the summer classes of this school, which is under the auspices of the Chicago Commons. Of this number, 24 are attendants in various hospitals for the insane, and are studying particularly the methods of rehabilitating the minds of their patients.

A Woman's Hospital.—In Berlin a woman's hospital has recently been opened with a staff composed exclusively of women. At present it contains nineteen beds and is open to the patients of any woman doctor. Such a hospital has existed for twenty-five years in the United States, the Tefair Hospital, in Savannah. The hospital has about fifty beds and is richly endowed.

Charitable Bequests.—The Methodist Episcopal Church Hospital of Brooklyn receives $5,000 under the will of the late Townsend Wandell, who was killed recently in a railway accident at Bologna, Italy. St. Michael's Hospital of Newark, N. J., receives a bequest of $1,000 from the estate of the late Mary O'Brien. The will of the late Dr. John Ordronaux, recently filed, contains among other bequests $6,000 to the Mary Hitchcock Memorial Hospital, $10,000 each to Dartmouth College, University of Vermont, and Trinity College, and $2,000 to Boston University.

Faculty Changes.—The Starling Medical College of Columbus, Ohio, has recently reorganized its faculty. Dr. John Dudley Dunham has been made professor of diseases of the stomach and dietetics; Dr. Yeatman Wardlow, professor of clinical gynecology; Dr. Sherman Leach, professor of operative surgery; Dr. John H. J. Upham, professor of medicine; Dr. E. G. Horton, professor of hygiene and sanitary science; Dr. E. A. Hamilton, professor of rectal diseases. Dr. Ernest Scott has been placed at the head of the pathological department.

Marriage Licenses.—During July, 2,773 marriage licenses were issued in New York, a falling off from the average. Of these 1,862 were issued in the Borough of Manhattan.

Visiting Tenement Babies.—The reports of the district nurses of the Board of Health show that up to August 1, the thirty-six nurses had visited 11,375 babies in the city. During the last week of July 2,175 "new cases" received attention. The visits are confined to babies under twelve months, of whom the Board estimates that there are 22,000 in the tenement house population of Manhattan. At the end of each trip the nurse records her findings on cards, giving the name, residence, and date of birth, and statements as to diet, health, bathing, cleanliness, and instructions given. The number of "unhealthy" babies listed is surprisingly small, and the number of deaths recorded quite few.

Teaching by Moving Pictures.—One house dealing in moving picture films has published a list of several hundred intended for use in the classroom; among them a number of pictures reproducing the course of an operation. These, of course, are intended for hospitals and medical schools. One series, representing six operations for removal of tumors, requires one-fifth of a mile of film. The characteristic gaits in various forms of nervous diseases are shown in another series, and others depict the behavior of the face and other muscles in paralysis agitans.

The Medical Society of the Missouri Valley will hold its twenty-first annual meeting on September 3 and 4, 1908, under the presidency of Dr. W. F. Milroy of Omaha, at Council Bluffs, Ia. Thirteen

States are now represented at the meetings of the society, which at its commencement embraced only two. An interesting programme has been prepared, chiefly of papers which are of interest to the general practitioner.

The National Negro Medical Association will hold its annual session in New York on August 25, 26, and 27.

Census of 1790.—The Bureau of the Census has just issued a publication compiled from the census returns made in 1790 by United States marshals acting under orders from President Washington. The population of the United States, exclusive of negro slaves, was 3,231,533; of New York City, 33,131, including 2,369 slaves.

Cremation Statistics.—The French branch of the International Society for the Propagation of Incineration has published a report which shows that cremation is most favored in America, where there are thirty-six crematories, which, in 1907, incinerated more than 4,000 bodies. Next comes Germany with fifteen crematories and 2,977 bodies incinerated, while in the Argentine Republic there were 976 incinerations. Other figures are: Switzerland, four crematories and 721 incinerations; Great Britain, thirteen crematories and 705 incinerations; France, four crematories and 451 incinerations; Italy, thirty crematories and 442 incinerations; Denmark, 77 incinerations; Sweden, 70, and Canada, 33.

Sir Thomas Stevenson, M. D., scientific analyst to the Home office, London, author of various works on forensic medicine, and past president of the Society of Medical Officers of Health, of the Society of Public Analysts, and of the Institute of Chemistry, died on July 28, aged 70 years.

Obituary Notes.—Dr. Elias J. Marsh of Paterson, N. J., died at his home on August 3, of heart disease, aged 73 years. Dr. Marsh was graduated from the College of Physicians and Surgeons, New York, in 1858, and later served in the Civil War. During the last year of the war he served on Gen. Sherman's staff and was often referred to as "the man who stopped the war," having been the bearer of Gen. Grant's order to "stop firing" while Grant and Lee were having the conference which resulted in surrender. For some years Dr. Marsh had been chief medical director of the Mutual Life Insurance Company. He was a member of the New York Academy of Medicine and had served on many local boards at various times.

Dr. George Michael Edebohls of this city died on August 8. He was born in this city in 1853, and was educated at St. John's College, Fordham. He was graduated from the College of Physicians and Surgeons, New York, in the class of 1875. He was a member of the faculty of the New York Post-Graduate Medical School and Hospital, and was consulting surgeon to St. Francis' Hospital, New York, St. John's Hospital, Yonkers, and the Nyack Hospital. Dr. Edebohls was best known for his earnest advocacy of the surgical treatment of Bright's disease by means of decapsulation of the kidney, an operation which he devised at the same time with, but independently of, the late Mr. Reginald Harrison of London.

Dr. James Francis Brown of Manchester, N. H., died on July 29, at his home, in his seventieth year. Dr. Brown received his medical education at the Dartmouth Medical College, graduating in 1864. He had continued in active practice from that time until his final illness.

Correspondence.

OBSERVATIONS OF SOME OF THE WORK OF INVESTIGATION AND TREATMENT OF CANCER AND TRYPANOSOMIASIS CARRIED ON BY GERMAN SCIENTISTS OF THE PRESENT TIME.

To the Editor of the Medical Record:

Sir:—On my way to Frankfort I stopped for two days at dear old Goettingen, which, like all other German cities and university towns of any importance, has been renovated and enlarged beyond recognition. Any department of science a student may choose to study he will find there amply represented by an efficient force of teachers; in medicine and surgery particularly I was pleased to see modern hospitals, clinics and policlinics conducted by well-known men who were able and ready to teach the aspiring medicus the principles and practice of the healing art fully as well as it is done in other and larger seats of learning. And then, the Goettingen University library, with its 535,000 volumes, accurately and very practically catalogued! To be sure, it needs no praise, it is known all over the world. The librarian, Dr. Lutz, to whom I had an introduction, a genial man and keen observer, conducted me through all the large halls and rooms stocked with precious volumes; finally we rested a while in the spacious reading-room, where I saw some American and a number of German scholars at work, among the latter Professor Epstein, now retired, who has written much in his time on gout, diabetes, and obesity. Goettingen has a charming location on sloping ground, a lot of fine houses in the upper town, lovely gardens and parks with magnificent trees within and without its walls. Its winter climate is somewhat severe and changeable, owing to the proximity of the Harz mountains; its water supply is excellent. Living there has ceased to be cheap in comparison to what it was in former times, but the prices charged for boarding and lodging are still quite reasonable.

In Frankfort I lost no time in visiting the Royal Institute for experimental therapy, conducted by the director, Professor Ehrlich, and his associate, Professor Apolant. The lower floor is used for experiments on animals, the second for bacteriological, and the third for biological work. Confining my observations to what was going on in the experimental department, I was met by Professor Apolant, who was very kind and courteous and showed me numerous white mice and rats inoculated with carcinoma or sarcoma, carrying tumors within their bodies of various sizes, sometimes larger than the whole animal, and living with them more or less uncomfortably for many months, the earlier or later exitus depending upon individual resistance, metastases, or intercurrent diseases. Inoculation of an animal is done in a simple but strictly aseptic way: a long glass tube, wider at the upper and quite narrow at the lower end, is sharply broken off at the latter, a bit of fresh tumor mass is sucked up, and—the broken end being sharp enough to pierce the skin of the mouse—the contents of the tube are blown out into the cellular tissue. For the purpose of immunizing mice against cancer or sarcoma, Apolant has found not only the serum but also the blood and the substance of organs, particularly the pulp of the spleen of tumor-mice equally efficient. Nothing definite can be said yet as to possible prophylactic or therapeutic results which the numerous and well-planned experiments may yield for the treatment of malignant growths in man.

In the basement of this building a number of small and large rabbits are under observation for trypanosomiasis artificially induced. The blood of recently infected animals fairly swarms with these wrigglers, they are exceedingly lively and destructive to the blood cells. The course of the disease appears to be rather acute in infected rabbits, and varies from that in man in so far as there is an early development of sores about the lips and face, falling of the fur in patches, followed by marked gastrointestinal disturbances, adynamia, and death. However, there is a remedy that will help the poor rabbit, as it has helped thousands of Africans afflicted with the sleeping sickness, and it will cure him promptly. A fine specimen of a large brown hare was shown to me in which the disease was permitted to progress nearly to the fatal end, when a single dose of a 10 per cent. atoxyl solution was administered hypodermically, which was sufficient to cure him quickly and permanently. All sores had healed and his general condition appeared to be quite normal when I saw the animal.

Next door to the Institute for experiments has been recently opened the James Speyer house, erected through the munificence of the late banker, James Speyer. It contains the offices of the Director, Professor Ehrlich, and will be devoted to chemical therapy. And near to this a new and rather large edifice is approaching completion; it will be devoted to the science of hygiene under the direction of Dr. George Neisser, who is already associated with the other two gentlemen.

The short distance from Frankfort to Heidelberg is easily covered in two hours, the train running through a fertile and prosperous country alongside the famous old Bergstrasse, with the graceful lines of the Odamwald back of it. Pulling up at the well-conducted and conveniently-located Victoria Hotel, I spent an entire day at the Samaritan House, a new hospital built especially for the investigation and treatment of cancer by and for Professor Czerny, with his own and his friends' money and a subscription from the State. Czerny, as vigorous and full of scientific zeal as ever, has retired from the chair of surgery and devotes himself exclusively to this special field of work, in the pursuit of which he has the support of Drs. Werner, von Eichberg, and others, and the very able help of the pathologist and chemist Dr. Zeller. Being again received with great courtesy by the director and his staff, we first made the rounds of the wards, where nearly every bed was occupied by patients suffering from malignant growths in more or less advanced stages. Most of them had undergone repeated operations and presented a sad and depressing sight. The visits having been finished, Czerny proceeded to do the operation of "fulguration" by the Arsonval high frequency current after de Keating-Hart. He had recently been down to Marseilles to observe and study the inventor's method. The patient was a middle aged man, still vigorous, who had been operated upon some months before for cancer of the side of the neck, but a number of painful nodules had recently recurred in the cellular tissue, the skin and cicatrix at the seat of operation remaining in good condition. A good sized flap having been detached and turned up, a few of the nodules were cut out and then the entire surface of the wound as well as the raw surface and edges of the flap were energetically fulgurated for about fifteen minutes with one and two-minute interruptions. The current-conductor was very closely applied and sometimes brought in intimate contact with the parts. By the end of the time the entire field looked pretty well cooked, shrunken, and dry. While the act of fulguration lasted the wound had copious sponging with salt solution and was finally dressed with dry gauze.

No great hopes may be entertained, Czerny thinks, as to fulguration being a means of destroying hiding cancer cells after a bloody radical operation and thereby making recurrence impossible. Fulguration does not go very deep, paralyzing cancer cells more than killing them, so that some of these may resume activity. Fulguration does good in some cases, but may also do harm. Small skin cancers may be directly and successfully destroyed by fulguration. From other remarks made by this distinguished surgeon I conclude that, though he will continue to urge and do early radical operation in every case—to which we all agree—he knows only too well that in the majority of cases the disease is or has become constitutional at the time of the first operation. Consider, for instance, a case like the one I saw some very good photographs of: a man of about 48 has a carcinoma removed from his face, remains well for a year or more, then receives by accident a few clean cuts on his arm quite a distance from his face, they heal by first intention and some weeks thereafter cancer nodules have grown in the cicatrices.

Under the direction of Dr. Zeller chemicals have also been used internally, atoxyl, for instance, for the amelioration or cure of cancer, but without any noteworthy results. The doctor hopes, however, to be more successful with a new chemical compound made and applied by him in a number of cases during this and part of last year. It would not be right and proper to disclose its name or nature here, but this I will say: that he injects the liquid neither into the tumor nor at its periphery, but away from it anywhere deep into the cellular tissue. Being taken up by the blood, it is expected to affect the cancer cells, specifically changing their character by inducing a sort of sclerosis of cell and nucleus which abolishes all further virulent growth.

Dr. Zeller possesses a lot of microscopical specimens which appear to show the sclerotic change very well indeed, and the Heidelberg Research Institute for Cancer will be ready to publish the history and results of its two years' work in October of this year in the *Münchener medizinische Wochenschrift*. In the meanwhile I shall try to obtain some of Dr. Zeller's remedy for use in hospital on my return home in September.

Leonard Weber, M.D.
25 West 46th Street, New York.

HEXAMETHYLENAMINE IN TYPHOID FEVER.

To the Editor of The Medical Record.

Sir—Referring to the letter of Dr. Heberden Beale in your issue of July 25, I call attention to the fact that I reported October 12, 1907, several cases of typhoid fever treated with formalin with recovery in about two and one-half weeks. Since then, finding the solution of formaldehyde in water rejected by so many stomachs, I have been using hexamethylenamine with good results. The duration of the cases is three or four days longer than it is in those cases which bear formalin well. I am glad to note, from Dr. Beale's letter, that others are employing this drug, which, in my limited experience of about half-a-dozen cases, has appeared to shorten the disease by one or two weeks; it keeps the temperature in check, about 103°; prevents diarrhea and distention; seems to prevent delirium, and keeps the patient comfortable. The use of this drug with regular, at least daily, high irrigation will, I believe, reduce the average duration of typhoid fever to two weeks. Its use must be begun early in the disease. I shall be glad if you will publish this brief statement because I do not think the profession sufficiently alive to the value of the drug.

W. G. Christian, M.D.
Gordonsville, Va.

OUR LONDON LETTER.

(From Our Special Correspondent.)

OFFICIAL SCIENTIFIC RESEARCHES—THE TWO SANITARY CONGRESSES—MEDICAL INSPECTION OF SCHOOLS—ANTHRAX TUBERCULOSIS AND MILK—HOUSE FLIES—INFANT MORTALITY—VISIT OF FRENCH PHYSICIANS—MR. T. BRYANT—OBITUARY.

London, July 24, 1908.

The following researches have been authorized in connection with the parliamentary vote in aid of scientific investigations concerning disease: 1. Further inquiry by Dr. Gordon as to microorganisms found in the throats of scarlatina patients. 2. Protracted and recurrent diphtheria by Dr. Theodore Thompson and Dr. C. J. Thomas; the bacteriological part by the Lister Institute. 3. Recurrent enteric fever by Dr. Thompson, with Dr. Hedingham of the Lister Institute. 4. Investigations by Dr. Savage on paratyphoid bacilli in man, streptococci in goats, and bacteriological measurement of pollution in milk. 5. Professor Delépine's research on 7,000 samples of milk. 6. Drs. Copeman and Nuttall's on flies as carriers of disease. 7. Drs. Farrar and Nuttall's on bacteriology of bedding, especially as to vermin. 8. A statistical inquiry into the social incidence of disease is to be begun, the first subjects being varicose veins and hernia, which will be undertaken by Dr. Basil Cook.

Further investigations are promised for this year.

In continuation of what I reported last week as to the Royal Sanitary Institute, I may notice briefly one or two of the discussions. Dr. M. Richards opened that on medical inspection in schools—a subject which has been very much to the fore ever since the act was passed. He deprecated the attempt to establish uniformity of method as at this early stage likely to check progress. Dr. Boobbyer of Nottingham objected to lessening the responsibilities of parents by the indiscriminate provision of crèches, play centers, and so on. He was supported by Dr. Utting of Liverpool, who asked what was to become of parental responsibility when children were brought into the world, vaccinated, clothed, fed, educated, and taught a trade at the public expense. Socialization was being carried to an extreme in regard to children, and parental control and consideration reduced to nothing. Dr. Manley regretted that some authorities believed in sanitation by handbills, which only served to light the fire or the father's pipe. He thought the time for school clinics would come, but not yet.

Dr. Berry wanted nurses appointed to visit parents and see that the recommendations of medical inspectors were carried out.

Dr. T. G. Lyon, in a paper on pure air for indoor workers, proposed to make employers liable for damages to health caused by bad air in factories, etc. Compensation should be extended beyond the few cases in which it was legally obtainable. Professor Kenwood

thereupon remarked that employers were not always to blame, for factory girls were very strongly prejudiced against fresh air.

The subject of cremation came up in another section and great differences of view were expressed.

The next day the congress returned to the subject of schools. Dr. Rose insisted that at least one or two cleansing baths per week should be given. Spray baths he thought most suitable, as with an installation of 50 sprays a whole class could be thoroughly washed in 25 minutes. An initial expenditure of at least £250,000 was required and the maintenance would only run to £60,000 a year. What would the advocates of parental responsibility say to this, and what would the overburdened rate-payers think of it? At the next congress I mean to propose that each child be presented with a stick of chocolate on arrival at school.

On the last day Dr. Eurich of Bradford contributed a paper on the control of anthrax. From over 600 examinations he was satisfied that dust from the soil was an important factor in disseminating the disease among men. But dust free from blood sank into insignificance compared with possibilities that lay in a blood-stained fleece. Yet the importance of blood did not seem recognized. Disinfection must be so applied as to penetrate every part of a bale and operatives should be taught to recognize the appearance of dried blood upon variously colored raw material. Dr. Coutts said there was a great deal more anthrax in man than got reported, and Dr. Eurich agreed with him.

Dr. Edwards read a paper urging the fusion of the Public Health and the Poor Law Services, and Dr. Thomas one on crèches, in which he attributed the high infantile mortality of industrial centres to artificial feeding.

A discussion on cows and tuberculosis, in which veterinary authorities took a prominent part, was initiated by Professor Penberthy, who considered it a national disgrace that meat was not subjected to inspection so as to prevent the traffic in diseased meat. If the money spent in gin and beer were given for pure milk less would be heard of physical deterioration. Not a little of the blame laid on the cow was properly the result of the improvidence and neglect of the home and of predisposed children. Mr. Brittlebank said it was calculated that 1,000,000 dairy cows in the country were tuberculous and that 2 per cent. of them gave tuberculous milk. Dr. Cameron held that every cow which reacted to tuberculin should be kept under special observation and examined once a fortnight. Mr. Steele pleaded for a tuberculin test of uniform strength. Mr. Willett insisted on a more efficient straining of milk. A resolution was passed to the effect that any contemplated legislation ought to be general and uniform and that increased powers should be given to veterinary surgeons

Another organization—the Royal Institute of Public Health—has held its annual congress. This was at Buxton, the spa so noted for rheumatism and at which great improvements have recently been made. The Duke of Devonshire is president this year and delivered an interesting address on a variety of subjects connected with the public health. Among them he expressed the opinion that the congress would tend to show that there need be no conflict between medical experts and agriculturists with regard to tuberculosis. Those in contact with the horrors of consumption, he said, thought that agriculturists were rather slow in taking advantage of their opportunities, but by spreading information and considering their position and feelings, the experts might gain their active support. He held that thorough examination should be made into the conditions in which milk was produced, but when this had been done the farmer should not be harassed any further. All those connected with agricultural pursuits recognized the necessity of a pure milk supply and were anxious to carry out suggestions.

Sir J. Crichton-Browne, who presided in the Preventive Medicine Section, occupied his address with two protests, one against the campaign going on in some quarters against overfeeding and the other against excessive devotion to athletics. He disputed the statement lately circulated than not more than half the proteids consumed were necessary. A mixed diet contributed to the success of the race. The culture of the Greeks and the courage of the Spartans were nourished on a diet into which flesh entered liberally. In every newspaper strenuous physical exercise was extolled. No doubt it conduced to immediate marked muscular development. But how many athletes reached a green old age, and how many who had undergone severe training and made records succumbed prematurely to heart troubles? He feared the breaking of records sometimes ended in breaking of hearts. Muscular energy was not the same as constitutional vigor.

These views were endorsed by Professor Oliver of Newcastle and Professor Ross of Liverpool.

The next day a discussion was opened by Dr. Gordon Hewlett on bacilli carriers. He spoke of the house fly's part in the spread of summer diarrhea and enteric diseases and said the deposit of waste products in the vicinity of houses should be strictly prohibited. Dr. Marden then read a paper by Dr. Davies and Professor Walker detailing the history of four personal carriers of typhoid who had communicated the disease to a number of people. Considering they had detected four such occurrences in one city within a few months, they argued that this might be a more common source of typhoid than hitherto supposed. Mr. Jacob of Liverpool suggested that flies were active agents in spreading phthisis, anthrax and ophthalmia, as well as diarrhea and typhoid. Of all carriers he thought flies the worst and rats the next. Professor Hay said the personal carrying of bacilli emphasized the necessity of thorough cleanliness. Sir Crichton-Browne said as many as 100,000 bacilli had been found on a single fly and referred to American researches showing the conveyance of diseases by these pests. He hoped they might be exterminated and they might have to take their grandchildren to the British Museum to show them a specimen of the extinct fly.

A paper on the smoke nuisance by Dr. Graham followed. He spoke of a firm who were saving £25,000 a year by consuming their smoke, and said this was the most curable of our national evils and could be got rid of in twelve months.

Another subject discussed was the spread of tuberculosis, on which Dr. Gregg of Belfast advocated a national scheme for testing all cattle with tuberculin. He said the kingdom might thus be freed from the disease in three years at a cost of less than £3,500,000. Dr. Brennan de Vine favored the slaughtering of all infected cattle and calculated the cost at £99,000 for the first year and a constantly decreasing amount afterwards.

This subject came on again yesterday, the concluding day, when Dr. A. M. Fraser advocated the issuing of an order under the diseases of animals act requiring compulsory notification of tuberculosis in animals and the destruction of the affected beasts, whether with or without compensation.

Mr. Sadler admitted the distribution of milk needed improvement, but he declared that tuberculosis declined with increased consumption of milk. If people would drink four times as much milk the disease would diminish in proportion.

Sir C. Cameron urged compulsory notification of the disease.

Professor Penberthy, president of the Veterinary Section, also spoke on this subject and submitted that a marked decline in tubercle bacilli in milk had occurred, and quoted the Local Government Board in support of his contention that the disease had decreased in Great Britain proportionately more rapidly than in any other country.

Dr. Marsden deprecated exaggerated statements about the disease among cattle. He himself dealt with from 200,000 to 250,000 carcases a year, and, although his district had the reputation of the severest inspection in England, they did not confiscate as unfit for food more than 200 cattle per annum.

Another allied discussion was on infantile mortality, in which Mr. Shelmandine said that 15,000 children in Liverpool had been supplied with immunized milk, their death rate falling one-half. Dr. Mackenzie attributed much mortality to the practice of taking infants into crowded public houses reeking with tobacco and alcohol. Dr. Broadbent commented on the dense ignorance of mothers as a cause of death to their offspring.

We have been celebrating the *entente cordiale* by entertaining a number of French physicians who have been over to see the exhibition and our hospitals. Most of the great hospitals have been visited by them. Old Bart's was specially honored, the new out-patient department and its training school attracting great attention. A demonstration of specimens in the museum was also appreciated. Of course, we had to wind up with a dinner, which we gave at the Hotel Cecil. About 170 sat down to the banquet, about seventy of them French, and the toasts were, as you may suppose, highly applauded.

Mr. Thomas Bryant, who was President of the Royal College of Surgeons during three successful years, Surgeon to Guy's Hospital for a long period, Sergeant Surgeon to Queen Victoria, etc., has received from the

College Council a very complimentary letter, congratulating him on the attainment of his eightieth year. You probably know his Manual of Surgery and may be aware that he was a most able and popular teacher. He now is Surgeon in Ordinary to the King, has held many high posts and received various honorary diplomas from universities and academies.

A notable character passed away on the 15th inst. in Francis Mead Corner, J.P. He took the College and Hall diplomas in 1854-5. He was a London Hospital student, where he became house surgeon. Then he became resident medical officer to the Dreadnought hospital ship. Then he was surgeon (and eventually consulting surgeon) to the Poplar Hospital and Medical Officer of Health to that district. Among other appointments he was surgeon to the Home for Asiatics and at one time on R. N. reserve and to H.M.S. Brilliant. He was well known and esteemed as a practitioner throughout the East End of London, had been President of the Hunterian Society and was made a magistrate for the County of London. He died of pneumonia, aged 75, and was buried on Monday.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

ATTITUDE OF THE LEGISLATURE TOWARD HEALTH MATTERS—SEGREGATING LEPERS—ARTESIAN WELLS—THE CHOLERA SITUATION—MANILA'S WATER SUPPLY—CLOSURE OF THE OPIUM HOSPITAL.

MANILA, P. I., June 27, 1908.

THE first Philippine legislature formally adjourned June 19. The action of this body, particularly with regard to its attitude toward sanitary work which is being carried on in the Philippines was watched with considerable interest and with certain apprehension in some quarters. It was generally understood that large reductions would be made in the amounts allowed for carrying on health and medical work. It is therefore agreeable to note that the appropriation for the Bureau of Health for the coming year was actually increased over that which has heretofore been allowed. There was, however, a desire on the part of the Assembly to abolish the Civil Hospital, which is maintained by the Government for the care of its civilian employees, but the opposition to this was not sufficiently strong to prevent the appropriation for this institution being made. The present hospital facilities are none too adequate in Manila, and if the Civil Hospital should have been discontinued, the American and foreign element would have had considerable difficulty in finding proper accommodations.

The work of segregating the lepers in the Philippine Islands, which is at the present time requiring large sums of money, received substantial recognition, the plans formulated by the Bureau of Health some years ago received informal approval, and the funds necessary to carry them out during the coming year were allowed.

In addition to the ordinary and regular appropriations for the Bureau of Health, the sum of $75,000 was allotted for the purpose of boring artesian wells throughout the archipelago. The necessity for these life-saving water supplies has now been fully recognized by the native population, and it is believed that when the number of wells for which there is already money available have been installed, a material reduction in the death rate may be expected. It will perhaps be remembered that in certain towns in Pampanga province after the introduction of artesian water the death rate dropped from 40 to 20 per thousand. There is apparently no reason why results as good as that should not be expected in many other towns of the Philippines.

The cholera situation in the province of Capiz shows some improvement during the past week. There have been since January 1 a total of 668 cases and 504 deaths reported from that province. In the province of Pangasinan the situation is not so encouraging, and it became necessary for the Insular Bureau of Health to take direct charge of the situation. For this purpose seven medical inspectors were sent to Pangasinan, and in those towns in which they are working the results are already beginning to become apparent. The infection, however, had already become so widespread that considerable time must elapse before the eradication of the disease can be reasonably expected. To add to the difficulty, many of the towns are afflicted with great swarms of flies, which are believed to be largely responsible for the spread of the disease.

In the town of Bayambang, at which place Camp Gregg, a United States Army post, is located, the soldiers of the command contracted the disease, and during the past few days two American lieutenants have been stricken. These are the first two white people who have been affected during the present outbreak. The military authorities at Camp Gregg have quarantined against the outside, and there is no reason to expect that there will be any further spread of the disease among the soldiers or officers. The total number of cases reported in Pangasinan since January 1 is 2,516, with 1,652 deaths.

The new water supply for the city of Manila, which was supposed to have become available for use July 1, 1908, is, unfortunately, not yet ready. Owing to a cloudburst which occurred in the vicinity of the dam, much of the preliminary work was washed away and with the early onset of the rainy season it is impossible to do much toward replacing it. Consequently, it is not expected now that the water from an uninhabited watershed will be ready for use until August 15.

The question of the improved water supply for the city of Manila is of the utmost importance. In view of the presence of cholera in the Philippine Islands there is a constant danger that the present shed, which is inhabited by over 10,000 persons, may become infected; and if the cholera spirilla should find their way into the city water mains, a disaster of tremendous proportions would, no doubt, be the result.

The opium hospital, which was recently started by the government at Cebu for the treatment of opium habitués, was discontinued after having been open for about a month. The patients were so refractory, and the general population was so out of sympathy with the movement, that good results could not be expected by this voluntary method. It has now been decided to permit the law to take its course by fining and imprisoning those habitués who are detected with opium or cocaine in their possession.

OUR LETTER FROM COPENHAGEN.

(From Our Special Correspondent.)

RECOVERY FROM DETACHMENT OF THE RETINA—ENZYME REACTIONS IN COW'S MILK—INFECTION IN CLOTHING OF THE TUBERCULOUS.

AT a meeting of the Swedish Medical Society Professor T. Widmark reported a case of recovery from detachment of both retinæ. The patient had for about six weeks suffered from repeated attacks of general illfeeling, fever, exophthalmus, and considerable decrease of visual power. On examination she presented moderate exophthalmus and chemosis, together with a detachment of the retina on both sides. Two years earlier the patient had been treated for polypoid degeneration of the mucous membrane of the middle turbinate, accompanied by empyema of the maxillary sinus. A repeated examination showed that she was still suffering from retronasal catarrh. She was therefore again put under treatment for this disease, and after the treatment had been carried out it was found that the exophthalmus and the detachment had entirely subsided.

Before the same society Mr. Chr. Barthel read a paper on the enzymic reactions of cow milk and their importance for the hygienic control of milk. He drew attention to the test, described by the Dane, Professor Storch, by which it is possible to detect whether a milk sample has been heated to 80° C. (pasteurized) or not, as one of the enzymes (the peroxydase) is destroyed at the mentioned temperature. Mr. Barthel had now found that an examination of one of the other normal enzymes might be used for detecting an undue amount of bacteria in the milk. To use the usual bacteriological examination methods was not feasible when a large number of samples had to be examined. But his method was very simple and took, at the utmost, three hours to carry out. If methylene blue (free from formalin) is added to a sample of milk, a decoloration sets in as a result of the action of a reducing enzyme found in the microorganisms of the milk. This decoloration is the more rapid the larger the number of microbes is. Mr. Barthel's method is as follows: To 10 c.c. milk 0.5 c.c. methylene blue solution is added. On the top of the mixture 2 c.c. paraffinum liquidum are poured in order to exclude the air. Place the test tube in a water bath of 40-45° C. and note the time necessary for decoloration. If decoloration occurs within a few minutes the milk contains certainly about 100,000,000 of microbes per c.c. and ought not to be offered for sale. Even in those cases where decoloration only sets in after an hour or so the milk is not fit for food, at least not for infants. Milk in which decoloration occurs in from one to three hours is of second quality. If longer time is required for decoloration, the milk is of good

commercial quality. Milk fresh from the cow requires ten to twelve hours for decoloration. In the following discussion Professor Medin said that he thought that the destruction of the milk enzymes had something to do with the causation of Barlow's disease, which occurred only in artificially fed children. He wished to warn against the buddeization of milk, a method of sterilization originated by the Danish engineer, Budde, in 1900. Budde adds hydrogen peroxide to the milk, thus undoubtedly securing a bactericidal effect. But the enzymes did not seem to tolerate this method of sterilization better than boiling. The only case of Barlow's disease which Professor Medin had observed in his own practice was in a child fed exclusively on "buddeized" milk. Furthermore, of a series of babies fed on "buddeized" milk in the Infants' Hospital of Copenhagen, not fewer than six or eight had Barlow's disease, but recovered in a fortnight, when they were given raw milk. As to the real cause of Barlow's disease, it could not be the destruction of the enzymes alone, as during the years 1886-1896 not a single case of the disease was observed in the Children's Hospital of Stockholm, notwithstanding the fact that at that time nearly all the babies were fed exclusively on boiled milk. Dr. E. Landergren drew attention to the fact that Barlow's disease had only been observed during the last ten years or so. In this period nearly all the milk on the market had been centrifuged and thus separated from the impurities and the leucocytes contained. In this way the milk was deprived of not only the greater part of its enzymes but also of a very important substance, viz., the lecithin, so that the boiled milk now contained far less lecithin than in former days. Perhaps this might contribute to the explanation of those disturbances in the nutrition which were nowadays observed in infants exclusively fed on boiled milk.

In the Pathological Institute of Upsala, Dr. Ragnar Friberger has carried out some investigations in order to solve the question in what degree the clothes of persons suffering from pulmonary tuberculosis represent a danger to his surroundings. The result has been the very gratifying knowledge that those patients who follow the usual hygienic prescriptions concerning expectoration do not seem to infect their clothes, while of course the clothes of those patients who either from personal habits or on account of the disease itself show a pronounced want of cleanliness represent a real danger to the community.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 30, 1908.

Osteosarcoma of the Knee-Joint.—Edville Gerhardt Abbott and Dr. Thomas Jayne Burrange deal with a single variety of osteosarcoma, involving a single anatomica, structure, namely, the knee-joint, and give the results of radical operative measures in a series of fifteen cases Central sarcoma of the knee-joint closely resembles tuberculous arthritis, and the only reliable guide in discriminating between these two conditions is careful, well-directed treatment. Under fixation, traction and protection the symptoms of tuberculosis in a short time subside, while under the same treatment the symptoms of sarcoma continue to increase in severity. From their experience they conclude that a radical measure, such as an amputation, for the central variety of sarcoma of the knee-joint is advised for the following reasons: 1. Early and high amputation gives the largest percentage of recoveries without recurrence. 2. Treatment by the use of toxins, which seems to be a useful adjunct, but alone, according to present statistics, gives only 15 per cent. of cures in all varieties, cannot be entirely depended upon. 3. Immediate death following operation seldom occurs if the previous condition of the patient is fair. 4. Resection is of doubtful benefit, and, in cases where there is so much at stake, should not be attempted.

The Abuse of Alcohol in the Treatment of Children's Disease.—Charles W. Townsend believes that a halt should be called in the indiscriminate use of alcohol if we are to believe that it acts as a narcotic and depressant. The point he makes in his paper is that certain partially psychotherapeutic actions of alcohol, which may have an immediately good effect in adults, are largely absent in infants and children. Most adults have a firm belief in the stimulating action of alcohol; but this is absent in infants and children. Alcohol in the adult may make him forget his worries for the time being. Children, on the contrary, live in the present, and, if they are comfortable, do not fret about past sufferings, nor do they anticipate troubles to come. To many adults alcohol is pleasing to the taste, while alcoholic drinks are generally distasteful to children. In many adults the use of alcohol has become a habit; in children this is rare. The most important factors that make towards the recovery of the infant in diarrheal diseases are, first, a cleansed and unirritated gastrointestinal tract, and, secondly, a bland and unirritating food that can be assimilated. The use of alcohol sometimes makes the difference between a quiet and an irritated stomach. He is convinced that children with acute lobar pneumonia would do far better with no alcohol at all, and his observations in a large number of cases of this disease would bear out the theory that the action of the alcohol in any considerable amount is a depressant.

New York Medical Journal, August 1, 1908.

A Method for Preventing Infection from the Skin During Surgical Operations.—J. Shelton Horseley says that it is the practice of many surgeons to use but one knife for incising the skin, and then to lay this knife aside and complete the operation with other instruments. But it must be recognized that if the knife is infected the edges of the incised skin are also infected. In order to obviate this he has adopted the following procedure: After making the incision in the skin and subcutaneous tissue, the knife is laid aside and not used further. Then a towel, folded in the middle so as to give a double thickness, is tucked about the edges of the skin and held in position by small tenacula. It is important that the towel should be well folded over the skin edges. Small safety pins may be used instead of tenacula.

Syphilis Communicated by Assault and Battery.—Harry G. Watson is sure that the number of cases of syphilis of nonvenereal origin would be much larger if all cases were recognized and reported. Most cases of extragenital syphilis are caused by kissing, or, as in the two cases he reports, by assault and battery. This method of producing syphilis by assault and battery is of special interest to the general practitioner, who may be called upon to treat wounds received in a fight. He should bear in mind that such wounds are avenues of infection from syphilis, and at the time he should inquire about the general condition and appearance of the other party. Both of the cases he reports were infected from mucous patches, being bitten by their antagonist in assault and battery.

The Solvent Action of the Sulphocyanates Upon the Lime and Magnesium Deposits in the System.—William Bentley and Bernard R. LeRoy noticed that when the saliva was normal the basic salt was one of potassium and ammonium sulphocyanates in small and about equal amounts, but that in all cases of departure from the line of health there were deposits of more or less of the lime salts in and around the teeth. This condition could, in a measure, be remedied by the administered medicinal dose of sodium sulphocyanate; this fact led him to use it in cases of arteriosclerosis in small doses, giving prompt and rapid relief to the patient, and in time producing an improved condition which he attributed to the direct action of the sulphocyanate upon the deposited salts of lime. This led to experiments in the laboratory and an exhaustive study of the question of the solvency of lime and magnesium calculi. They find that in arteriosclerosis, or in fact in all cases where there is a high blood-pressure, sodium sulphocyanate acted as by a miracle. From arteriosclerosis to renal calculi is not a far jump. The inhabitants in their section of the country suffer very much from calcareous deposits, and renal calculi are common. The analysis of one renal calculus showed it to be composed of calcium carbonate, 60 per cent.; calcium phosphate, 25 per cent., and magnesium, 15 per cent., and free from other contamination. It was with a piece of this stone that they commenced a study of the solvent action of the sulphocyanates. As a result of their studies they announce that they had in this drug a remedy which will not only slowly dissolve the already formed stone, but will prevent the formation of the calculi, or other deposits, in the system when the sulphocyanates are present in sufficient quantities. They advised against giving the sulphocyanates for any length of time without carefully watching the patient and making repeated measurements of the blood-pressure. Large doses of the drug are not called for.

Journal of the American Medical Association, August 1, 1908.

Otosclerosis.—W. S. Bryant describes the pathology, treatment, etc., of middle-ear sclerosis or atrophic middle-ear catarrh. There has been considerable confusion in regard to the disorder, but in reality the condition is a very simple one and includes not only the "dry catarrhal" but also the suppurative process. Its symptomatic importance varies with its location, the most harmful being in the neighborhood of the foot-plate of the stapes, while it is most readily diagnosticated when the pathologic process is in plain

sight in the drum membrane. It begins as a circulatory disturbance in the mucosa and is irregular in course in its incipiency. There may be initial anemia or hyperemia with fibrosis: contraction of the vessels causes anemia and this causes sclerosis. The mucosa is first affected, next the submucous or periosteal layer, where the changes are the same, except that the deposits of lime salts is greater and takes the form of exostoses. The etiology is varied; the most important cause is circulatory changes following reduced patency of the Eustachian tube. In most cases the diagnosis is made readily by inspection of the drum membrane. Any changes in it, other than those due to acute inflammation or loss of continuity, indicate sclerosis. In the insidious form with normal drum membrane, the diagnosis is made by the functional tests which indicate impairment of hearing mechanism not accounted for except by reduced stapes mobility. Treatment is directed to the correction of the systemic causes of the disturbance of the blood supply by general hygiene, tonics, rest and relief of nervous disturbances; to putting the nasopharynx into as perfect order as possible; to any local tympanic or tubal causes, and to stimulation of normal nutrition and absorption of abnormal tissue. The restoration of function to the various parts of the auditory apparatus must also be sought by massage, inflation, etc., which are useful, if employed with caution, to restore normal mobility to the parts. Without treatment the tendency is to irregularly increasing loss of hearing. The prognosis with treatment is favorable inversely with the advance and importance of the location of the sclerotic process. It is worst when the foot-plate of the stapes is involved and best when the drum membrane is chiefly affected. It is good for arrest of the process and for improvement except in the very advanced cases. In Bryant's experience, 90 per cent. of the patients in advanced stages have improved, and 100 per cent. in less advanced stages.

Aneurysm of the Heart.—J. B. McElroy gives a detailed history of a case of aneurysm of the cardiac wall, with autopsy. He concludes from his study of the literature and his observation in this case, that the most frequent cause is probably myocardial fibrosis resulting from interference with the circulation in the coronary arteries, which were sclerotic and had their orifices contracted in his patient. This, he says, also explains the most frequent seat of the aneurysm, which is in the apical third of the left ventricle and most frequently on the anterior surface. The death of his patient was due to cardiac insufficiency from myocarditis. There was also, in his case, very extensive mediastinopericarditis, clearly recent in all parts except over the aneurysm, indicating its secondary character. The aneurysm was five inches in lateral width and three in depth and its communication with the left ventrical was marked by a well defined fibrous ring, two inches in diameter. The diagnosis was made ante mortem.

Chronic Pancreatitis.—J. B. Deaver says the most frequent form is the interlobular, and that it is this with which we have to deal in the pancreatitis complicating disease of the biliary passages. The interacinar form is due to systemic conditions not yet understood, and is correspondingly less amenable to direct or local attack. The most frequent cause is doubtless some obstruction to the free discharge of the pancreatic secretion, accompanied or not with an ascending infection. Either factor alone is enough to produce it. Many other causes of chronic pancreatitis have been claimed, cardiorenal disease, tuberculosis, syphilis, etc., and Deaver thinks that microscopic examination would reveal many cases of beginning change in normal appearing organs. The local symptoms are not very significant and may be practically absent; the examination of the feces is sometimes inconclusive and demands skill not always easy to command. The symptoms depending on the derangements of metabolism, due to interference with the internal secretion of the pancreas, are most distinctive. Diabetes is often too late a symptom to be of practical value, but the Cammidge reaction is a fairly constant sign of pancreatic disease. Medical treatment is generally futile, but by surgery we can in many cases remove the underlying cause, overcome the infection, and bring about complete recovery. When secondary to gallstone disease, removal of the calculi and free drainage will, in most cases, lead to a complete subsidence of pancreatic symptoms. When the gallducts are found clear, and the causal infection has subsided, drainage of the organ by way of the biliary passages nevertheless exerts a remarkable curative effect on the lesion, especially when the diagnosis and operation are made early, before the so-called catarrhal pancreatitis has really become a chronic interstitial interacinar lesion. Moderate anemia and glycosuria are not contraindications, as both are often greatly benefited when normal metabolism is restored.

The Respiratory Murmur.—H. D. Arnold criticises the modern teachings as to physical signs in the text-books, as failing to discriminate between unfounded theories and established facts and ignoring the physical laws on which their explanation should be based. There are, it is true, many points that we cannot thus solve at present, but we can be more truly scientific and less traditional in our ideas. To illustrate his views, he takes up the subject of the respiratory murmur, in regard to which there are contradictory opinions as to the reason why there should be two types of breathing sounds, a question that can be solved by physical experiments more easily than physiologists can investigate the digestive processes. The respiratory murmur with its modifications, he shows, is rationably explainable according to the laws of physics by recognizing it as originating at two points, the glottis and the point where the minute bronchus opens into the air sac. From these its transmission depends on the structures and passages through which the vibrations are conducted, and with a knowledge of the physical laws of sound conduction and of the structural and gross anatomy, one obtains an understanding of the complex combinations of sounds in health and readily translates the variations that come with disease into terms of changes in the texture of the lung tissue. This is the real aim of auscultation of the respiratory murmur—to learn the texture of the lung tissue. Arnold gives his explanation in detail of the physical mechanism of the different changes in the respiratory sounds, and while he does not claim that it is necessarily correct, as it has not been experimentally demonstrated to be so, it is consistent with the laws of physics and offers an intelligent basis from which to carry out further investigations which shall confirm or disprove it.

Remissions in Pernicious Anemia.—W. L. Bierring reports three cases of pernicious anemia with remissions, with tabulated blood-counts. In one case the improvement followed the removal of the patient from the county farm to the hospital, where the better hygienic and dietary conditions were undoubtedly a strong factor. In several cases observed, out of a total of twenty-five in the last two and a half years, in which fermentative changes in the intestines were a prominent symptom, high colonic irrigations with physiologic salt solution seemed to be connected with remissions or improvement. Though the blood count shows a marked improvement in the remissions, there are still abnormal features indicating that a disturbance in hematogenic function still exists. At best a remission is but a partial cure, and reserve in prognosis and caution in interpreting apparent therapeutic results are always advisable. Bierring considers that the view that the disease is an expression of a toxemia—probably enterogenic in origin—is borne out by clinical studies and experimental observations, so that care of the digestive tract is a special factor in all cases. The recent work of Herter attributing etiologic significance to specific fermentations is very suggestive, and it will be of interest to learn further of his series of cases in which the treatment consisted in the removal of the *Bacillus aërogenes capsulatus* from the intestine by colonic irrigation.

Pellagra.—R. H. Bellamy finds from inquiries among farmers that decomposed corn, picked before it has matured, is considered a cause of disease in animals (except swine) and in man, and in his section some farmers will not eat corn meal or grits away from home for fear of its being made of such damaged corn. He reports ten cases of pellagra occurring in his practice, and says he has knowledge of half a dozen more in his neighborhood. There is little doubt, he says, that the disease has occurred there for many years, as a careful inquiry among physicians brings to light many unrecognized cases. Three of the cases reported were of the chronic type, one died; seven were acute, all fatal, treatment failing. Bellamy has never seen a patient recover from the acute attack, though the more chronic form averages five years' duration and may last much longer.

The Lancet, July 25, 1908.

Intermittent Claudication, or Intermittent Limping, and Obliterative Arteritis, with Illustrative Cases.—Byrom Bramwell says that the group of symptoms included under the term intermittent claudication is due to a temporary ischemia of the affected parts, and the essential clinical characteristics of the condition are absence of symptoms when the parts are at rest, the development of symptoms after exertion, the disappearance of symptoms after rest, and, in most cases, the absence of pulsation in the pedal arteries. In most cases three factors seem to take part in the production of the ischemia, which is the fundamental cause of the condition, viz. vascular obstruction, vasomotor spasm, and increased demand upon the circulation of the part which muscular activity entails. The objects of treatment are to remove the arterial condition on which the defective blood supply depends, to keep

the patient at rest and so prevent the temporary ischemia which is the immediate cause of the symptoms, to prevent vasomotor spasm, and to relieve symptoms.

A Case of Successful Removal of a Stone Weighing Two Pounds.—Owen Richards reports this case because, so far as he knew, the stone was the second largest that has ever been successfully removed, and because an account of the method employed may be of use to some surgeon who meets with a hard stone too big for removal by any of the usual ways. The stone was too large and too hard for lithotrity, and the crushing forceps failed to get a grip through a perineal incision. He cut away the lower part of the stone with an osteotome and mallet through the perineal incision while an assistant made downward pressure through the adominal wall. The stone was hard and had to be chiseled away in blocks small enough to pass through the opening. As this soon ceased to be either easy or safe, a vertical incision was made above the pubes, the peritoneum stripped upwards as far as it would easily go, and the bladder was incised vertically. The outer layer of the stone where it presented was chipped away in blocks, and the softer inner mass was cut out in the same way, till the stone became more or less hollowed. It was then possible to introduce one blade of the forceps into the cavity, and the other between the shell and the bladder wall, and thus to break away some of the stone. After a time the stone as a whole collapsed, and then it was easy to bring pieces of it underneath the wound and crack them with osteotome and forceps. The entire stone must have weighed thirty-two ounces.

British Medical Journal, July 25, 1908.

The Action of Chloroform Administered by Different Channels.—D. Noel Paton and Dorothy E. Lindsay attempt to throw light upon the etiology of late poisoning, a well recognized danger in the administration of chloroform as an anesthetic, by a study of the changes produced in the protein metabolism of the body, with more special reference to the interference with the hepatic metabolism. Such an interference is indicated by disturbances in the distribution of the waste nitrogen excreted in the urine, and chiefly by a decreased conversion of ammonia into urea. Hence the proportions of these two constituents have been more specially studied. Chloroform by inhalation seemed to indicate a stimulation of hepatic metabolism rather than a depression. Protein was present in the urine in appreciable amount in only one experiment. Apparently in the dog (dogs were used throughout the investigation) the disturbances in the hepatic metabolism produced by the inhalation of chloroform are very trifling, and the kidneys are little affected. Chloroform in oil was administered by the stomach in two instances with a distinct increase in the total nitrogen excreted; in both there was a distinct fall in the nitrogen in urea, a rise in the nitrogen in ammonia and in uric acid, with no marked change in the proportion of nitrogen in creatinin. Hypodermically there was no marked rise in the total nitrogen excretion noted. The difference between the effects of the administration of chloroform by inhalation on the one hand, and by the stomach or hypodermically on the other, is not due to difference in dose, but to its rapid elimination after inhalation, and to its slow elimination after the latter modes of administration.

The Administration of Ether by the Open Method.—G. H. Colt had made an inhaler so arranged as to allow inspiration through the inhaler, but to direct the expiration into the air without passing back through the inhaler. There seems to be no doubt that there is, on the whole, less cyanosis, less secretion of mucus, and less oozing of the tissue by this method, but the anesthesia almost always tends to become light. Perhaps this can be obviated by using an inhaler which presents a greater evaporating surface for the ether. At no time, however, is the oozing of blood less than with anesthesia maintained with chloroform. The administration of ether by the open method seems to have its uses in a small number of cases, chiefly in very anemic patients, for short operations, and in those who readily become cyanosed.

Rectal Drainage in Cases of Pelvic Abscess Due to Appendicitis.—Bilton Pollard says that in dealing with a well localized appendix abscess in any situation it is unwise to do more than is absolutely necessary for the efficient evacuation and drainage of the abscess. The appendix should not be removed at the time the abscess is drained. Holding this view, he is very averse from removal of the appendix in the original operation for pelvic abscess when this is done through the abdominal incision; and so he is not deterred from using the rectal route on account of the impossibility of removing the appendix through it. Surgeons would be wise in using the vaginal or rectal route in females and the rectal route in males for the evacuation of large appendix abscesses which are apparently confined to the pelvic cavity.

A Case of Aphasia During Whooping-Cough.—J. S. Sewell reports the case of a boy, six years old, who had a severe attack of whooping cough with commencing bronchopneumonia. He became unconscious three days after admission to the hospital, and remained so for three weeks. The child was unable during this time to utter a word. There was also paresis of the right upper extremity. The complete aphasia continued for another fortnight (five weeks in all), when he began to make inarticulate noises and to say a few simple words. The aphasia and paresis disappeared. This seemed to be due to a hemorrhage in the neighborhood of Broca's convolution and the arm area, occurring during one of the paroxysms of coughing.

Berliner klinische Wochenschrift, July 20, 1908.

Gangrene of the Skin in Scarlet Fever.—Heubner reports a case of scarlet fever which was followed by a severe adenitis and arthritis. The latter was complicated by a remarkable eruption appearing on the skin overlying the affected joints. This eruption quickly progressed and was soon transformed into an ugly dark-colored raised spot of gangrene. No parasites of any type could be found that would account for the eruption. The lesion continued for about three weeks and gave place to a granulating wound which gradually closed up. The case is interesting, being almost unique, a picture of gangrene following scarlet fever in a syphilitic child being given in Pfaundler-Schlossmann's Handbook of Children's Diseases. The author's case was probably caused by vasomotor disturbances in the skin and not by a bacterial infection. Embolic causation of the lesion could not be considered.

Antitryptic Power of Blood-serum in Cancer.—Brieger and Trebing have continued their investigations in this field and have examined fifty-five cases of cancer with reference to the inhibitive action of the blood-serum upon tryptic digestion. In the great majority of cases the inhibitive phenomenon was greatly increased. Several patients with suspected malignant disease showed the same phenomenon, and its existence in the case of most sera obtained from patients suffering from chronic diseases proved that it accompanies cachexia due to any long continued drain upon the organism. The test may be of use in differential diagnosis of cancer, the cachexia in that disease being expressed by the increase in the antitryptic power of the serum early in the course of the affection. The administration of pancreatin to the patients suffering from cancer led to a remarkable fall in the antitryptic power, the cause of this not being apparent as yet.

Deutsche medizinische Wochenschrift, July 16, 1908.

Injuries Caused by Electricity and Lightning.—Pfahl has examined a number of cases of electric shock and of injury by lightning, following the condition of the patients for long periods of time. In every case loss of consciousness for longer or shorter period was the immediate consequence of the accident. Organic lesions could be demonstrated in every case with one exception. Quite frequent were burns of various degrees of severity; several patients showed scars on the top of the skull and on the soles of the feet, sites which were quite characteristic of injury from lightning; other patients gave symptoms and signs of neuritis; a number showed lesion of the eye grounds, consisting of hemorrhages and partial separation of the retina. The majority of the patients showed nervous or hysterical phenomena in consequence of the accidents. The author urges than an examination of the eyes be made as soon as possible in all accidents involving injury by electric current so that the organic lesions caused may not be overlooked with regard to any future medical or judicial questions arising from the occurrence.

Marmorek's Serum.—Glaessner says that this serum has proved completely harmless with proper dosage in all cases he has observed. A few patients were so improved by the administration of the serum in the absence of any other treatment that a certain curative effect of the serum cannot be denied. Its use has also hastened the good effect of other methods of treatment when combined with them. Several cases proved to be refractive to the influence of the serum. Kohler, on the other hand, writing in the same weekly, has seen no encouraging results after using the serum in sixty cases of tuberculosis. While some patients were improved, this result was so irregular that its dependence upon the serum could not be postulated.

Trypsin and Amylopsin in Cancer and Tuberculosis. Pinkuss says that the subcutaneous injection of these pancreatic ferments has proved to be quite harmless in the many instances in which he has used them. On the other hand, he has never observed any improvement in patients suffering from malignant disease and treated by these ferments. Incidentally, he used the ferments in two cases of extensive tuberculous disease of the neck, and attained surprisingly favorable results. The tuberculous lesions were promptly stopped in their progress and great improvement in the local and general condition of the patients followed.

Book Reviews.

Medical Lectures and Aphorisms. By Samuel Gee, M.D., Fellow of the Royal College of Physicians, Honorary Physician to H. R. H. The Prince of Wales, and consulting Physician to St. Bartholomew's Hospital. London: Henry Frowde, and Hodder and Stoughton, 1908.

The present volume is by a veteran physician, observer, and writer, and is an interesting and valuable addition to our present books on Practice. The lectures, which are eminently readable, are on the following subjects: The history of a case of cerebral hemorrhage; the meaning of the words coma and apoplexy; large heads in children; aphasia; the meaning of the word delirium; nervous atrophy; spinal myalgia; the causes and forms of bronchitis; the nature of pulmonary emphysema; the nature of asthma; enlarged spleen in children; tuberculous peritonitis; the signs of acute peritoneal diseases; sects in medicine (dogmatic, methodic, homeopathic, pharmacological, empirical, and expectant). These lectures are followed by some sixty pages of Aphorisms, collected by Dr. Thomas J. Horder; our limited space prevents the giving of extracts, much as we are tempted to do so. In an appendix are two historical papers on the conflict of medicine with smallpox, and Abraham Cowley and his Philosophical College. The volume is small but scholarly, and cannot fail to stimulate thought; it is inviting in appearance, improves on acquaintance, and is laid down with regret, only to be taken up again for further enjoyment.

Rotunda Midwifery for Nurses and Midwives. By G. T. Wrench, M.D., Late Assistant Master Rotunda Hospital. With Introduction by The Master of the Rotunda Hospital. London: Henry Frowde, and Hodder and Stoughton, 1908.

As stated in the title, this book is for midwives and nurses; and after a very careful perusal of its pages, we can say that it admirably fulfils its purpose. Most of the books intended for nurses contain much that can never legitimately enter into the province of a nurse's work. This little volume gives all the obstetrical knowledge that they actually need, and then it stops. Again and again in the conditions beyond the nurses' powers and knowledge, the author gives as the method of treatment the advice to "send for the physician." Technical terms are carefully explained as they occur, and numerous illustrations and diagrams make clear the instruction contained in the text. The Rotunda has long enjoyed a most enviable reputation, and this little book by the late Assistant Master is worthy of the source from which it emanates.

Detection of the Common Food Adulterants. By Edwin M. Bruce, Instructor in Chemistry Indiana State Normal School. New York: D. Van Nostrand Company, 1907.

One of the results of the recent agitation of the pure food question has been to awaken the public to the fact that a large amount of our food is or was adulterated. This little volume gives a few simple qualitative tests for all the common food adulterants. It will be useful in the school, and in some cases also in the home.

Personal Hygiene in Tropical and Semitropical Countries. A popular manual, written for the use of foreigners residing in the Philippines, Cuba, and other portions of the tropics. By Isaac Williams Brewer, M.D., Member of the American Society of Tropical Medicine. Philadelphia: F. A. Davis Company, 1908.

This is a small book, slight and sketchy in character, and discussing in a superficial kind of manner almost everything appertaining to hygiene that a dweller in the Tropics is likely to be interested in. There is some sound advice in the volume, and it will doubtless be of service to any one going to the Tropics for the first time.

Lehrbuch der Specifischen Diagnostik und Therapie der Tuberculose. Für Aerzte und Studierende. Von Dr. Bandelier, Dirigierendem Artze der Lungenheilstatte Cottlens, und Dr. Roepke, Dirigierendem Arzte der Eisenbahnheilstätte Melsungen. Mit 18 Temperaturkurven auf 5 lithographischen Tafeln. Würzburg; A Stuber's Verlag (Curt Kabitzsch), 1908.

The growing popularity of the tuberculin treatment is attested by the appearance of this monograph devoted solely to the diagnosis and treatment of tuberculosis by means of this remedy. The first part of the book, the diagnosis by means of tuberculin, considers the choice of the preparation, the dilutions, the technique of injections, the dosage, the reaction, the indications and the contraindications for the use of the remedy with this purpose. The conclusion of the authors is that diagnosis by means of tuberculin aids both prophylaxis and treatment of the disease, and ought to be used both in sanatorial and private practice.

The part of the book treating of the specific therapy by means of tuberculin gives evidence of our changed views in the subject, from the first unbounded enthusiasm, when large doses were indiscriminately used, to the present time when the effect of infinitesimal doses is carefully watched, so that no harmful reaction may take place. The authors are painstaking in the minuteness of the directions given for the use of the remedy, the various preparations of which are described and critically considered. In testimony of the success of the treatment in selected cases they add a number of temperature charts, showing the progress and the permanency of the cures obtained. The book will prove very valuable to all physicians using tuberculin preparations for diagnostic or therapeutic purposes.

Kosmetik. Ein Leitfaden für practische Arzte. Von Dr. Edmund Saalfeld in Berlin. Mit 14 in den Text gedruckten Figuren. Berlin: Verlag von Julius Springer, 1908.

Dr. Saalfeld calls attention to the fact that the legitimate medical field of cosmetics has been in the past monopolized for the most part by charlatans and advertising "specialists." His book in protest of this condition of affairs, is an attempt to teach the general practitioner the therapy of various facial blemishes, disturbances of sweat secretion, diseases of the hair and nails, etc. It is a handy little volume of some one hundred pages and covers a subject which is but badly represented in medical literature of the English language.

Die Lehre von der Intubation, von Prof. Dr. J. von Bókay, Direktor des Stefanie Kinderspital zu Budapest. Mit 113 Abbildungen und 2 Tabellen in Text. Leipzig: Verlag von F. C. W. Vogel, 1908.

In this handsomely printed and well-illustrated monograph, the author traces the development of laryngeal tubage from the initial attempts of Desault in 1803 down to and through the era opened by the epoch-making work of O'Dwyer to whom he renders due praise. He considers incidentally many of the questions which have been discussed in connection with intubation such as its recent modifications, effect of trauma in inserting and removing the tube, the value of intubation in stenosis from causes other than diphtheria, tampon tubes, peroral intubation, etc. Finally follows a bibliography which covers fully 30 large pages. The monograph is without doubt the most complete exposition of the subject which has yet appeared. In fact it is an encyclopedia of the matter and brings together in one publication the essentials of the various valuable papers of the last quarter of a century.

An Index of Treatment. By Various Authors. Edited by Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital and Assistant Physician to the Hospital for Sick Children, Great Ormond Street, and H. Stansfield Collier, F.R.C.S. Surgeon to St. Mary's Hospital; Joint Lecturer on Surgery in St. Mary's Hospital Medical School; Surgeon to the Hospital for Sick Children, Great Ormond Street. Revised to conform with American usage by Warren Coleman, M.D., Professor of Clinical Medicine and Instructor in Therapeutics in Cornell University Medical College; Assistant Visiting Physician to Bellevue Hospital. New York: William Wood and Company, 1908.

The editors of this book have arranged the subjects in alphabetical order so that it is especially adapted to ready reference. In this way the work resembles a small encyclopedia, each article being written by one who is particularly well qualified to handle it. Over seventy authors have contributed to the text, many of them world famous. Among these we note Clifford Allbutt, Byrom Bramwell, Gibson, Lane, Poynton, Schmieden, Bezly Thorne, Samuel West, and other eminent authorities. Surgical matters are dealt with more from the non-operative point of view, ignoring, as seems proper in a work of this kind, the elaborate technical operations only to be done by specialists. Obstetrics is omitted, being better fitted to treatises on that subject alone.

The work is compact and closely printed. Each author has carried out the editors' intention of giving the simplest and most efficient means of treatment now in vogue rather than mentioning each and every procedure which may be employed. As a whole the ideas expressed are conservative and such as are accepted by the most advanced clinicians as safe and effective. In such modern subjects as Bacteriotherapeutics an introduction serves to make the therapeutic methods intelligible and is properly supplied.

About fifty illustrations add to the value of the text while a supplementary index aids the searcher who may use a different nomenclature than that followed in the alphabetical arrangement. The work of the American editor has been chiefly that of adapting the English preparations to the United States Pharmacopeia where this is necessary or possible. It has greatly increased the value of the book to American practitioners.

BRITISH MEDICAL ASSOCIATION.

Seventy-sixth Annual Meeting, Held at Sheffield, July 24-31, 1908.

(Special Report to the Medical Record.)

GENERAL SESSIONS.

This meeting occupied the week. Some councilors and members of the representative meeting foregathered at the end of last week to attend to questions concerning the domestic policy of the Society. The Lord Mayor held a reception for those who arrived on Monday.

Tuesday, July 28—First Day.

On Tuesday morning there was a service in the Parish Church, where the Bishop of Sheffield addressed the members and referred to the so-called Christian Science as one of those fads which are in too much evidence nowadays and are dangerous, inasmuch as they tend to keep the doctor from the sick room. Nearly 200 members, decked out in their academical robes, marched in procession from the Cutlers' Hall to the church. Early in the afternoon a general meeting was held to install Mr. Simeon Snell as President. He is Professor of Ophthalmology at the University of Sheffield, where his active life has been passed, and is also Ophthalmic Surgeon to the Royal Infirmary. Later in the afternoon the members distributed themselves among the various garden parties provided for the occasion. In the evening the Association reassembled in the Firth Hall of the University, uniform or academic dress being general. Here colonial delegates and a number of distinguished foreign guests were introduced to the President.

Then followed the presentation of the Association's prizes. The Stewart prize was awarded to Colonel David Bruce for his researches as to the cause and prevention of Mediterranean fever. The Middlemore prize to Mr. Snell for his contributions to ophthalmology. Honory membership was conferred on the Lord Mayor, the Master Cutler and the Pro-Chancellor of the University.

President's Address.—Mr. Simeon Snell, F.R.C.S. Edin., Ophthalmic Surgeon to the Royal Infirmary, Sheffield, then delivered his address. After thanking his hearers for the great honor which he had received in being made president of the Association, he referred to the two previous meetings in Sheffield. These had not been altogether without incident. At the first meeting, in 1845, the president-elect retired the day before because he was not in accord with the medical politics of the Association. The second meeting, in 1876, was held at short notice in consequence of the abandonment of the meeting, owing to local differences, in another town which had been selected. He then spoke of the changes in Sheffield since 1845, and gave a brief history of the Medical School, now the Medical Faculty of the University. Sheffield, he said, might not inappropriately be called the cradle of the study of industrial diseases. So long ago as 1819, Sir Arnold Knight read a paper before the Medical and Surgical Society in which he called attention to the high mortality from lung diseases among grinders. Dr. Calvert Holland, in 1843, published in book form his observations on the same subject, recommending a ventilating apparatus as a preventive measure. He also investigated the other branches of labor followed in Sheffield, and showed that each had its own special health conditions and rate of mortality, but the one preeminent for its destructiveness to life was fork-grinding. Many others had studied and written upon the industrial diseases of the town. The speaker himself had confined his attention to diseases of the eye, but the field here was more extensive than might be supposed, for Sheffield, being the center of the iron and steel industry, as well as one of the largest coal-producing parts of England, afforded many opportunities for study of eye diseases and accidents in relation to occupation. These might be conveniently grouped under four heads: (1) Diseases due to occupations involving prolonged use or excessive strain of the eyes and their muscles, such as nystagmus in coal miners and in other employments; (2) those due to occupations involving the use of certain poisons, such as dinitrobenzol, met in making explosives, bisulphide of carbon, and others; (3) a consideration of the effects on the eye of occupations involving exposure to excessive light or heat or both, such as burnishers, steel-smelters, electric welders, bottle makers, etc.; (4) injuries or accidents among grinders, iron and steel workers, coal miners, etc.

Mr. Snell confined his remarks to one only of these diseases, namely, nystagmus. This disease, so frequently met with in coal miners, he had shown many years ago to be due chiefly to weariness of the levator muscles induced by the constrained position of the body and eyes which the miner was compelled to assume while engaged in "holing" and certain other forms of work in the mines. He showed that it was not dependent, as some had suggested, upon the indifferent illumination afforded by the safety lamp, for it was found in cases where abundant illumination was afforded by electric lights, and also in occupations above ground necessitating a similar constrained position with overuse of the levator muscles of the eye. One curious and serious result of nystagmus was the inability which it induced in its victims to detect the presence of firedamp. The ordinary method adopted for the detection of this dangerous gas was the reduction of the size of the oil flame of the safety lamp until the luminosity almost disappeared, the firedamp then, if present, appearing as a pale blue flame or "cap" above it. The amount of gas present could be approximately estimated by the appearance and size of this "flame cap." The men responsible for seeing that the pit was free from dangerous quantities of gas were the "deputies" or "firemen." It was their duty to visit the "workings" before the colliers went to their work, and during their working shift, to ascertain how much, if any, gas was present; and throughout their regular day's work they were constantly on the lookout for any indication of firedamp. The speaker had long believed that the apparent dancing of the safety lamp, which is a prominent symptom of miners' nystagmus, would be a hindrance to the delicate detection of the "cap" indicating the presence of gas. An official, to whom he had spoken of this probable effect of nystagmus, undertook to test one of the deputies while going through the mine, and he found the man was unable to detect any but a large amount of gas, producing a long "cap" over the lamp. Mr. Snell then undertook to test practically a number of men suffering from nystagmus, and confirmed the observation of the official, that such men could not detect low percentages of firedamp. He also photographed a safety lamp by means of a camera making 150 half-inch oscillations on either side, and in the resulting pictures the flame of the lamp was so blurred that it was easy to understand why the nystagmic observer would fail to detect a delicate blue "gas cap" above the flame.

In closing, the speaker referred briefly to the advances in medicine and surgery that had been made since the time of the previous meeting of the Association in Sheffield, in 1876, and especially to the progress in ophthalmology. The knowledge of errors of refraction and their causal relation to many nervous conditions was set forth as a notable advance, and yet, he said, it was but a few years since the scoffer was heard deriding such a relation or minimizing its importance. It was no small matter that to millions of sufferers

from recurring headaches a fuller and better understanding of the bearing of ocular conditions as a cause, and a more careful adjustment of their refraction errors of muscle balance, in competent hands, had brought comfort and relief.

Sir H. Swanzy of Dublin moved a vote of thanks to the President for the address, which he said was most interesting and instructive. Sheffield was fortunate in having Mr. Snell among her citizens. He was well known as a high authority on diseases of the eye and as regards nystagmus no one had done so much to improve their understanding of it. His address was of the highest importance and value, not only as showing how nystagmus was caused, but also, what was of more importance to the community at large, how it ought to be prevented.

Professor Fuchs of Vienna seconded the motion, which was carried with applause.

Wednesday, July 29—Second Day.

This was a very crowded day—all the sections began their sittings in the morning and were well attended. In the public health section a question of vital interest to Sheffield was discussed, viz., the smoke abatement. The Lord Mayor, the Medical Officer of Health and other citizens took part in the discussion. Gas for working and heating was dealt with. The practical result obtained in some of the great furnaces was illustrated; in some instances the time that smoke was emitted was reduced to three minutes per hour, instead of from fifteen to fifty. Another speaker condemned gas fires in small houses as a "confounded nuisance" and spoke of the detrimental effect of gas fumes. He did not oppose the abolition of smoke, but the introduction of things that were worse, and added "Let us have a little common sense as well as scientific knowledge." In another section citizens took a part, and Commander Scott, R. N., the Chief Constable, read a carefully prepared paper on the Inebriates Acts, 1879 and 1900, in which he related some of his experiences exemplifying some of the difficulties of administering these acts. The greatest of these was the reluctance of magistrates to break up the home of the inebriate—this being, in Commander Scott's opinion the rock on which the legislation split. The effects were too drastic, the results too small. Drs. Claye Shaw, Wand Cousins and J. Stewart joined in the discussion.

Address in Medicine.—Dr. James Kingston Fowler, Dean of the Medical Faculty of the London University, then delivered this address, taking as his title "Modern Medicine." He wished to protest against the too prevalent impression that the great advances in the healing art had been made by surgery alone, medicine having been more or less standing still. Surgery had but one victory to win; the triumph over sepsis laid at its feet vast territories where the knife was scarcely known, but in some of which the physician had hitherto held a feeble sway. Not so with medicine, which was required to attack separately problems of infinite difficulty presented by each disease and every organ of the body, and found no single light which illumined every dark recess of its ignorance—an ignorance which it shared in common with all the other sciences, and which in our several spheres it was the duty of each one of us to attempt to remove. He ventured to claim that, having regard to the wide field which it covered, the advance of medicine had during the last thirty years been infinitely greater in the mass than that of surgery, although, perhaps, not so readily appreciable by the public; and he expressed a confident belief that we need have no fear for the future, that it would far outstrip the past, that we were as yet but on the threshold of the knowledge which would reveal the methods of Nature in dealing with disease. Referring to bacterial therapy, the speaker said that the process followed by Nature in the cure of an infectious disease, and in conferring upon the individual immunity to it in the future, stood now to some extent revealed. The first stage in this march of Science ended with the proof that organisms were the cause of the infectious diseases. The second closed with the demonstration that by cultivating the bacteria under artificial conditions their pathogenic virulence could be greatly reduced, and that while an animal can be killed with a very small dose of the organism freshly isolated, a similar or larger dose of the attenuated virus will produce only a slight illness. The third stage was reached when it was shown that the animal thereafter was protected against repeated doses of the actively virulent culture of the organism, and that the artificial production of immunity had been attained. Up to this point there was no difference of opinion, but beyond it rival theories contended for mastery. The weight of opinion appeared to the speaker to be overwhelming in favor of the view that agents other than the leucocytes played the more important part in immunization. Some of these substances were present in the blood serum of a normal animal that had been submitted to no immunizing process; others appeared in the blood as the result of infection, whether occurring in the ordinary manner or induced in the process of artificial immunization by bacterial vaccination. The bacteriolysins were substances which dissolved microorganisms; the agglutinins caused bacteria to swell up, to lose their motility, and finally to aggregate in clumps. The opsonins were substances which did not kill the invading bacteria, but produced in them a chemical change of such a nature that they were rendered susceptible to the phagocytic power of the leucocytes. There was no room for doubt regarding the great advance which the introduction of vaccine therapy marked in the treatment of infectious diseases. Staphylococcal and many streptococcal infections were cured by this means, especially when it was possible to use a vaccine made from the patient's own strain of this microorganism. Many local infections with the colon bacillus were now curable. A theory which was eminently practical in its application, which had been explained by a study of the opsonic index, was that of autoinoculation. According to this theory, a process of autoinoculation from a focus of infection within the body might be induced by active movements of such a sort as to cause this focus to discharge itself. In a case of pulmonary tuberculosis with a lesion which was neither arrested nor quiescent, exercise beyond a certain moderate degree almost invariably caused some amount of pyrexia, either temporary or permanent, a fact which was now to be explained on the theory of autoinoculation. The speaker then referred to the system of graduated labor which had been introduced in the Frimley Sanatorium of the Bromley Hospital with excellent results. The nonfebrile patients were given work to do in the construction of a reservoir, the effort of the labor being carefully watched in each case. In 95 per cent. of these cases the opsonic index was found to be above the normal at some time during the day. The change in the physical appearance of these patients was so great that at the end of their treatment they looked more like navvies than consumptives. Such individuals, it must be remembered, were often weaklings before they were consumptives, and if their disease was merely arrested, weaklings they would have remained. Concerning the value of tuberculin treatment in pulmonary tuberculosis, Dr. Fowler said he hoped and believed that sanitarium treatment and vaccinetherapy would prove of material assistance in the warfare against the disease. He hoped, however, that there would never be a repetition of the lamentable lack of judgment, of self-control, and of those critical faculties which should characterize the members of a scientific profession which was displayed in 1890 and the following years. If to-morrow we were

in possession of an absolutely certain remedy for pulmonary tuberculosis, probably nearly two-thirds of the existing cases would be beyond the hope of cure. There was no drug known which was not limited in its effects by conditions of the body and the extent of the disease, which latter in cases of pulmonary tuberculosis was generally about three times greater than the physical signs indicate. These facts ought to give pause to those irresponsible directors of the lay press who were careless of the hopes they excited or the grief which they caused so long as they obtained sensational copy to increase the sale of their papers. Concerning the physician of the future, the speaker said that there were many who thought he would be merely an immunizer. He hoped it would be in his power, indeed, to afford immunity to the great majority of his patients, but he must continue to be in the future, as he has been in the past, preeminently a clinician. In the future, as in the past, the first and most important thing would be the diagnosis of the patient's malady. Once that had been accurately determined, the rest was comparatively easy. The one thing that could not be read up was "diagnosis"; that must be learned at the bedside. Some thought that as medicine became more and more firmly fixed upon a sure basis of science the diagnosis of disease would gradually prove an easier task. It would become more certain in competent hands, but it would never be easy. The recent increase in the number of laboratory tests available was surely leading to the disuse of the older methods of investigation, the employment of all the senses with which Nature had provided us. It must have occurred to every physician to be called to a case in which the condition of the blood and of every secretion that lent itself to examination had been carefully investigated, not once only, but several times, and yet the diagnosis was as far, if not further, off than ever; whereas, an intelligent use of the old-fashioned methods of inspection, palpation, percussion, and auscultation showed that it was literally staring one in the face. In so saying he would not be thought to undervalue the very great assistance given to diagnosis by the newer methods. He was only urging that the older should not be allowed to fall into disuse. Regarding the rights and the duties of the medical man, Dr. Fowler said we were frequently reminded that ours was a noble profession, and one which gave a continuous interest to life and to which it was a source of pride and honor to belong; but he had observed that this reminder often preceded an attempt to place upon shoulders already overburdened with unpaid labor, some further duty similarly recompensed. To this there was a limit, which had long since been reached, if not overstepped. The public was apt to take a profession, like an individual, at its own valuation, and it might be to our advantage in the future to let it be known that we regarded our services as worthy of their due reward.

Sir Wm. Whitla, who has been chosen President for next year, moved a vote of thanks to Dr. Fowler for his address, and said the association had never had a more lucid, instructive and scientific address, which sounded like a chapter from the Arabian Nights. Dr. Burgess seconded, and the motion was carried by acclamation.

In the afternoon a congregation of the University was held and the degree of D. Sc. conferred on the President and fourteen other members or visitors. The Vice-Chancellor, Sir Charles Eliot, said the University, only in existence three years, had been glad to afford the hospitality of its buildings to the association and to add to their roll bodies which coalesced to form the University; the oldest was the Medical School, founded in 1828. It was a matter of congratulation that a member of their synod, one of their professors, was President on this occasion. The recipients of the degrees were then presented by Prof. Appleton, with appropriate references to their several claims to distinction. There were several garden parties afterwards among which the visitors distributed themselves. About a hundred visited the Model Dairy at Sandygate. In the evening there was a civic reception in Weston Park, which must hold the first rank among all the social functions, which have kept up if they have not surpassed Sheffield's reputation for hospitality. Myriads of fairy lamps among the flowers, bands of music, a concert by Neapolitan singers and, later still, a display of fireworks closed this crowded day.

It should be added that some of the great steel works were opened to visitors, many giving great interest and surprise to those who went; for example, the rolling mills where sheets of steel were being prepared for making pen-nibs. A crucible shop dealing with 50 tons a day manufacturing armor for H. M. ship Collingwood, where the straightening and bending of plates under 6,000 and 3,000 tons hydraulic presses could be witnessed.

Thursday, July 30—Third Day

This also was a busy day. At 8 A. M. the breakfast of the National Temperance League was given, and a large number attended it. At 9 o'clock there was a gathering at the University to hear Professor Neisser of Breslau, who has lately returned from his three years' research work in Java. He went to study certain of our specific diseases in anthropoid apes and other animals, and he believes he has elucidated various points in connection with these diseases and methods of treatment which may be effectual. He began his work in 1905. After a time he had six medical men working with him and twelve Malay assistants. All lived in the centre of a wire enclosure in which 600 to 800 animals were kept under observation. For the first year the cost was borne by Prof. Neisser himself, but afterwards the Dutch and German governments relieved him of this expenditure. At 10 o'clock the sections again met. Later the Irish Medical Graduates' Association and the Anglo-Continental Medical Societies held their meetings. But the event of the day was the

Address in Surgery.—Professor R. J. Pye-Smith delivered this address, taking for his subject "Prophylaxis in Surgery." Vast as were the fields in operative surgery opened up by antiseptic methods, he said, it was in prophylaxis that the results of antiseptic precautions were chiefly seen and were of such far-reaching importance. The prevention of the bacterial infection of operative wounds (operative asepsis) was the glory of antiseptic surgery. But when sepsis was already present, or where the potentially-infective mucous membrane of the alimentary canal was involved in the operative area, we must trust in a greater degree to the natural resistance of the tissues, and supplement this not only by an aseptic operative technique, but also by all the means at our disposal for the specific immunization of the body. Such materials as nuclein (for inducing hyperleucocytosis), serum, normal and variously modified (for supplying antimicrobic, antitoxic, and various other chemical substances), and bacterial cultures, dead or living (for stimulating the manufacture of such substances in the blood), were on their trial. We were probably on the eve of discoveries in the practical use of vaccines which would bring both acute and chronic infections under control, and place in our hands another weapon wherewith to prevent the late and often fatal stages of both local and general infection. It might seem rather late to speak of prevention when a disease had advanced so far as to call for surgical measures, but that depended upon what it was we hoped and tried to prevent. When a patient already had a tumor we might still hope to prevent its development and fatal termination. Again, in the performance of the necessary operation in such a case, we had it in our power to prevent pain by the exhibition of an anesthetic, to prevent dangerous loss of blood by efficient hemostasis, and to

prevent bacterial infection by an aseptic technique. So, when we failed in keeping away the seeds of disease, we might still, perhaps, get at the root of the mischief, or nip it in the bud, and, if not even that, we might be able to prevent its wide spread or some of its most injurious effects.

The speaker then took up the various forms and kinds of prophylaxis, and in speaking first of legislative prophylaxis he noted as a brilliant example of the successful result that occasionally rewards legislative and administrative prophylactic action, the present banishment from this country in the dog, and consequently in man, of that terrible and uniformly fatal disease, hydrophobia. Many other countries had still to fall back on the second line of defense provided by the no less truly prophylactic vaccine obtained with such admirable patience and insight by the experimental labors of Pasteur.

In operative surgery we were especially concerned in the prevention of pain, hemorrhage, shock, sepsis, and death. The prevention of pain was of course obtained by anesthetics, but there was a wide choice of methods of inducing anesthesia. For major operations inhalation anesthesia by chloroform, ether, ethyl chloride, or nitrous oxide, or by a mixture or sequence of two or more of these, was necessary and was, when in competent hands, a reasonably safe procedure. But it had its disadvantages in the way of vomiting, the preliminary starvation, the horror which some felt of becoming unconscious, etc. An efficient substitute in certain cases was local anesthesia induced by the application of cocaine and substances with similar action, or the infiltration anesthesia of Schleich. Intraspinal injection was a method of great promise, but for the present it appeared to have anatomical limitations to the lower part of the body. In the prevention of hemorrhage a very great advance was marked by the introduction of the Spencer Wells pressure forceps, by the application of which before the division of each vessel, in the majority of operations hemorrhage may be almost entirely prevented. The use of the elastic band after elevation of the limb was also a most valuable means of preventing loss of blood in amputations and of securing a clear operative field in other cases, though the later oozing was an objection. Shock was largely prevented by anesthesia and hemostasis, but it might result from other causes, one little recognized cause being neglect to keep the patient warm before and during the operation. Celerity and gentleness in operating were factors of prime importance, and last but not least was to be noted the good effect of hope and cheer.

For the prevention of sepsis the world was indebted to Lord Lister. The exclusion of living lacteria from the field of operation was effected on the one hand by washing them away and covering them up, and on the other hand by destroying their vitality by means of heat and of chemical substances. Washing formed the general preliminary preparation; heat was then trusted to for the sterilization of instruments, gloves, cloths, swabs, dressings, and almost every article used; but for the skin and mucous membrane of the patient and for the skin of the surgeon chemical substances had to take its place, supplemented by a covering of sterile cloths or india-rubber gloves. These last formed one of the most valuable of the comparatively recent improvements in aseptic technique. Quite equal care had to be taken in the preparation of the hands before the gloves were put on as was necessary without them, but they had the double use of protecting the patient against bacteria lurking in the surgeon's skin and of protecting the surgeon's hands from contamination by pathogenic bacteria. They were thus equally valuable for operating and assisting, for dressing and examining, in septic and in aseptic cases; and the danger of septic infection from the hands if a glove was pricked or torn did not seem to be great if the glove was at once changed or the prick covered by a finger-stall. Finally, was the question of the prevention of death, the most important of all the considerations before the surgeon's mind, and to which all others were subordinate. Hemorrhage, shock, and sepsis being the three chief causes of operative mortality, it was evident that their prophylaxis was of prime importance. Carefulness and judgment were also always necessary, and we must never disregard the dangers that inevitably attended the induction of anesthesia and the performance of any cutting operation. No operation could be undertaken without risk, though in most cases the risk was happily but small. In this, as in the practice of asepsis, we aimed at perfection, well knowing that it was beyond our powers to insure its achievement.

Mr. Pye-Smith then took up the question of prophylaxis in the various surgical diseases and accidents of the eyes, nasopharynx, ears, chest, abdomen, pelvis, and extremities. In the case of appendicitis he urged prompt operation in the first attack, within twenty-four hours, or earlier. Operation at this stage was little if any more risky than an external operation, and it was preventive of further trouble. If an expectant plan were adopted in the first attack an explosion of violent symptoms might put the patient in great jeopardy, and an operation then might be too late. If the patient recovered from the first attack he would still have to submit to operation later or remain possessed of a damaged and dangerous appendix. He did not maintain that the removal of every inflamed appendix during the first twelve or twenty-four hours of its first attack was an altogether ideal method of prophylaxis against complications and recurrence; but he was convinced, from his own experience, that it was an efficient method, and the safest and best at present practicable. We might look forward to the time when such advances might have been made in the etiology as to provide a less clumsy means of preventing inflammation of the appendix than its amputation; but that time was not yet.

In concluding, the speaker said: "Prophylaxis is always full of hope. It is founded on early and correct diagnosis, together with the prognosis which is the outcome of knowledge and experience, and which enables us to prophesy because we know. But in much of our surgical work to foretell should be to forestall. We need to recognize what is ahead of our patients, to provide for the emergency, to anticipate the complication, to avoid the danger. Pessimism and despair, born of ignorance, can lead but to disaster, whilst optimism and hope must always be right, when founded on knowledge and insight. 'Your intelligence,' says Ruskin, 'should always be far in advance of your acts.' We must set before ourselves an ideal, true to Nature, but too high for immediate and habitual attainment, that so both our individual and our collective work may be more worthy of our calling, and that our art may be more hopeful and more helpful to suffering humanity. 'Not failure but low aim is crime.'"

In the afternoon there were more garden parties and further opportunities to see the great works which make Sheffield's prosperity. The annual dinner took place in the evening, with the usual supply of post-prandial oratory, and the ladies were entertained at a special performance at the theatre.

Friday, July 31—Fourth Day.

Final sectional meetings, more inspection of works, luncheons, etc. In the evening the "Popular Lecture" was delivered by Mr. Owen of St. Mary's Hospital, London, after which the President and local members gave a reception in the Cutlers' Hall.

Saturday, August 1, was devoted, as usual, to excursions, but most of the visitors had left or were leaving.

Next year's meeting is to be at Belfast, and Sir W. Whitla is the President.

SECTION OF MEDICINE.

Wednesday, July 29—First Day.

DR. WILLIAM DYSON OF SHEFFIELD, PRESIDENT, IN THE CHAIR.

Splenic Enlargements Other Than Leukemic.—Professor W. OSLER of Oxford in opening this first set discussion alluded to the obscurity of the subject owing to our imperfect knowledge of the physiology of the spleen. He then gave a clinical classification of the chronic enlargements of the spleen, dividing his subject as follows, and making comments at different points: (1) Enlargements of the spleen in disturbances of metabolism and in intestinal affections of children as seen in rickets, amyloid disease, also in a large ill-defined group in children. (2) In chronic infections, as in syphilis, malaria, kala-azar and other forms of tropical splenomegaly, in Hodgkins' disease and in tuberculosis. (3) In primary disturbances in the blood-forming organs, as in leukemia, possibly in chlorosis, certain cases of pernicious anemia and in splenomegalic polycythemia; (4) in association with cirrhosis of the liver whether syphilitic or alcoholic, in hypertrophic cirrhosis, either Hanot's or with haemachromatosis; (5) hereditary and family forms and in isolated cases as in the congenital acholuric icterus with splenomegaly, and in the family form of splenomegaly with dwarfing; (6) in new growths as in diffuse infiltrating sarcoma and the infiltrating endothelioma of Gaucher; and (7) those not hitherto correlated with any of the foregoing or any known cause, as in simple splenomegaly, in splenomegaly with anemia and in that with anemia jaundice and ascites, splenic anemia, and Banti's disease.

A remarkable feature of the last group of cases was that the condition might in some cases be cured by surgical removal of the spleen.

Professor W. BOUCHARD of Paris, speaking in French, referred to what he had previously described as the splenic souffle in the enlarged spleen. Of five cases, in three there was an associated cirrhosis of the liver and in two others a cirrhosis was probable. He had also heard it in a case of splenomegalic leukemia. In the same cases he had observed marked systolic expansion of the arteries and capillary pulsation—but no sign of aortic insufficiency. In the cirrhotic cases he had also noticed naevi and serious internal hemorrhages. He had seen distinct improvement in some of the cases follow the internal administration of calomel.

Professor W. SAUNDBY of Birmingham remarked that on looking through his case-books and excluding leukemia he had found the more frequent causes of splenic enlargement were lymphadenoma, heart disease and in association with cirrhosis of the liver. Others less frequent were malaria, tubercle, syphilis, pernicious anemia, splenomegalic polycythemia and thrombosis of the splenic vein. The cases associated with jaundice occurring in families through successive generations he would distinguish from some of the cases called splenic anemia, or Banti's disease. Many of the cases occurring in families proved fatal, but in others there was but little depreciation in general health. It was probable that congenital cholemia occurred in various degrees of intensity.

Dr. G. A. GIBSON of Edinburgh confined his remarks to splenomegalic polycythemia. He described a case then under his care in hospital of four years' standing. Free hydrochloric acid was not found after test meal. Improvement followed the application of the *x*-rays, but relapse shortly occurred. Improvement again followed *x*-ray treatment, which lasted for nearly two years, but the splenic enlargement became greater than ever and instead of 4,500,000 there were 12,000,000 red cells, 120 per cent. instead of 87 per cent. haemoglobin, 30,000 instead of 10,000 leucocytes, as before the relapse. The patient became purplish, the viscosity was twice, and the coagulability of her blood twice the normal. A portion of red bone marrow was removed surgically from the tibia and this showed on microscopic examination dilatation of the blood channels, marked diminution of the myelocytes, increase in the nucleated red cells and in the fully formed red cells, also large aggregations of small cells of uncertain nature, which might be small lymphocytes or possibly small nucleated red cells. The whole, however, pointed to changes in the bone marrow as at least a large part of the essential underlying changes in the condition.

Dr. H. D. ROLLESTON of London would have liked to limit the discussion to the cases in which the spleen alone was enlarged. Chronic splenic anemia of adults ought to be recognized as a definite clinical condition, not as a disease, but for the post-mortem the changes in the spleen were not always the same. Two types of changes might be recognized, one with marked fibrosis and endothelial proliferation, and the other (Gaucher's type) a chronic endothelioma, possibly a primary new growth, but probably not. He would distinguish Banti's disease from chronic splenic anemia; the former should be limited to terminal cirrhosis in chronic splenic anemia. In cases of syphilis the enlargement of the spleen was not necessarily syphilitic; it might be due to some other chronic infection, possibly predisposed by the syphilis. Any enlargement of the spleen in heart disease (apart from ulcerative endocarditis) was probably due to some complication, as embolism back-pressure alone was not, he thought, sufficient to cause it. Referring to operation, he thought the danger of removing the spleen in chronic splenic anemia was very great, particularly from the occurrence of secondary hemorrhage. Of the cases of enlargement of the spleen with jaundice, the congenital cases might or might not be hereditary. In the congenital cases the patients bore the condition very well, but it might ultimately become transmitted. The congenital cases showed more jaundice and less anemia—in the acquired cases the reverse was the case. In chronic splenic anemia with jaundice it had been suggested that the spleen was responsible to a haemolytic jaundice and that the red blood cells were more vulnerable and smaller than natural. The blood changes in the jaundice cases were much those of chronic splenic anemia, and it was probable that these cases ran into each other and into Hanot's cirrhosis and Banti's disease. The view of a chronic infection and a subsequent cholangitis was, he thought, more attractive than the hemolytic view.

Dr. J. GALLOWAY of London showed a specimen of a spleen from a child aged seven, with only little blood change and jaundice, but with considerable pigmentation; a drawing of a case of Hodgkins' disease with lymphadenomatous tumors in the skin and intense pruritus; a specimen showing the influence of syphilis on the splenic enlargement; there was chronic heart failure with back pressure; he had persistent anemia and great enlargement of the spleen. There were found syphilis of the heart and obliterating arteries in the spleen, whether primarily syphilitic or secondary.

Dr. ROBERT HUTCHISON of London discussed the chronic enlargement of the spleen in children—all, as a matter of fact, being of the non-leukemic sort. The commonest was the condition *pseudoleukæmia infantum*, characterized by chronic enlargement of the spleen, anemia, and a degree of leucocytosis. Two causes had been assigned, rickets and congenital syphilis; rickets might be at once excluded, and the latter might be excluded in at least half of the cases. After the age of 2 many of the cases of splenomegaly were survivals of *pseudoleukæmia infantum*. Others might be a purely splenic form of lymphadenoma; their occurrence was, however, not yet certain. Other cases occurring up to the age of 10 or 12, diagnosed at first as splenic anemia, were marked by hemorrhages, jaundice, and ascites, which was followed by death; these cases resembled very rapid cases of Banti's disease. In some of these cases there

was evidence of congenital syphilis. Many cases of splenic enlargement in children were really the reaction of lymphoid tissue to a chronic intoxication by a syphilitic or other process.

Dr. W. Hunter of Glasgow referred to three cases of splenic enlargement that he had had under observation lately.

Dr. C. H. Melland of Manchester confined himself to the consideration of a group of cases like leukemia, but with no leukocytosis, only enlargement of the spleen with myelocytes in the blood and the other blood changes of leukemia. To one group of cases the term leukanemia had been given. These should be distinguished from early cases of splenic anemia, or Banti's disease, as in them no removal of the spleen could be of use.

Dr. F. Eve of Hull argued that if operation were to be employed at all in Banti's disease it should be before the liver became cirrhotic.

Dr. W. J. Tyson of Folkestone referred to congenital syphilitic enlargement of the spleen in children and said that the splenomegaly might be the only sign of the condition, and it in the course of years disappeared so that a good prognosis might be given from the first.

Dr. T. W. M. Ouston of Sutton Bridge brought forward a case of splenomegalic polycythemia with chronic rheumatoid arthritis in which improvement followed venesection.

Professor Osler, in closing, said the splenic souffle was not often heard, because not often listened for. It was not according to his experience that the spleen was involved without the lymph glands in lymphadenoma. The two groups of cases of splenic enlargement with jaundice would probably be soon differentiated into those (1) with good health and acholuric, and (2) the fatal cases. Operative treatment was not called for in a large proportion of the cases, for they lived on comfortably for years; the two conditions, however, calling for operation were the recurring hemorrhages and the early appearance of jaundice, indicating liver implication. The points in regard to chronic splenic enlargements calling for early elucidation were (1) the family forms, (2) the cases in children, (3) the exact relationship of the group of cases of chronic splenic anemia, and the variety of polycythemic splenomegaly.

SECTION OF OBSTETRICS AND GYNECOLOGY.

Wednesday, July 29—First Day.

Mr. Richard Favell of Sheffield, President, in the Chair.

Treatment of Displacements of the Uterus.—Dr. Herman of The London Hospital opened this discussion. divided uterine displacements into two classes: (1) The rare forms: (*a*) inversion, (*b*) uterus in hernial sac; (2) the common forms: (*a*) downward, and (*b*) backward displacements. In most cases of downward displacement there was nothing wrong with the uterus itself but the lesion was due to defects in the pelvic floor and it was now agreed that in cases of flexion the curve in the uterine canal was not a disease. When the uterus was retroflexed pressure on the veins led to congestion and tenderness of the organ. There was slight descent in all women in the upright position, and this was allowed by inversion of the upper part of the vagina. In the slight cases when much pain was complained of there was usually neurasthenia, and it cannot be too thoroughly recognized that in some cases the whole of the symptoms were due to neurasthenia, but in other cases dragging pain and irritability of the bladder were complained of when there were no signs of either neurasthenia or prolapse. If cases were relieved by a pessary he would never think of operation; when an ordinary pessary was not retained he would try one of these supported by a waist belt. He considered that to keep up the uterus by a mechanical support was harmless and generally effective, but in some cases they could not be retained. Various operations were then practised by different operators, some of these, such as injection of paraffin or of irritant substance into the broad ligament, he did not approve. In cases where a pessary proved to be inadequate, if the patient was beyond the child-bearing age, he advised colporrhaphy with the subsequent use of a pessary. But permanent relief could only be obtained by combining this operation with ventrofixation, and one must unite the peritoneal surface of the uterus to the muscle of the abdominal wall; he did not approve the ventral suspension of Kelly; the operation should not be advised in child-bearing women. Vaginal hysterectomy was of no use, but he approved of complete extirpation of both uterus and vagina.

Professor Pozzi of Paris, who spoke in French, thought that the anteversion associated with dysmenorrhea was usually a congenital condition, as insisted on so strongly by Lawson Tait. In France there was a reaction against pessary treatment, which in his opinion had gone too far. If Alexander's operation was performed one must be sure that the appendages were normal and that the abdominal parietes were strong enough. Of vaginal fixation he had not much experience, his favorite operation being ventral fixation with intraabdominal shortening of the round ligaments.

Professor Bossi of Genoa, who also spoke in French, showed an intrauterine stem pessary which he used for flexion associated with dysmenorrhea.

Dr. J. Riddle Goffe of New York agreed with Dr. Herman that in many cases the symptoms were really due to neurasthenia and that the condition was one of "sore brain" rather than "sore womb." He believed that the uterus was suspended by its ligaments and instanced the lungs, liver, spleen, and intestines as other viscera suspended in a similar way; there was no organ which had so many ligaments as the uterus. He pointed out that prolapse was exceptional in cases of complete rupture of perineum and was frequent in nulliparæ, showing the little value of the pelvic floor as an agent in sustaining the uterus. He said that there was a great reaction in the United States against pessaries.

Dr. Arnold Lea of Manchester said that in many cases prolapse was associated with relaxed abdominal walls and general ptosis of viscera. Gymnastic exercises were very useful, especially those directed to strengthening the muscles of the abdominal wall; in uncomplicated cases he shortened the round ligaments. In doing ventral fixation it was most important to close the uterovesical fold to avoid danger of strangulation of intestine.

Dr. May Thorne drew attention to many cases in which retroflexion existed without symptoms. In young girls she thought that acute discoloration was sometimes due to too violent exercise, and she thought that games at school should be undertaken with great care at the menstrual periods. For these cases she advised replacement under anesthesia and the temporary wearing of a pessary.

Dr. Hellier of Leeds found that many bad cases were relieved by a pessary with external attachments, but, if they failed, he would combine ventral fixation with amputation of cervix and anterior and posterior colporraphy.

Dr. Inglis Parsons of London spoke of his well-known method of injecting a solution of quinine into the broad ligaments; he had now treated 150 cases in this way, with 90 per cent. of cures. He believed in Kelly's ventrosuspension. He allowed patients to ride and bicycle while wearing a pessary.

Dr. Hubert Roberts of London thought that ruptured perineum accelerated prolapse, and he performed colpoperineorrhapy combined with amputation of cervix where the latter was enlarged.

Dr. Archibald Donald of Manchester would confine his

remarks to mobile retroversion; in this condition there were sometimes no symptoms, and his explanation was that the symptoms when present were due to associated urethritis; on this account he considered curetting an essential part of the treatment. He did not use pessaries and thought that ventral fixation had been much overdone.

Dr. T. J. McCann of London said that in the so-called cases of neurasthenia the best results were obtained from rest, massage, and exercises. He amputated the cervix and removed a part of the vaginal vault.

Dr. Cuthbert Lockyer of London divided eight treated cases as follows: (1) Retroflexion: (*a*) mobile, no operation; (*b*) fixed, laparotomy, removal of adhesions, ventral suspension. (2) Retroflexion with tubal disease, remove diseased tubes and perform ventrosuspension. (3) Retroflexion and pregnancy, replace in knee-elbow position. (4) Retroflexion and prolapse, bad cases, amputation of cervix, anteroposterior colporrhaphy.

Dr. Helme of Manchester, in many young girls, found cellulitis of left uterosacral ligament with retroversion, and thought this was due to too violent games with neglect of bowels at school. He used Gilliam's operation extensively.

Dr. Fothergill of Manchester thought that it was futile to maintain that injury or relaxation of the pelvic outlet was a cause of prolapse, and was convinced that the condition was due to relaxation of the connective tissue, and the latter was principally that which formed a sheath to the vessels; the only effect of a ruptured perineum was to widen and straighten the path for the uterus to descend.

Dr. Johnstone of Belfast did lateral colporrhaphy.

Dr. Blair Bell of Liverpool described Gilliam's operation by the aid of diagrams; its principal feature is that the round ligament is shortened by being pulled through the sheath of the rectus and fixed to the aponeurosis.

Dr. Buist of Dundee thought that both relaxation of the pelvic floor and of the ligaments were factors in bringing about prolapse.

Dr. Herman, in closing, thought that cases of retroversion in young girls could be cured by a few days' rest in bed. He considered the risk of intestinal obstruction after ventral suspension was a very real one.

Professor Bossi of Genoa related some cases of osteomalaria which he had treated by the administration of adrenalin with good effect.

The Displacement of the Uterus in Certain Cases of Pelvic Tumor.—Dr. Cuthbert Lockyer of London read this paper. In two hundred abdominal sections the ureter was damaged four times. The most probable causes for this accident were fibroid in the broad ligament, cyst in the broad ligament, and cancer of the cervix. He narrated a case in which one ureter was divided and the kidney removed in consequence, as the patient was too bad for prolonged operation: no urine was secreted for eighteen hours; abdomen reopened; other ureter found tied; end implanted into bladder; recovery.

Thursday, July 29—Second Day.

Cesarean Section Versus Other Methods of Delivery in Contracted Pelvis.—Dr. Robert Jardine of Glasgow opened the discussion of this subject. The selection of the operation is conditioned primarily, he said, by (1) the experience of the operator; (2) the environment of the patient. An expert has a free choice of them all; others must choose whichever in the circumstances they deem most favorable to the interests of the mother. Induction of labor or craniotomy may be possible when environment puts the other operations out of the question. In good surroundings cesarean section is to be preferred, provided labor has just commenced and careless examinations have not been made. In the contrary case, if pelvic delivery were impossible and section imperative, the author would remove the uterus. In considering the possibility of pelvic delivery the best pelvimeter is the comparative size of the head. With a true conjugate of two and a half inches the author would perform section, even if the child were dead; likewise if there were great overlapping of the head or general pelvic contraction as well as flattening. Pubiotomy is usually preferable to symphyseotomy, and both are possible, though always risky to the child, when the head is relatively small, and when with an ordinary head there is no general flattening and a brim of over three inches. Both can be performed by any practitioner, and both are preferable to section, with a suitable pelvis, and when labor has been long and other attempts at delivery have been made. If there is room for the use of the necessary instruments and the child is dead, craniotomy should be performed, and is occasionally justifiable even with a living child. Induction of labor is wrong before the thirty-second week of intrauterine life; past that date, it may be performed as soon as it becomes difficult to push the head into the brim; otherwise the nearer full term the better, whatever the date. The operation is risky for the child. In a pregnancy following one in which labor has been induced and the child has not survived, waiting until full term and section should be advised.

Professor Zweifel of Leipsic described by the aid of diagrams his method of performing subcutaneous symphyseotomy, by which the operation could be done in ten minutes. He also described a method of performing cesarean section extraperitoneally, the incision in the abdominal wall being made low down, the peritoneum stripped up from uterus, and the latter opened in its lower segment. He had performed sixteen subcutaneous symphyseotomies, four extraperitoneal cesarean sections, fifty-two open symphyseotomies, one hundred and thirty ordinary cesarean sections. The results of symphyseotomy were very much better if the labor was completed by natural means, and he was convinced that permanent widening of the pelvis followed the operation.

Dr. Lloyd Roberts of Manchester thought that symphyseotomy would die out, and that cesarean section was preferable to either symphyseotomy or induction of premature labor; the fetal mortality of the latter operation he estimated at 50 per cent.

Professor Von Kroenig of Freiburg thought that there was no fundamental difference between symphyseotomy and pubiotomy, and that both were dangerous if any means had to be used to extract the head; the disadvantage of the subcutaneous method was that hematoma might form. He had performed these operations twenty-one times, and in none of the cases did any impairment of walking powers follow. He had lost four of the children. He would not perform the operation with a conjugate under 7 c.m. He got the patient up on the second day, and said, in answer to inquiries, that he did the same with his ordinary labor cases.

Dr. Hubert Roberts of London read notes of two cases in which he had performed cesarean section twice on the same patient, and he considered that it was not justifiable to sterilize the patient when performing conservative cesarean section. He preferred cesarean section to either symphyseotomy or pubiotomy.

Dr. May Thorne of London said that in India, if cesarean section were performed on natives, sterilization was not done, on account of religious and caste beliefs.

Dr. Arnold Lea of Manchester read a paper on some cases in which he had performed cesarean section for contraction of pelvic outlet; these were cases of kyphosis, and the contraction of the outlet was in the transverse diameter.

Dr. Martin of Sheffield advocated sterilization as a routine proceeding, as on the next occasion the patient might be unable to obtain expert assistance.

Dr. Buist of Dundee thought that one advantage of symphyseotomy was that it could be done safely in unfavorable situations, as in an artisan's house. He had had good results from Prochownik's diet in the later months of pregnancy.

Dr. Smith of Toledo, U. S. A., said that in America both society and religion demanded that more consideration should be paid to the life of the child than appeared to be the case in this country; by cesarean section the delivery of the child could be effected in 120 seconds, and we might always make sure of a living child, so that in the interests of the child this operation was better than symphyseotomy or induction of labor. There was no occasion to sterilize. The incision should be made high up on the uterus, and he objected to cervical cesarean section as being more likely to be followed by giving way of the scar in a subsequent pregnancy.

Dr. Purslow of Birmingham narrated a case in which he performed a cesarean section on a woman who had been many hours in labor and attempts at delivery had been made, the result being successful. He had met with a case in which attempted sterilization by excising a portion of each tube had proved unsuccessful.

Dr. Jardine, in closing, said he was not guided by measurements of pelvis, but depended entirely on the degree to which the fetal head could be pressed into the pelvis. He advised against early application of forceps and would prefer to allow the head to mold. In every case of labor in which there was sign of infection he raised the head of the bed, but did not use douching. He made the incision high up on the abdominal wall.

Treatment of Puerperal Eclampsia by the Administration of Veratrum Viride.—Professor Mangagalli of Milan read this paper. He had treated one hundred cases in ten years. He looked upon the pulse as the chief guide, and when it was full and of high tension he administered the drug in small and frequent doses. The doctor should not leave the patient during the treatment, but should administer the drug himself. In answer to questions, he said that his usual dose was one-third to one-half c.c. (5 to 8 minims) of the tincture every hour; that he had never observed vomiting or collapse, and that he began the treatment without waiting for a fit, if there were prodromal symptoms.

(To be continued.)

AMERICAN ACADEMY OF MEDICINE.

Thirty-third Annual Meeting, Held at Chicago, May 30 and June 1, 1908.

The sessions were held in the banquet room of the Lexington Hotel, and the first meeting was called to order at 10 A.M. by

Dr. Thomas D. Davis of Pittsburg, President, in the Chair.

Best Means for the Medical Profession to Take Part in the Education of the General Public in Medical Matters.—Dr. Edward Jackson of Denver, Chairman, reported that the committee recommended that the American Academy of Medicine, as a learned society, giving attention to original research work in medical sociology, should encourage this work in the direction of popular education in medical matters, provide for the placing before the public of such papers and reports read before its members as would be of value in this work. The exchange list of the *Bulletin*, the official organ of the academy, should include educational journals and popular science publications, as well as foreign or domestic medical journals and scientific transactions. The active interest of the individual Fellows of the academy in various educational movements was urged, and the continuance by the academy itself of its studies, discussions, and recommendations regarding the teaching of physiology and hygiene in the schools. It was further recommended that an early meeting be arranged for the discussion of the education of the public by the physician in active practice through his patients.

Dr. Casey A. Wood of Chicago referred to the extreme conservatism of the medical profession concerning publicity. While a certain degree of this was admitted to be desirable, he believed it the manifest duty of the physician to instruct the public upon medical matters, particularly in regard to sanitation.

Dr. Henry B. Hemenway of Evanston, Ill., pointed out the need of the public of instruction in hygiene. He cited an instance of gross ignorance upon the part of a man in public life who explained that he had been so greatly engaged in the study of law that he was entirely uninformed upon the subject of general sanitation. He urged that there should be systematic study of such topics as the relation of the milk and water supply to the various diseases. Because the general practitioner had been absorbed in the study of the cure of disease, the investigation of its origin had been overlooked. Reference was made to the work of the Health Commissioner in Chicago as an opening wedge in the instruction of the public. To attain the greatest efficiency the giving of public lectures should be entirely separated from all personal interest, and to this end he would have the lecturers paid an honorarium.

Dr. Leartus Connor said that if the doctor would educate his community he should live as he would teach.

Dr. Philip Zenner believed that the publication of unsigned but authoritative medical articles in the daily press would in time be read with as much interest as the sporting news.

Dr. Joseph K. Weaver of Norristown believed that the best medium of instruction between the medical profession and the laity was the County Medical society.

Dr. Thomas H. Shastid of Harrisburg, Ill., referred to the commendable practice by the *Youth's Companion* of the publication each week of a half-column article upon medical matters. Illustrative of the good accomplished by such public instruction was the instance of a man applying to him for removal of adenoids because of having read an article by Dr. Woods Hutchinson. He thought the farm journals particularly valuable mediums for the publication of such matters.

Dr. John H. Tressel referred to the earnest desire upon the part of farmers for instruction in hygiene.

Dr. W. L. Secor suggested cooperation with the American Society for the Advancement of Science as a practical means of public instruction upon health.

Dr. H. Iles McNeill of Newman, Ill., suggested that the County Medical societies be influenced by the American Academy through the medium of the State societies to participate practically in the education of the laity in their individual communities.

Report of the Committee on Conference with Educational Institutions on Medical Education.—Dr. Charles McIntire, Chairman, reported for the committee its opinion of the presence of a definite field of effort for the academy in the present discussion of the educational requirements of intending physicians, viz., the harmonizing of the courses in the literary and medical colleges, so that emphasis be given to the desirability (not necessity) of a broad, liberal culture precedent to the study of medicine and the shaping of the liberal culture course to include those sciences which lie at the foundation of medicine that they may not be taken again in a medical course.

Dr. Thomas H. Shastid cited an instance in which a man had matriculated in a medical school and continued his work as a teacher through two years, attending the college only during the third year. In spite of this he obtained his diploma and entered practice. For the avoidance of false representation at medical examinations photographs were regarded as of little value, since people grow "old and fat" or "old and thin." An absolutely reliable means suggested was that of the imprint of the finger tips, which could be changed only by cicatrization.

Dr. Leartus Connor suggested that since there were to-day so many more doctors than were actually needed, all possible effort should be made to improve the future

output. He would favor the withholding of a diploma until the graduate had filled a year's interneship in a hospital.

Dr. Emma B. Culbertson of Boston agreed with Dr. Connor that the requirement of the interneship experience would be a valuable measure. In the Woman's Hospital of Boston graduates from all over the country applied for interneship, and many it was said came from Johns Hopkins. All exhibited marked ignorance regarding the relief of suffering. While she felt that a great debt of gratitude was due to Dr. Osler, he was conversely responsible for the undesirable mental attitude of young practitioners as a result of his therapeutic nihilism.

Dr. L. Harrison Mettler of Chicago desired that some authority might be operative in determining the man best fitted for chairs in colleges. He felt that in the last analysis the standard of medical education resolved itself to the character and knowledge of the faculty. He thought the plan followed in Germany of having the whole university scheme under one head offered a solution of the problem. This allowed the student to continue his studies under the teacher from whom he acquired the greatest amount of knowledge. Such a system presented the advantages of an improvement among the students and a stimulation of the faculties.

Dr. Harvey of Westboro asked Dr. Connor what plan he would suggest in requiring the interneship before graduation.

Dr. Connor admitted that there were difficulties in the way, but felt that if medical faculties could be made to realize the injustice of placing inadequately trained men upon the world an effective plan could be established.

Dr. Winfield S. Hall of Chicago agreed with Dr. Mettler that the power of choice vested in German students was a valuable factor in their education. In Germany the plan of having the institutions under government control was in strong contrast to the system in the United States, where the schools are more or less competitive. A plan of value among the American schools was said to be the holding of large clinics, attendance upon which was more or less optional with the student. Naturally he would attend that which yielded him the most instruction. He believed that if the licensing board would require a year's experience in hospital work before granting permission to practise, the suggestion of Dr. Connor could be carried out.

Dr. Harvey called attention to the fact that in Massachusetts the yearly graduation from medical schools was in excess of the number of interneships, and that this plan would prevent the graduation of a sufficient number of physicians for the demand.

Dr. Hall of Chicago suggested a shortened interneship.

Dr. Connor believed that State boards of examiners would not make such requirement unless it were backed by public sentiment.

The President's Address.—Dr. Thomas D. Davis of Pittsburg considered largely the question of school hygiene, saying that there was no subject upon which the physician was so inadequately prepared to advise or upon which his opinion was so seldom sought. He regarded it of much importance that the medical man insist upon the purchase of suitable and ample grounds for school buildings. The wisdom of this idea had been shown practically in the author's own experience in Pittsburg. He referred to the fact that in the Japanese army the tents could not be pitched until the location selected had been approved by the medical attendants, and suggested the desirability of such medical supervision in school hygiene. He touched upon the matter of preliminary education of the medical practitioner, and suggested further conferences upon the subject similar to the one held at Pittsburg in the first of the year. The advisability was suggested of securing a charter for the American Academy of Medicine.

Report of the Delegate to the Second International Congress on School Hygiene.—Dr. Helen C. Putnam of Providence noted items of special interest pertaining to the eleven sections of this congress. The section on medical inspection attracted particular interest, in that England was considering and has since adopted medical inspection in the schools. Oral sepsis and the influence of inspection on the incidence of diseases were subjects receiving special attention. In the section on hygiene of the teaching profession tuberculosis was shown to be more prevalent among teachers in the United States and Canada than in any other class. The instruction on temperance carried out in the schools of the United States was the feature meeting the highest approval by foreigners. The question of coeducation was next in interest. Instruction in the physiology and hygiene of sex was looked upon as an international problem. Two sections upon abnormal children indicated tendencies to classify according to physical and mental capacities. Suggestions were made toward less "machine work" and more individual attention. In physical training emphasis was given to supplementing physical and psychical elements of formal drill with others of initiative and exhilaration through games and dancing. In the section on psychology of education, of which Sir James Crichton-Brown was president, it was noted that many children entering school undergo depression throughout the year which short holidays fail to overcome, and that 75 per cent. of the children are unable to follow the curriculum. The children who had been in kindergarten work furnish the larger number of these failures. This was attributed to insufficient knowledge and application of physiological and psychological laws of children. Out-of-School Hygiene was the title of one section. It was stated that the full report of the congress could be secured from the Royal Sanitary Institute, London.

Dr. Philip Zenner of Cincinnati referred to the benefit resulting from a course on sexual hygiene in the public schools of one of the poor sections of his city, in that an altogether different moral tone had been noted among the pupils.

Dr. Putnam, in closing, referred to the work of the American Society of Sanitary and Moral Prophylaxis, and in particular to the work done in the school gardens in which the subject of sex hygiene was approached from a biological standpoint, embracing a study of the flowers and insects. In this work the principle was taught that the object of every living being was to perfect and to reproduce itself. While attention was not especially drawn to the subject of human reproduction the plan was approved as a means of approaching indirectly the fundamental elements of life. Dr. Putnam suggested the advisability of the adoption of some such scheme in the curriculum of the public schools.

Symposium on the Place of Women in the Business World as Affecting Home Life, the Marital Relation, Health, Morality, and the Future of the Race.—As Affecting the Home Life and the Marital Relation.—Dr. A. Stewart Lobingier of Los Angeles regarded the situation as one badly complicated and the result of the complex civilization of the day. Any discussion of the subject he thought should be governed not by preconceived notions of personal preference in an ideal state of society, but by facts as they obtain to-day. There were vital reasons impelling women to earn their living outside of the home, but how far this employment interfered with their marrying and fulfilling their obligations as wives and mothers there were no reliable data to determine. There were in addition certain definite views which led some women to choose a business life. Among these was the preference for an unmarried life to wifehood and motherhood with small financial resources. An inherent aversion to the sacrifices of early married life and to maternity was also mentioned as an impelling force in the selection of work outside the home. He believed

that the women themselves, with their keen perceptions, would ultimately solve the problem and adjust themselves to the changed conditions.

The Place of Women in the Modern Business World as Affecting Health.—Dr. L. Duncan Bulkley claimed that it was not necessarily the work which undermined health, but rather the trying to work hard during the day and dissipating in the evening; not the load that killed, but the pace taken. He regarded it a blessing in disguise when the money earned was needed for the family or if other reasons demanded early bed hours. He thought the greatest field of philanthropy in connection with the subject was in education along the lines of true hygiene and proper modes of life.

Women in the Business World as Affecting Health and Morals.—Dr. Norman Bridges of Los Angeles did not believe that a business woman's experience unfitted her for a domestic life, and expressed his conviction that such an experience enhanced her power and efficiency as a useful social unit. Neither did he believe that her health was impaired unless she worked for very low wages and under depressing circumstances. To the claim that a business life detracted from feminine charm and innocence and led to boldness, he replied that boldness was a matter of temperament and native tendency not greatly influenced by conditions of occupation; and that a business life did not impair either charm or innocence, unless those words stood for ignorance and uselessness, which was often their real meaning. Neither did he believe that a business life tended to immorality. When a woman in business went wrong he believed it more often the result of starvation wages than of the fact of working. He thought that many girls in grinding clerkships would act wisely if they would take domestic service, whereby they would have less physical and mental fatigue and more comforts and money. To the argument that a woman should marry and make a home Dr. Bridges responded that, in the first place, this was manifestly impossible, and, in the second place, it was the woman's own affair. While the single business woman always, and the pampered rich woman often, failed to perpetuate the race, he claimed that the business woman was much less to blame than the married woman.

Female Labor as a Factor in Social Life.—Dr. A. L. Benedict of Buffalo submitted statistics bearing upon this phase of the subject, and showed that higher female labor involved a total of about 60,000 for the whole country. He referred to the increase of lower grades of female labor in offices, stores, factories, etc., which caused a scarcity of domestic help and did not fit poorer women so well for married life.

The Place of Women in the Modern Business World as Affecting the Future of the Race.—Dr. Otto Juettner of Cincinnati presented a paper bearing upon this part of the subject.

The Influence of Modern Methods of Education Upon Women.—Dr. George H. Hoxie of Kansas City said that a satisfactory home life depended primarily upon the physical fitness of the woman and the man. Motherhood considered from the medical standpoint was purely a physical matter. The other chief factor in the marital relation was mentioned as the religious or moral one. It was stated that physical and religious training needed to be as carefully systematized as the intellectual, but the present tendency in American education was to elevate the intellectual training into the position of primal importance and to make concession to the demand for physical and religious training by tolerating spasmodic and unsystematized ebullitions of individual notions. Because of overenthusiasm in their intellectual training the brightest women of the present generation had their nervous systems developed one-sidedly, and many physical ills resulted, hindering the happiest marital relation and the fullest reproduction of the species. The author believed that the schools would be benefited by securing greater permanency in the ranks of the teachers and some medical training in the ranks of the superintendents and principals.

Dr. Helen C. Putnam, in opening the discussion, claimed the right for all to develop their abilities in the preferred directions for the service of humanity. In order that good women might select good fathers for their children, she thought there should be the same attention paid to the moral and educational development of men as was made possible for women. She recognized the influence of women in furthering in a quiet way the work of the American Sanitary and Moral Prophylaxis Society. She thought, however, it might be desirable for woman's influence to be extended into the matter of woman's suffrage, thus giving her the right of selection of proper teachers and desirable municipal officers. She emphasized the need in the curriculum of public schools of a department of hygiene.

Dr. Emma B. Culbertson of Boston believed that the whole question could only be solved by the business men and women working together in a spirit of harmony and cooperation and upon an impartial basis. She called attention to the overwork required in the case of women school teachers, and believed there should be more attention paid to the adjustment of school matters, in which the endeavor should be made to keep them free from political interest. In this connection it was suggested that woman suffrage might be of value. She did not believe that race degeneracy in America was confined to the women, and thought the standard would soon be elevated with the presence of fathers of the proper type.

Dr. Edward Jackson of Denver called attention to the difference in the performance of work done now and that of a generation ago. This change in plan naturally necessitated a change in the occupations of the sexes.

Dr. John H. Tressel of Alliance spoke of the more natural deterioration physically among boys than among girls, which he attributed to the tendency to dissipation on the part of boys. He thought that more attention should be given to the boys in the matter of sanitation and physical exercise.

Dr. Donly C. Hawley of Burlingon thought the great changes in the economic world at times made it desirable for women to enter into competition with men in business and professional life. He felt, however, that every effort should be made to induce women to fulfil their true function, which, in his opinion, was that of wife and mother. He thought the effort should be made in school and business life to have a girl or woman remain at home for the few days of her menstrual period.

Dr. Florus F. Lawrence of Columbus thought the home should be made so attractive that girls might not desire to enter positions heretofore considered to belong to men.

Dr. Ward of California said that his experience as a teacher convinced him that women in professional work could be relied upon for the highest standards and absolutely without variation or compromise. So much as this could not be said for the men. He admitted that there were many professional men striving for the highest ideals but that on the other hand there were those ready to debase the profession for some personal advantage. He believed that the college women would be the ones in the next generation shown to be the leaders in women's work and he expressed his confidence that they would solve the question according to right.

An amendment to the Constitution was adopted providing for the election as Associate Members of those who were not physicians, but who had the required preliminary degree, and who were working along sociological, educational, and other scientific lines.

Officers.—The following officers for the ensuing year were elected: *President,* Dr. Helen C. Putnam, Providence; *Vice-Presidents,* Drs. Charles S. Sheldon, Madison; L. Harrison Mettler, Chicago; Joseph K. Weaver,

Norristown; Norman Bridges, Los Angeles; *Secretary and Treasurer*, Dr. Charles McIntire, Easton; *Assistant Secretary*, Dr. Alexander R. Craig, Philadelphia.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 21, 1908.

The President, Dr. John A. Wyeth, in the Chair.

The evening's program was devoted to a symposium on anesthesia.

The Hospital and the Professional Anesthetist.—Dr. A. T. Bristow read this paper. (See page 260.)

General Anesthesia on the Basis of the Principle of Adapting the Boiling Point of the Anesthetic to the Temperature of the Body (Schleich).—Dr. Willy Meyer read this paper. (See page 261.)

Anesthesia at St. Luke's Hospital.—Dr. Robert Abbe read this paper. (See page 263.)

The Administration of Anesthetics at Mt. Sinai Hospital; Notes from a Surgical Standpoint.—Dr. Howard Lilienthal read this paper. (See page 264.)

Rectal Anesthesia at Roosevelt Hospital.—Dr. W. S. Sutton addressed the members of the Academy for Dr. J. A. Blake and Dr. George E. Brewer. They believed that the term colonic anesthesia was a more correct one than rectal anesthesia. They gave the report on 100 cases, 52 males, and 48 females. There were 91 ward patients, and 9 private. The ages ranged from two to seventy-seven years, and there were a large number of patients at both extremes. The classification of their cases were interesting: There were 31 operations for tumors of the neck; 9 breast amputations; 8 operations for goiter or thyroid gland cyst; 6 craniotomies; 5 resections or suture or osteotomy of inferior maxilla; 5 corrections of old fractured limbs; 4 partial excisions of tongue; 4 cases of staphylorrhaphy; 3 tracheotomies; 3 mastoid operations; 2 operations for inguinal hernia; 2 operations for the removal of parotid tumors; 2 resections or osteotomies of superior maxilla; 2 removals of the Gasserian ganglion; 2 skin grafts; 1 orchidopexy; 1 operation for hydrocele; 1 appendectomy; 1 nephrotomy; 1 for Ludwig's angina; 1 enucleation of the eye; 1 resection of the knee; 1 cervical laminectomy; 1 operation for axillary adenitis; 1 excision of sternocleidomastoid; 1 plastic operation for stricture of the esophagus; 1 laryngectomy, and 1 neurorrhaphy. The average time of colonic anesthesia was fifty-three minutes. The average consumption of ether was 112 c.c. per hour. The number of patients having morphine, scopolamine, or both, was 12. The number having forms of supplementary anesthesia was 43. The number in which oxygen was used as the vehicle was 25. The number that belched gas from the stomach was 12. The number that showed perspiration was 18. The number that vomited or regurgitated was 43. The number that had abdominal pain was 12. The number that has blood in the stools as the result of this method was 5. The following were the points given in favor of colonic anesthesia: (1) The freedom of the operative field from contamination by the anesthetic. (2) The ability to maintain smooth and continuous anesthesia. (3) The uniform depth of the anesthesia, causing a light narcosis and a saving of the ether. (4) The lessening of the pharyngeal and bronchial secretion and of tonic contraction or troublesome relaxation of the jaw muscles. (5) The ability to administer oxygen without interrupting the anesthesia. (6) The lessened loss of body temperature because of diminished sweating and ether refrigeration. (7) The saving of ether. (8) The reduction of postoperative nausea and vomiting. There might be regurgitation without nausea. The points against this method were (1) an occasional postoperative occurrence of hemorrhage from the bowel; (2) an occasional difficulty in maintaining profound anesthesia.

The indications for colonic anesthesia were: (1) Operations on or about the respiratory tract (head, neck, and chest), especially those which laid open the mouth, pharynx, larynx, or trachea. (2) Operations on patients in whom ether absorption must be minimized on account of lung, heart, or kidney lesions. (3) Operations in cases already suffering from respiratory embarrassment.

The contraindications were: (1) Operations in cases with any inflammation of the intestinal tract. (2) Abdominal operations except those on the bladder or kidney. In such cases the distended colon tended to force the bladder or kidney into the operative field. (3) Operations in cases with markedly incompetent sphincter ani, or with large complete fistula in ano. (4) General emergency operations. Dr. Sutton then demonstrated the apparatus used and told of the preparation of the patient, the administration of the gas, and the after treatment. He also spoke of the development of the apparatus.

The Anesthetic at the Hospital for the Ruptured and Crippled.—Dr. V. P. Gibney read this paper. (See page 266.)

Anesthesia at the Harlem Hospital.—Dr. W. H. Luckett made this report. Letters from members of the surgical staff were read in which each member told of his favorite anesthetic.

Anesthesia at Bellevue Hospital.—Dr. George Woolsey read this paper. He said that the question of the administration of anesthesia at Bellevue Hospital was complicated by the fact that there were eighteen general or special surgeons who might vary the practice in the use of anesthetics to suit their own preference. A circular letter was sent to these several surgeons and replies were received from fourteen, from which, and his knowledge of the conditions at Bellevue, the following conclusions were drawn: Ether was the favorite anesthetic of all, but the method of giving it varied. The majority (eight) commenced anesthesia with nitrous oxide gas, and one other used it occasionally; two did not use it, and three did not as a rule. The drop method appeared to be the favorite method of giving ether, being used most by five and equally with the Bennett inhaler by two. Two preferred the open method without specifying what form of open apparatus they use; one used the closed and open methods equally, and two preferred the Bennett inhaler. The variety of methods was shown by the fact that one surgeon used Keith's modification of Clover's inhaler. From this summary, and his knowledge of the practice in the past, it appeared that the use and preference of the open method, and especially the drop method, had increased very much of late, at the expense of the closed methods. In this connection it should be remembered that the conditions at Bellevue differed somewhat from those at many other hospitals in the relatively greater number of alcoholics among those who were anesthetized. The use of the closed methods in this class of patients required more skill and was attended with more difficulty. The conditions attending the use of anesthesia at Bellevue were not and could not be ideal. The ideal method was to have a professional anesthetist for every anesthesia. Apart from the expense and impracticability of this, another difficulty lay in the fact that the house staff must be taught the practice of anesthesia so as to become fairly proficient in its use for future necessities. For some years past professional anesthetists had been employed at Bellevue to teach the house staff and no member of the latter was allowed to give anesthesia alone until he had been qualified by the anesthetist. Formerly there was but one instructor on duty at a time, and he could not give the time to instruct thoroughly the staff of each of the four divisions; now there was an instructor for each division.

An inquiry as to whether this instruction worked well or not gave the following: Six thought it worked well; four fairly well; one not well; and two thought that little

instruction was really given, or perhaps received. One surgeon replied that the best instruction was given by the older members of the house staff. Dr. Woolsey's own experience had been that the staff of another hospital, with which he was connected and where no other instruction was given, had always used the Bennett inhaler better than the staff at Bellevue. The situation at Bellevue was more difficult, as had been said, on account of the large number of alcoholics. As to other forms of anesthesia, chloroform was used rarely, if ever, by thirteen; and only one replied that he used it, and would use it more if he had competent men to give it. The occasional cases where it was used included young children, pulmonary complications, short operations, operations on mouth, face, and neck, cases where ether was contraindicated, and sometimes at the beginning of an operation. Nitrous oxide gas alone was used by one, occasionally by four, and not at all by nine. Here, too, the inexperience of the staff in giving gas, except as a preliminary to ether, deterred many from using it in cases in which it was now more generally used than formerly. Spinal anesthesia was not used by ten, and occasionally by four, especially in cases of gangrene and in some old subjects where ether was distinctly dangerous, at least as given by the average interne. On the other hand local anesthesia was used quite extensively, especially for minor operations, but also for a variety of major operations as well. A year or two ago the trustees of Bellevue and the allied hospitals passed a regulation requiring the presence of an attending or assistant surgeon whenever general anesthesia was employed. Whether this regulation had increased the use of local anesthesia more than it would naturally have increased was an open question. In answer to his inquiry as to this point six thought that it had not increased its use, four that it had, and four did not know. As he compared the present practice with that of three to five years ago, the most noticeable changes were the stricter regulations as to the use of general anesthesia, and the growing preference for the open method, and especially the drop method, of administering ether.

Nitrous Oxide and Oxygen as an Anesthetic Agent; Notes on the Value of Warming of Vapors of Ether and Chloroform.—Dr. James T. Gwathmey read this paper. He believed that from every standpoint the ideal routine administration of the anesthetic should be about as follows: (1) In addition to the usual preparation, the patient's nerves should be controlled by previous medication in either of the two following ways: (*a*) A suitable dose of morphine according to the age and conditon of the patient; (*b*) an enema of seven ounces of saline and one of whiskey one-half hour before the operation. The patient would then come to the table in a suitable frame of mind. (2) The anesthesia should be commenced with nitrous oxide and oxygen, or nitrous oxide and air, and continued until full surgical anesthesia was reached with this agent, and then the ether chamber should be turned on gradually and slowly. In this way there would be no swallowing in the first five minutes. (3) The method of administration should now be changed to the closed inhaler and the anesthesia deepened by rebreathing. This should be continued until the whole system had been thoroughly stimulated by the ether. (4) A change should now be made to warm chloroform, given either by the vapor method, or drop by drop. (5) This change to chloroform should be made when the patient was only lightly under ether. Care must be taken not to allow the patient to come out sufficiently to exhibit any rigidity of the muscles. On the other hand, the narcosis should not be deepened unnecessarily. (6) As the operation was drawing to a close a warm saline enema should be given and the anesthesia should be so lightened that the patient would exhibit signs of consciousness as the bandages were being applied. (7) This enema should be repeated every few hours as required.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Nebraska State Board of Health Examinations.

Lincoln, Neb., May 27, 28, 29, 1908.

ANATOMY.

1. Give a general description of the skin; describe the layers, and the special structures and appendages.
2. Give brief description of the animal cell.
3. Describe the mastoid portion of the temporal bone.
4. Discuss briefly the thyroid body.
5. Give the peritoneal relations of the colon.
6. Give the peritoneal relations and connections of the bladder.
7. Give the origin of the vessels of the uterus and the ovaries.
8. Briefly describe the shoulder joint and name its ligaments.
9. Name all the orifices of the diaphragm, also the structures passing through each orifice.
10. Give the origin and insertion of the muscles of the abdominal walls.

PHYSIOLOGY.

1. (*a*) Give the varieties of cartilage. (*b*) Give distribution. (*c*) State how cartilage is formed and nourished.
2. Describe the normal heart sounds and give the area of maximum intensity of the sounds of the chest wall.
3. Describe the sphygmograph and make a sphygmographic drawing of a normal pulse, also a drawing of a pulse in mitral insufficiency.
4. What are the accepted theories as to the origin of the white blood corpuscle; the red blood corpuscle; state the relative proportion of the white and red corpuscles in the human body.
5. Name the digestive ferments and give the origin and action of each.
6. Explain in detail how the functions of the auditory organs are performed.
7. Give the functions of the kidney; state what causes the acidity of the urine.
8. Name the ductless glands of the body and give the latest theory of the function of each gland.
9. Describe the process of ovulation.
10. Explain arterial tension and show by what nervous and mechanical agencies it is maintained.

CHEMISTRY.

1. Define chemical action, physical action; give examples of each.
2. What is the atomic theory?
3. Give the average amount and composition of normal urine voided by an adult in twenty-four hours.
4. Name and describe the method of using two tests for the detection of sugar and albumin in the urine.
5. Name the enzymes of the pancreatic juice and give the functions of each one.
6. Name six metals and six nonmetals.
7. How would you detect arsenic in the contents of the stomach?
8. Why is the administration of albumen useful in poisoning?
9. Where is oxygen found in the human body and what are its important uses in the animal economy?
10. Give the common name and properties of mercurous chloride; of corrosive sublimate. Mention an easily applied test that will distinguish one from the other.

MATERIA MEDICA AND THERAPEUTICS.

1. Write a prescription for the following: Lithemia, dysuria, chorea.
2. Name the impurities in water that may cause diarrhea.
3. Mention and describe the diseases of animals that are communicable to man and state the means to be employed for their prevention in man.
4. Under what conditions would you prescribe the following: Capsicum, strophanthus, iodine, nux vomica, tr. aconite?
5. What is the composition of compound cathartic pill, brown mixture, Fowler's solution, and Donovan's solution?
6. Diphtheria antitoxin: how and when is it used; give doses, prophylactic and curative; how is it obtained?
7. How would you manage a case of typhoid fever; how prevent its spread?

8. What are the therapeutic uses of mineral acids? Name five.
9. How would you manage a case of tuberculosis? What precautions would you employ to prevent its spread?
10. Give the adult dose of the following drugs: Strychnine, atropine, adrenalin, nitroglycerin, belladonna, codeine; sulphonal, morphine, acetanilid, hyoscine, and ether.

PATHOLOGY.

1. Give the pathology of aneurysm.
2. Define myomata, neuromata, angiomata.
3. What part of the cord is involved in locomotor ataxia? Give the pathology of same.
4. Differentiate between osteomyelitis and inflammatory rheumatism.
5. Give the pathology of typhoid fever.
6. Differentiate between scarlet fever and measles.
7. Give the etiology and pathology of pericarditis and name the different forms.
8. Describe fibrinous pneumonia.
9. What is hydrosalpinx? Give its pathology.
10. Give the pathology of simple acute catarrh of the intestines.

PRACTICE.

1. Give etiology, diagnosis, treatment, and prognosis of erysipelas.
2. What are the causes and give treatment of palpitation of the heart.
3. Differentiate the classes of croup and give the treatment for each.
4. Define neurasthenia and give etiology, symptomatology and treatment.
5. Give etiology and treatment of eclampsia infantum.
6. Give the diagnosis and treatment of lobar pneumonia.
7. Diagnose and outline the treatment for obstruction of the cystic duct; and of the common bile duct.
8. What is herpes zoster? Give the cause and treatment.
9. Give the treatment of chronic follicular pharyngitis; give treatment of acute catarrhal laryngitis.
10. Give etiology, characteristic symptoms, and treatment of acute chorea.

OBSTETRICS.

1. (*a*) Describe the changes that take place in the breasts as a result of pregnancy. (*b*) What disease of the breasts is most apt to follow labor and what prophylactic measures would you adopt to prevent it?
2. Give the etiology, symptoms, sequelæ, and treatment of septic endometritis (nonspecific).
3. What is subinvolution? Give symptoms and treatment.
4. What is the treatment of placenta prævia, hemorrhages occurring before full term? How would you manage it?
5. Give the causes, symptoms, and management as best understood and practised at present, of albuminuria of pregnancy.
6. (*a*) Give the causes of retroversion and retroflexion of the uterus. (*b*) Give the differential diagnosis between the two. (*c*) Give the treatment for each.
7. What are the symptoms of the so-called puerperal insanity? Give an outline of its treatment.
8. Name three of the most common causes of premature birth.
9. How would you diagnose the presence of a ruptured uterus and what treatment is called for?
10. Give the treatment for gonorrheal vaginitis.

SURGERY.

1. Differentiate between epithelioma and lupus.
2. What symptoms would indicate a rupture of the middle meningeal artery, following an injury to the head, and by what superficial landmarks would you locate it?
3. Differentiate between eczema, dermatitis, and syphilis.
4. Give some of the chief causes of delayed union in fractures and the treatment you would adopt for each cause.
5. Describe the several forms of corneal ulcer; their causes and treatment.
6. Give diagnosis, course, and treatment of gonorrheal arthritis.
7. Give the indications for tracheotomy and describe how same is performed.
8. What is synovitis? Give the causes, symptoms, and treatment.
9. What is phlebitis? Give causes, symptoms, and treatment.
10. Give the indications for the removal of the prostate gland.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NEBRASKA STATE BOARD OF HEALTH EXAMINATIONS.

Lincoln, Neb., May 27, 28, 29, 1908.

ANATOMY.

5. The *oscending colon* is generally covered with peritoneum on its anterior surface and the two sides; the posterior surface is generally uncovered.

The *transverse colon* is completely covered with peritoneum except on the first few inches of the posterior surface.

The *descending colon* is generally covered with peritoneum on its anterior surface and sides only; the posterior surface is destitute of peritoneal covering.

In the *sigmoid flexure* the lower or pelvic portion is entirely covered by peritoneum; the upper or iliac portion is generally only covered by peritoneum on its anterior and two lateral surfaces.

6. The superior surface of the bladder is covered by peritoneum. "From each lateral border the peritoneum passes *(lateral false ligaments)* to the pelvic wall, lining a groove *(parovesical fossa)* which is present on each side when the bladder is empty. Anteriorly the peritoneum passes *(anterior false ligaments)* over the urachus to the anterior abdominal wall, at the upper border of the symphysis when the bladder is empty; two or more inches higher when the bladder is full. Along the posterior border the peritoneum passes to the rectum or uterus, forming a fold *(posterior false ligament)* at each side of the rectovesical or uterovesical pouch.

The base is chiefly fixed by the *true ligaments*, processes of the pelvic fascia reaching in front from the pubis, and laterally from the sides of the pelvis. It is fixed to the anterior abdominal wall above by the urachus. It is also fixed by fibrous tissue to the ureters, seminal vesicles, and vasa deferentia (or vaginal walls).

7. The *uterus* is supplied by the uterine artery (from the internal iliac) and the ovarian artery (from the aorta).

The *ovaries* are supplied by the ovarian arteries (from the aorta).

9. The *orifices of the diaphragm* are: (1) The aortic, transmitting the aorta, vena azygos major, and the thoracic duct; (2) the esophageal, transmitting the esophagus, pneumogastric nerves, and some small esophageal arteries; (3) the opening for the vena cava, transmitting the inferior vena cava, and small branches of the right phrenic nerve; (4) the right crural, transmitting the right splanchnic nerves; (5) the left crural, transmitting the left splanchnic nerves and the vena azygos minor.

PHYSIOLOGY.

2. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup*.

The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage.

4. The white blood corpuscles are supposed to be made in the lymphatic glands; the red ones in the red bone marrow.

The proportion of white to red corpuscles is about 1:700.

5.

DIGESTIVE FERMENTS.	ORIGIN.	ACTION ON FOOD MATERIALS.
Ptyalin.	Saliva.....	Changes starches into dextrin and sugar.
Pepsin.	Gastric Juice....	Changes proteids into proteoses and peptones in an acid medium.
A curdling ferment.		Curdles the casein of milk.
Trypsin.	Pancreatic Juice.	Changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
Amylopsin.		Converts starches into maltose.
Steapsin.		Emulsifies and saponifies fats.
A curdling ferment.		Curdles the casein of milk.
Invertin.	Intestinal Juice..	Converts maltose into glucose.

6. "The waves of sound are gathered together by the pinna and external auditory meatus, and conveyed to the membrana tympani. This membrane, made tense or lax by the action of the tensor tympani and laxator tympani muscles, is enabled to receive sound waves of either high or low pitch. The vibrations are conducted across the middle ear by a chain of bones to the foramen ovale, and by the column of air of the tympanum to the foramen rotundum, which is closed by the second membrana tympani, the pressure of the air in the tympanum being regulated by the Eustachian tube. The internal ear finally receives the vibrations, which excite vibrations successively in the perilymph, the walls of the membranous labyrinth, the endolymph, and, lastly, the terminal filaments of the auditory nerve, by which they are conveyed to the brain." (Brubaker's *Physiology.*)

7. The function of the kidney is to separate the urine from the blood, and to excrete urea.

The acidity of the urine is due to the presence of acid sodium phosphate.

8. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, suprarenals, carotid, coccygeal, pituitary, and pineal glands.

The *function of the spleen*: The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

The *function of the thymus* is not settled; it is said: (1) To be a blood forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The *function of the thyroid* is not definitely settled; (1) it has some trophic function; (2) it is supposed to antagonize toxic substances; (3) it produces an internal secretion.

The *function of the suprarenals* is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body.

The function of the *other* ductless glands is unknown. They all, or nearly all, furnish an internal secretion.

CHEMISTRY.

1. "A bar of soft iron may be made to emit light when heated, or sound when caused to vibrate, or magnetism when under the influence of an electric current. Under the influence of these *physical forces* the iron suffers no change in composition, and, on cessation of the action of the inciting force, the iron returns to its original condition. But if the iron be heated in an atmosphere of oxygen, both the iron and a part of the oxygen disappear, and a new substance, a new chemical species, is produced, having properties of its own, different from those of either the iron or the oxygen. In this case there has been *chemical action*, causing change of composition, as the new substance contains both iron and oxygen. The result of such action is, moreover, permanent, and the new product continues to exist, until modified by some new manifestation of chemical action." (Witthaus' *Manual of Chemistry.*)

2. The atomic theory regards matter as not being infinitely divisible, but as being composed of indivisible particles called atoms. Dalton, by ascribing to each atom a relative weight as compared with the weight of other atoms, was able to explain and produce reasons for all the observed numerical laws of chemical combination.

3. The following table (from Dunglison's *Medical Dictionary*) gives the average composition of normal urine:

	(Parts in 1000.)		Voided Per Day	
			Grains	*Grams*
Water	950.00			
Urea	28.00		520.80	35.00
Uric acid	0.60	Organic	11.16	0.75
Hippuric acid	0.35	matter	6.51	0.44
Creatinin	0.65	37.60	12.09	0.81
Extractives	8.00		148.80	10.00
Sodium chloride	8.00		148.80	10.00
Phosphoric acid	2.00		37.20	2.50
Sulphuric acid	1.25	Inorganic	23.45	1.56
Lime (CaO)	0.25	matter,	4.65	0.31
Magnesia (MgO)	0.30	12.40	5.58	0.37
Potash (K_2O) and soda (Na_2O)	0.60		11.16	0.75
Total	1000.00		930.20	62.49

The average amount of urine voided in twenty-four hours is about fifty ounces.

4. Two tests for the detection of sugar in the urine: The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1) *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) *Boettger's test:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by the dark or black color of the bismuth powder, the litharge retaining its natural color. (From Witthaus' *Essentials of Chemistry.*)

Two tests for the detection of albumin in the urine: "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent, it is to be treated with a few drops of magnesia mixture and again filtered."

I.—*The heat test:* "The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

II.—*Heller's modification of the nitric acid test:* "Place in a test-tube a layer of HNO_3 about 2 centim. in thickness; then, with a pipette, carefully float upon the surface of this a layer of the urine in such a manner that the liquids do not mix. If albumin be present, a cloudy ring appears *at* the point of junction of the two layers, the borders of the cloud being sharply defined. A cloudy ring may be formed by the presence of an excess of urates, but in this case it is not *at*, but *above*, the point of junction of the layers, and its upper border is not sharply defined, but fades off gradually." (Witthaus' *Essentials of Chemistry.*)

5. See above, physiology, Question 5.

6. *Six metals*: Mercury, copper, zinc, lead, gold, silver.

Six nonmetals: Hydrogen, oxygen, nitrogen, fluorine, chlorine, sulphur.

7. *Arsenic* in the stomach contents can be detected by *Reinsch's test*, as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

8. The administration of albumin is useful in many cases of poisoning, because the albumin forms more or less insoluble compounds with most of the metallic salts, mineral acids, corrosive alkalies, and some of the alkaloids.

9. Oxygen is found in the human body in the blood plasma, and in combination in almost every tissue of the body.

Its uses in the animal economy are: To maintain respiration, aerate the blood, oxidize the tissues, and thus to supply heat and energy. It supports life and combustion.

10. *Mercurous chloride* or *calomel* is a heavy, white powder; amorphous; tasteless and odorless; it is insoluble in cold water and in alcohol, and very slightly soluble in boiling water; when exposed to the light it becomes discolored (first yellow, then gray) and partially decomposed; it sublimes without fusing; it is incompatible with the mineral acids, with the alkaline chlorides, bromides, and iodides.

Corrosive Sublimate is heavy, white and crystalline; it has a strong, acrid, styptic taste, and is soluble in water, in alcohol, and in ether; it is decomposed by exposure to light.

They can be easily distinguished by their solubility.

MATERIA MEDICA AND THERAPEUTICS.

1. *For Lithemia*:

℞ Potassii acetatis.
Potassii bitartratis.
Potassii citratis aa ℥ss.
Aquæ destillatæ q.s. ad ℥viij. Misce.
Signa:—One tablespoonful in half a glass of water after each meal.

For Dysuria: If due to acute cystitis, the above prescription will do here also.

For Chorea:

℞ Chloralis hydratis, ℥ij.
Sodii bromidi, ℥iv.
Aquæ destillatæ, q.s. ad ℥ij. Misce.
Signa:—One teaspoonful in water, every five hours, for three doses.

2. The impurities in water that may cause diarrhea, are: Suspended mineral matters, suspended animal (fecal) and vegetable matters, fetid gases, and an excess of dissolved nitrogenous organic matter.

3. "Among the most common of the diseases and parasites of animals, which are communicable to man, are: (1) Glanders, a disease of the genus *Equus*, generally fatal when contracted by man; (2) anthrax, a disease of horses, cattle, sheep, and swine, appearing in man either as malignant pustule or as internal anthrax, and often fatal; (3) tuberculosis, a disease common in cattle and swine, but also occurring in horses, sheep, goats, dogs, poultry, cage birds, and menagerie animals; (4) rabies, a disease of the genus *Canis*, communicable to all warm-blooded animals and to man; (5) epizootic aphtha, commonly known as foot-and-mouth disease, a very infectious malady of cattle, sometimes communicated to the consumers of the milk of diseased cattle; (6) *Cysticercus bovis*, found in cattle, is the larval form of the tapeworm of man known as *Tænia saginata;* (7) *Cysticercus cellulosæ*, found in swine, is the larval form of the tapeworm of man known as *Tænia solium;* (8) the *Trichina spiralis*, a common parasite of swine, may develop in man and sometimes produces fatal results; (9) the *Echinococcus* found in the lungs, liver, and other organs of the meat-producing animals is the cystic phase of the *Tænia echinococcus* of the dog.

"It is evident that the most satisfactory way of protecting man from this source of danger is to eradicate these diseases and parasites so far as possible from the domesticated animals. As complete eradication cannot be accomplished for many years and in some cases not at all, there must be constant efforts for repression and control. People must be made familiar with the dangers; too close association with animals should be avoided; the inspection of meat and of dairy cows should be universal; swine flesh should be well cooked; hides, wool, and hair, often infected with the anthrax bacillus, should be handled with suitable precautions; biological products used for the prevention or cure of human diseases should be surrounded with every safeguard to avoid contamination." (*Reference Handbook of the Medical Sciences.*)

5. *The compound cathartic pill* consists of:—Calomel, about one grain; compound extract of colocynth, about one and a quarter grains; resin of jalap, about half a grain; and gamboge, about one-quarter of a grain.

Brown mixture is compound mixture of glycyrrhiza, and contains extract of glycyrrhiza, syrup, acacia, wine of antimony, spirit of nitrous ether, camphorated tincture of opium, and water.

Fowler's Solution is liquor potassii arsenitis, and contains arsenic trioxide, potassium bicarbonate, compound tincture of lavender, and water.

Donovan's Solution is liquor arseni et hydrargyri iodidi, and contains arsenic iodide, mercuric iodide, and water.

7. To prevent the spread of typhoid, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food; flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over.

9. Suitable measures for preventing the spread of tuberculosis would include: Careful disinfection or burning of sputum, etc.; avoidance of spitting in public places; plenty of fresh air and sunlight; an abundance of good and easily digested food; the proper inspection of food supplies; the avoidance of kissing; and reporting of cases to the proper health authorities, and cooperation with them.

10. Adult doses: Strychnine, gr. 1/64; atropine (sulphate), gr. 1/160; adrenalin, ♏xx. of a one per cent. solution; nitroglycerin, one minim of a one per cent. solution; belladonna (alcoholic extract of), gr. 1/5; codeine, gr. 1/2; sulphonal, gr. xv; morphine, gr. 1/4; acetanilid, gr. iv; hyoscin (hydrobromate), gr. 1/128; ether, ♏xv.

PATHOLOGY.

3. In *locomotor ataxia* the posterior columns of the spinal cord and the posterior nerve roots are involved.

The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus.

The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective titssue, and sometimes congestion; the spinal ganglia may be affected.

4. In *ostcomyelitis* the shaft of the bone is usually attacked, the fever is moderate only, there are no acid sweats, and heart lesions are not usually present.

In *rheumatism* the joints are usually attacked, and more than one may be involved, the fever may be high, acid sweats are present, and the heart is usually involved.

6. In *scarlet fever* the eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat.

In *measles* the eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present.

PRACTICE.

2. Palpitation of the Heart. *Causes*: Anemia, neurasthenia, fright, hysteria, anxiety, indigestion, alcohol, tea, coffee, tobacco, excitement, unusual physical exertion, organic disease of the heart.

Treatment: If possible, remove the cause; institute proper hygiene and diet; moderate exercise, abstention from excesses of any kind, warm baths, regular hours, and rest are necessary; aconite, iron, strychnine, and bromide of potassium have each been recommended; electricity, Weir-Mitchell rest cure, and a mild mountain climate have been suggested.

3. *Membranous or True croup* is either laryngeal diphtheria or a streptococcus infection. In either case there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become very high. A membrane forms, in which are found the Klebs-Loeffler bacillus or streptococci. *False or Spasmodic croup* generally comes on suddenly, at night. There is no appreciable fever, no previous malaise or sickness, and often the patient is asleep again by the time the physician arrives. There is frequently a thick tenacious mucus, but neither Klebs-Loeffler bacilli nor streptococci are present. It is entirely a local disturbance.

5. *Causes of eclampsia infantum* are: "Overeating, especially of indigestible food; rachitis, debility from exhausting diarrheal diseases; high fever, especially at the onset of the acute specific infections; very seldom dentition, phimosis, and acute middle-ear inflammation; injuries to the brain at birth, infantile hemiplegia, meningitis, and tumor of the brain; rarely of spinal cord disease.—(From Butler's *Diagnostics of Internal Medicine.*)

OBSTETRICS.

1. (*a*) The changes that take place in the breasts as a result of pregnancy: The breasts increase in size and vascularity, and feel knotty; the areola becomes darker and wider; a secondary areola develops; the nipple and glandular follicles around it become larger; fluid can sometimes be squeezed out of the nipples, especially towards the end of pregnancy.

(*b*) Following labor, mastititis, due to septic infection, may occur. This can only be prevented by the best antiseptic precaution; the breast must be kept clean, the nipple dry, and the parts are not to be touched by the patient, and only by the physician or nurse after the most thorough antiseptic precautions. The nipple should be kept clean by boric acid solution, and the breast should not be allowed to get engorged.

8. Three of the most common causes of premature birth: Syphilis, endometritis, and the abuse of drugs (oxytocics).

SURGERY.

I.

EPITHELIOMA.	LUPUS.
Cancerous.	Tuberculous.
Generally occurs in adults.	Generally occurs in young people.
Infiltrates the tissues, and may extend rapidly.	Spreads slowly, and may heal at one part while breaking down at another.
Glands are involved.	No glandular involvement.
Usually painful.	Not usually painful.
Cachexia is present.	No cachexia.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct. 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct. 13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 11
Georgia	E. R. Anthony, Griffin	Atlanta	Oct. 6
Idaho	W. F. Howard, Pocatello	Boise	Oct. 6
Illinois	J. A. Egan, Springfield	Chicago	Oct. —
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	Oct. 27
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept. —
Kansas	D. P. Cook, Clay Center	Kansas City	Oct. 13
Kentucky*	J. N. McCormick, Bowling Green	Louisville	Oct. 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct. 1
Maine	Wm. J. Maybury, Saco	Augusta	
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 6
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Nov. 4
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire*	Henry C. Morrison, State Library Concord	Concord	Dec. 30
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct. 20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept. 22
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct. 6
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	J. C. Mahr, Shawnee	Shawnee	Sept. —
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. —
Rhode Island	G. T. Swarts, Providence	Providence	Oct. 1
S. Carolina	W. M. Lester, Columbia	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	G. B. Foscue, Waco	Houston	Nov. 10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 5
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 16
Washington*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov. 10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 12
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 14

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

District of Columbia.—In a new bill concerning the practice of medicine in the District of Columbia there is a requirement that the medical school from which the physician has been graduated must have a course of "four school years of at least nine months each."

Rhode Island.—In future candidates for the examination for license to practice medicine in this State will be required to have been graduated from a reputable medical college.

Pennsylvania.—Of 398 applicants for licenses to practise medicine in Pennsylvania at the recent examination, 362 passed the examination of the State Medical Board, and it is said that the papers made an excellent showing.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 8, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	411	137
Diphtheria	170	14
Measles	130	7
Scarlet Fever	89	2
Smallpox	—	—
Varicella	10	—
Typhoid Fever	107	20
Whooping Cough	23	12
Cerebrospinal Meningitis	10	6
Malarial Fever	—	—
Totals	950	198

Presence of Sudanophile Leucocytes in Diphtheritic Infection.—Luigi Banini has examined the sudanophile leucocytes in diphtheria as well as in cases of nondiphtheritic angina. He found these granules in the polynucleated and mononucleated leucocytes. They were present in considerable numbers in severe cases of diphtheria, especially when the glands of the neck were swollen. In cases of less gravity these granules were of less frequency. They were absent in nondiphtheritic cases. They diminish rapidly as the disease improves. The author believes that the formation of these granules is the result of the disease, and arises from degenerative phenomena. The finding of these granules is an indication of the gravity of the disease and the amount of intoxication, and indicates a bad prognosis when they are in large numbers.—*Rivista di Clinica Pediatrica.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending August 7, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS
California, San Francisco	June 11–18	8	..
Illinois, Springfield	July 17–23	1	..
Indiana, Indianapolis	July 19–26	1	..
South Bend	July 18–25	2	..
Kansas, Kansas City	July 18–25	1	.
Topeka	July 19–26	1	..
Louisiana, New Orleans	July 18–25	1	Imported
Minnesota, Winona	July 11–18	1	..
Ohio, Dayton	July 11–18	4	..
Tennessee, Knoxville	July 18–25	1	..
Virginia, Waynesboro	June and July	20	..
Washington, Spokane	July 11–18	5	..
Tacoma	July 12–19	2	..
Wisconsin, La Crosse	July 18–25	5	..
Milwaukee	July 11–18	3	1

SMALLPOX—INSULAR

Philippine Islands, Manila	June 6–20	5	4

SMALLPOX—FOREIGN.

China, Foochoo	June 21–27	.	Present
Hongkong	May 31–June 6	4	3
Ecuador, Guayaquil	June 13–27	.	7
Formosa	June 6–13	1	..
Japan, Kobe	June 27–July 4	1	..
Osaka	June 20–27	3	1

YELLOW FEVER.

Cuba, Daiquiri	Aug. 3	2	..
"	Aug. 4	1	..
"	Aug. 5	1	1
Ecuador, Guayaquil	June 13–29	.	1
Martinique, Fort de France	June 21–27	1	1
Mexico, Tierra Blanca	July 27	1	.
Vera Cruz	Aug. 4	1	.

CHOLERA—INSULAR.

Philippine Islands, Manila	June 6–13	1	1
Provinces—			
Capiz	June 6–13	100 daily	..
Pangasinan	June 6–13	100 "	..

CHOLERA—FOREIGN.

China, Hankow	July 25	.	Present

PLAGUE.

China, Hongkong	May 31–June 6	138	112
Ecuador, Guayaquil	June 13–27	.	4
Egypt, General	June 25–July 2	55	25
Alexandria	June 26–29	7	3
Formosa	June 6–July 4	117	121
India, General	June 6–20	1,618	1,616
Japan, Kobe	June 27–July 4	1	..
Osaka	June 20–27	1	1
Venezuela, Caracas	July 4–21	25	Estimated

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Original Articles.

THE APPEARANCE OF HETEROPLASTIC TUMORS IN THE TRANSPLANTATIONS OF THE NEWGROWTHS OF ANIMALS.*

BY PROFESSOR DR. VON LEYDEN
AND
PROFESSOR DR. CARL LEWIN,
BERLIN.

EVER since the work of Hanau, of Moran, of Loeb, and especially of Jensen has made possible the transplantation of tumors in mice and in rats, the research workers of all lands have been carefully studying the conditions necessary for the origin and the growth of the transplanted tumors in these animals. Jensen, Ehrlich, Apolant, Loeb, Michaelis, and others all agree that the development of the transplanted newgrowth is due to the division of the cells brought over from one animal to the other, the stroma alone of the tumor being furnished by the tissues of the latter animal. Accordingly, these results support the view which was especially championed by pathologists even before the experimental work on tumors began, namely, that the transfer of tumors in animals did not occur through infection, but was in reality a transplantation of tissue, that is, the artificial production of metastases. No new tumors appeared, therefore, but the old ones continued their existence by the production of new cells. Of course, it seemed as if the results of the new research work had added but little to the solution of the tumor problem. Many points of interest in regard to newgrowths in human beings could be elicited by varying the rate of growth of the neoplastic cells that were experimentally transferred as well as the resistance of the animal tissues to the encroaching tumor tissues; the real essence of the problem involved in the production of malignant tumors remained as dark as before.

So much more surprising was the announcement made by Ehrlich and Apolant in the year 1904, telling of their observation of a mouse cancer which in the sixty-eighth transplantation assumed the appearance of a spindle-celled sarcoma. The sarcoma did not appear suddenly; at first the stroma became more cellular, simulating the usual appearance of a *carcinoma sarcomatosum;* gradually the epithelial elements of the original tumor disappeared and there remained a pure spindle-celled sarcoma which up to the present time has kept this acquired character. A communication from Loeb of New York followed the announcement of Ehrlich, the observation reported by him being similar to the one described above. In Loeb's case, however, the appearance of sarcomatous elements was observed as early as the second transplantation, the original epithelial elements of the tumor being overwhelmed by the newly appearing connective tissue very soon after the transfer of the newgrowth from one animal to another. So unusual were both these observations that at first it was thought that the original tumor was a mixed one, and even before the transplantation experiments contained the elements of both carcinoma and sarcoma. Ehrlich and Apolant, however, showed immediately that such an assumption was not justifiable. Otherwise it would be quite inexplicable why the sarcomatous part of the tumor should have stayed inactive for sixty-eight generations only then to take on a rapid and overwhelming growth. Loeb, in addition, made serial sections of the original tumor used by him, and could thus prove that not a particle of sarcomatous elements was to be found in it, and the new tumor must have appeared after the transplantation.

How was such a phenomenon, the appearance of a sarcoma in a carcinoma during transplantation, to be explained? It certainly could not be assumed that the cells of the cancer changed into the cells of the new connective tissue tumor, both Ehrlich and Loeb considering this explanation only to drop it immediately. Both authors are rather of the opinion that the sarcoma was due to a malignant degeneration of the stroma cells; that is, they assumed that the cells of the cancer had some stimulating or irritating effect upon the connective tissue cells of the animal to which the tumor was transferred which had the effect of producing malignant overgrowth of these cells. Both Ehrlich and Loeb believe that the stimulus effective in this way is chemical in nature. However, so exceptional was the observation of these authors that the occurrence was regarded as an extremely rare one by all other workers. Soon this view had to be abandoned because further experiments have shown that the process observed was more or less a regular event which had its source in the very nature of the cancer cell. Ehrlich and Apolant were enabled in a short time to report two more instances of sarcomatous change in a mouse carcinoma during the passage of the original tumor through a series of animals. Liepman succeeded in producing the same phenomenon in working with a tumor from our institute, and finally Bashford of London succeeded in showing that the change in the type of tumor was in fact due to the malignant metamorphosis of the connective tissue cells under the influence of the transplanted carcinoma cells. He had noted that the stroma cells usually degenerated in the transplantation of the mouse carcinoma up to the time of the appearance of a sarcomatous change, when a sudden increase in the stroma cells could be noted going on to the production of the new type of tumor.

All these observations were made in working with the tumors of mice, and, therefore, when the Berlin Institute for Cancer Research succeeded in noting the same process in rats the phenomenon

* From the Berlin Royal Institute for Cancer Research

assumed an even greater importance. The tumor under observation was a primary adenocarcinoma of the mammary gland of a rat. During the transplantation through the fifth generation of animals there developed in it a sarcoma while the original epithelial cells were still represented. In the further course of the experiments the epithelial elements disappeared altogether and there remained but the pure sarcoma elements in the tumor. The development of the sarcoma at the same time was not at all a uniform one. In some tumors there developed at first a *carcinoma sarcomatosum*, which retained its character through several transplantations until the epithelial elements began to disappear leaving the sarcoma alone in the end. Other tumors retained their carcinomatous character, while others still showed no traces whatever of the original epithelium. The sarcoma began to develop between the sixth and the twelfth generations of transplantations in the various animals and after the twelfth generation the carcinoma part of what was originally a pure adenocarcinomatous tumor disappeared completely and the new tumor could be transplanted further as a true sarcoma. Even then, however, this sarcoma was somewhat peculiar in type, the morphological character of the cells being quite variable. Some of the tumors presented only the appearance of a spindle-celled sarcoma, others showed an abundance of round cells, others still were of a mixed type in their morphological picture. Thus almost all types of sarcoma cells could be observed in the various specimens, with the exception of giant cells. The appearance of the cells, too, was quite inconstant in the course of further transplantations, a sarcoma which had the character of a spindle-celled tumor losing it in the course of the transfer and growing in another animal as a round-celled tumor. Thus it must be accepted that the tumor cells may change in form during the growth of a transplanted portion.

Still another important observation has been made in the Institute. We have already said that the original tumor discussed above was a primary adenocarcinoma of the mammary gland of a rat; neither its structure nor its site was in any way different from the same characteristics as observed in the tumors of mice involving the breast, the picture quite agreeing with the appearances so well described by Apolant. We were therefore very much surprised to see the appearance of a cancroid tumor in the third series of transplantations, the process of its development being quite similar to the one observed in the case of the sarcoma. The appearance of the cancroid came about gradually, so that in several series pure adenocarcinoma, cancroid, and mixed forms were growing side by side, in addition to the sarcomatous forms described above.

What were the causes that resulted in the appearance of the cancroid type of tumor? For an explanation we must assume that the same process which brought about the appearance of the sarcoma was concerned in the production of the cancroid tumor. The same causes were responsible for the gradual development of the cancroid as of the sarcoma, and in our opinion no metaplastic phenomena took place. To assume the latter we must consider it possible that an original adenocarcinoma could be transformed by metaplasia into a squamous tumor as well as into a sarcoma. Such a conception, however, opposes all the views usually held by pathologists, and we remember that during the discussion of this subject in the Berlin Medical Society Orth said that "if such a metaplasia of carcinomatous cells into those of sarcoma were granted then he would feel compelled to begin the study of pathological anatomy all over again." In this aspect of the subject we are in full accord with the views of Orth, for we likewise do not at all believe that any metaplasia has taken place in the tumors observed by us. On the other hand, we think that the same stimuli which caused the appearance of the sarcoma promoted the growth of the epidermal cells which were perfectly normal before the stimuli became effective. In fact, many things support this view. In the first place, the formation of the cancroid was apparent only in the subsutaneous transplantation of the tumor, being absent in intraperitoneal transplantations up to the seventh generation. Furthermore, in the fifth and the sixth generation of the tumor we could observe quite plainly the relation of the cancroid to the epidermal cells. The observation is especially interesting as in some later specimens we were able to see the influence of the tumor proliferating in the neighborhood of the epidermis, the cells of the latter showing a marked increase in number.

All these reasons make it quite probable that both the cancroid and the sarcoma which we observed in connection with the transplantation of an adenocarcinoma of a rat were caused by some irritative influence the nature of which we do not as yet know, originating from the proliferating cells of the primary newgrowth. With these observations we have before us the fact of the appearance of new tumors, not alone the continuation of the growth of a transplanted portion of another tumor. We are therefore in position to cause experimentally the development of a new formation, and, as Bashford very correctly says, this may give us the important opportunity to study the appearances and the growth of such a tumor from its very inception. Of course, the significance of such work for the questions involved in the study of cancer cannot now be estimated. One thing, however, must be kept in view: the principal reason for opposing the parasitic theory of the causation of cancer has been the claim that in the experimental studies of cancer not new tumors were produced in the animals but simply metastases of the original growth were artificially produced. Hauser, who is a determined opponent of the parasitic theory, has stated that the successful transplantation of tumors could be interpreted in support of the parasitic nature of the disease only when the tissues of the animal experimented upon could be made to undergo carcinomatous changes by the transplantation of the cancer cells into that animal. Such a phenomenon would happen in his estimation if the epithelial elements of the animal's skin showed carcinomatous proliferation after the subcutaneous inoculation of cancer cells into that animal. These conditions, which Orth also accepts as the criteria of a true infection, have in fact been fulfilled in the tumors observed by us. The skin of the animals experimented upon has been stimulated in such a fashion that carcinomatous overgrowth has taken place in its elements. Indeed, even if we leave out of consideration the development of the cancroid in our animals, the fact yet remains that the phenomenon observed in the tumors of mice by Ehrlich, Apolant, Loeb, Liepman, and Bashford, the stimulation of the connective tissue to sarcomatous change by the inoculation of cancer cells into an animal, has been seen by us in another animal, the rat.

The final significance of this phenomenon for the etiology of malignant tumors can be decided only in time and as a result of further observation and experiments.

RECURRENT AND ABDUCTOR PARALYSIS OF THE LARYNX; DIAGNOSIS AND TREATMENT.*

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In the diagnosis of unilateral recurrent nerve paralysis which, when complete, results in the fixation of one vocal cord in the cadaveric position, the cracked, softly raucous voice, is suggestive rather than distinctive, but it is usually the one small symptom of an inversely grave condition which first causes the patient to seek advice. It is nature's distress signal, full of meaning to him who reads the code. The same is true of that partial stridor which may or may not usher in an unilateral abductor paralysis, in which the dilator muscle alone being powerless, the vocal cord is retained in a position closing over one-half of the lumen of the larynx. Either symptom demands a prompt resort to laryngoscopic inspection, but even then by reason of the fact that patients are liable to present themselves for the first time during a "cold" or other aggravating influence, confusing departures from the typical may be enountered, and one turns next to the really vital phase of the diagnosis, a search of the chest, neck, and central nervous system, for the cause and significance of the vocal paralysis. The tortuous course and complex composition of the recurrent nerves should be kept well in mind. Branching from the pneumogastric, the left one takes a turn under the arch of the aorta, *between it and the left bronchus,* upward to the larynx, while the one on the right passes under the subclavian artery, both being liable to compression by aneurysm, mediastinal, and cervical tumors, and, on the right, by disease at the apex of the lung or its pleura, which is crossed by the nerve. The similarity of lettering of the two words abduction and adduction is unfortunate, for, in addition to typographical errors, a conscious mental effort is necessary to avoid confusing one with the other, but as applied to the movements of the vocal cords, they are more exact in meaning than any other available terms. The opposing muscles, which effect the to and fro motion of the vocal cords, adduction for vocal vibration, abduction for breathing space, are innervated by different fibers, which merely travel in the same recurrent nerve trunk, either set of fibers alone to any degree, or both sets together, being subject to paralysis. Semon's law refers to the fact that the abductor fibres and muscles are the more vulnerable of the two, yielding first to an equal pressure on the trunk, and, in consequence, every complete paralysis of a vocal cord by pressure must have passed through a preliminary stage, however brief, of abductor paralysis alone.

Aneurysm Group.—The typical image of complete unilateral recurrent nerve paralysis illustrated in Fig. 1, is introduced as a standard from which to describe the diagnostic variations. It represents the larynx of a middle-aged salesman whose voice, he said, "failed all at once one day, while selling goods." Not only is the left vocal cord motionless in the cadaveric position, but it is relaxed, tends to bay outward, and its arytenoid, which is *not swollen,* has "fallen in," *i.e.* collapsed forward, which shortens the vocal cord and permits the cord to sink to a plane slightly below the level of its fellow. On phonation, the left arytenoid may give a twitch, but fails to straighten up or convey more than a mere tremor to the cord, while the opposite arytenoid and vocal cord, in an effort to compensate, overreach the center line, the sound arytenoid crossing a trifle usually in front or possibly behind the paralytic one, and the healthy cord coming nearly but not quite over to the paralyzed one. These are not insignificant details for their presence collectively, rather than the cadaveric position alone of the cord, insures the fact of a complete recurrent nerve paralysis. Its cause in this instance was equally evident. There was substernal pain and a radial pulsus differens, but no other symptom, excepting that in the fluoroscope, a small pulsating aneurysm of the arch of the aorta was visible. Five months later, while walking on the street, this patient fell dead with a gush of blood from the mouth: the aneurysm had burst, presumably into the left bronchus.

Life's duration in aneurysm, however, is seldom so brief. Dating from the early period of vocal paralysis, it has often surpassed my expectation; in one 10 years, in another 5, while others are now living at 2, 3, and 4½ years. The seemingly prolonged course, last mentioned, the patient being still active, is explained by the fact that it dates from the earliest demonstrable stage in the development of the aneurysm, as evidenced by the presence of unilateral abductor paralysis, which is the first definite effect of pressure on the recurrent laryngeal nerve. A sketch of the larynx made at that time (Fig. 2) represents the typical image of unilateral abductor paralysis and is intended to show not only the vocal cord motionless in the median or closed position, but also that the arytenoid has not yet "fallen in," hence the cord is but little depressed or shortened and not very much relaxed. Paralysis limited to abduction is not the only possible interpretation of the median position of a vocal cord, for one of the most deceptive of the variations from the typical image of *complete* recurrent paralysis is a fixation of the cord, not exactly in, but quite near to the median line instead of in the usual cadaveric position. Either form of paralysis is suggestive of an aneurysm, but with paralysis of the abductor fibers alone, indicating an earlier stage and more limited development of the aneurysm, a longer course is to be expected and an "arrest" or even a retrogression might not be impossible. Hence, in confirmation of the memorandum and sketch made of abductor paralysis in this case I will quote the additional notation inscribed, that "the vocal cord was not much relaxed and that the artyenoid, although standing a little forward, had not yet 'fallen in,'" a combination of conditions which I interpret to indicate an incomplete degree of paralysis of the recurrent nerve which, in connection with the median position of the cord, could be no other than an abductor paralysis. His *x*-ray print I find somewhat blurred by the effects of time, still it distinctly shows, representing the aortic arch, a broadened shadow which rises in the back above the normal limit of the fourth rib, with a bulge to the left which centers near the second rib and a smaller bulge to the right at the fourth intercostal space. A fluoroscopic examination also by Dr. John Kales and the author, was recorded at that time as follows: "A distinct, but small pulsating bulge in the descending part of the arch of the aorta could be plainly seen."

Since writing the above description with its deductions relative to the 4½ years' duration of an aortic aneurysm, this patient, known to have re-

*Read as part of a symposium before the American Laryngological Association, May 11, 1908.

mained vigorous so long as to suggest a shade of doubt in the diagnosis, has returned, thus enabling me to complete the evidence to date, with respect both to the laryngeal paralysis, of which he is conscious only when further disabled by a "cold," as at present, and to the aneurysm which does not even

Fig. 1.—The typical image of complete left recurrent paralysis. The vocal cord, in the cadaveric position, appears relaxed, narrowed, shortened, and depressed; the arytenoid "fallen in," not swollen.

yet cause any subjective symptoms other than the vocal cord paralysis. Reexamination confirms all of the original findings, with natural progression. The position of the left vocal cord has advanced from the typical abductor or first position, partly but not wholly, into that of complete recurrent paralysis. It now exemplifies that variation from the typical image of complete recurrent paralysis described as: "a fixation of the cord not exactly in, but quite near to the median line instead of in the usual cadaveric position." Intensified tubular breathing, the physical sign emphasized as coming next after vocal paralysis, is now heard in the back at the left, above the angle of the scapula and, as might be expected with compression of a bronchus, the vocal resonance and fremitus are diminished at the same point. A blurred, widely transmitted first sound stands for the aneurysmal bruit and the right subclavian impulse is in excess of the natural. The fluoroscope and *x*-ray plate show a clearly defined sacculated aneurysm together with a diffused distension of the rest of the aortic arch.

It requires but a slight expansion of the aorta at a given spot to compress the left recurrent nerve, hence the frequency of even a complete recurrent paralysis at comparatively an early period, when perchance one may search in vain for any other classical sign of the aneurysm which in fact can still be so small that even a radiograph will leave a doubt behind, as in Fig. 3. Here there was neither bruit, thrill, tracheal tug nor protrusion, yet there was paralysis of the left vocal cord, and there was, moreover, a noteworthy accessory physical sign, *i.e.* an exaggerated bronchial breathing transmitted to the back, a symptom which, coming early, *pari passu* with vocal paralysis, should be of special diagnostic value to the laryngologist, for an aneurysm which compresses this nerve must at its very next step compress the left bronchus. An appreciable diminution in the vesicular expansion comes only later.

It has been noted that in the typical image of complete paralysis, the "fallen in" arytenoid is not swollen; but exceptionally, as a departure from the typical image, a coexisting swelling of the arytenoid is seen, which is liable to disguise the paralytic aspect and to cause the condition to simulate a cricoarytenoid ankylosis with fixation of the cord. Figure 4 represents this important variation. When first observed, the right cord was stationary, but in a doubtful position, the arytenoid and subglottic tissue was swollen and the left cord also was sluggish in movement. It was only after some weeks of detergent local treatment that the cadaveric position of the right cord could be accurately determined, the left cord meanwhile having definitely weakened into the first position, that of abductor paralysis, which, in conjunction with the other lesions, sufficed to cause an alarming respiratory stridor on exertion or on "taking cold." Aneurysm was now evidenced by other signs, and its existence was later verified in Berlin by Dr. Krause, who, in explanation of the swollen arytenoid, wrote: "The small tumefaction of the arytenoid is a little bit unclear, but may be caused by a prolapsus of the cartilage." Hooper, also once drew our attention to certain "anomalous muscular fasciculi* innervated from other sources, which, when present in conjunction with recurrent paralysis, would serve to pull the arytenoid forcibly forward." The possibility, thus, of a partial dislocation of the arytenoid amounting to a prolapse instead of merely a collapse, is a striking point in diagnosis to be remembered, especially with reference to the differentiation of paralysis from ankylosis, which is rendered thereby all the more difficult.

The bilateral inflammatory form of paresis of the internal tensors with its familiar ellipse, is in no danger of being mistaken for recurrent nerve paralysis, but I have twice observed in clergymen an unilateral internal and external tensor paralysis, induced by vocal strain, but of so severe a grade as to simulate and perhaps in a way to partake of a recurrent nerve paralysis. Assuming for it a neuromuscular rather than a strictly myopathic basis, it is the nearest approach to a direct impairment of the nerve endings which my series affords. The level of the cord is lowered, its range of movement to and fro lessened, and the arytenoid disposed to collapse, but it is distinguishable by a predominance of the flaccid tensor element, absence of lead, alcohol, or other toxemia, absence of any cause of pressure, and it finally recovers by rest to the voice.

Out of a total of forty cases upon which this

Fig. 2.—The typical image of unilateral abductor paralysis. The vocal cord in the median or closed position. Arytenoid only slightly "fallen in," hence the cord is but little depressed or shortened.

study is based, the left recurrent nerve was paralyzed by an aneurysm in eight and the right recurrent in six, including in both numbers those in whom the opposite cord was likewise but less affected. Concerning the treatment, in only a few of the aneurysm group was local medication indi-

*Thyroarytenoidei superiores muscles.

cated, and then not for the paralysis itself, but rather to aid in strengthening the voice or in diminishing the stridor by controlling the inflammatory complications. Moderation in voice use is enjoined on all and soon has its reward in distinctly improved tones, the voice, in time, through com-

Fig. 3.—Aneurysm, so small that the radiograph alone would have left it doubtful. Complete paralysis of the left vocal cord and exaggerated bronchial breathing present

pensation, often becoming fairly good for conversational use. The prognosis of aneurysm, in general, is not so absolutely bad, and discovered at an early stage it should be better. Syphilitic arteritis in other situations—for example, in the brain—elicits and yields to a vigorous specific treatment; why not so in an early stage of aortic arteritis?

Pleuritis Group.—Four additional paralyses of the right cord compose the pleuritis group. All were tuberculous and in none could any other cause be assigned than an assumed circumscribed pleuritis. In one of them, whatever might have been the exact cause of a recent and complete unilateral right recurrent paralysis, which showed a typical image, a perfect restoration of power to the cord was gradually attained contemporaneously with a treatment by fresh air and rest for the incipient tuberculosis. Our means of certifying a diagnosis in this group are as yet sparse. The *x*-ray should be of service for the purpose of excluding or establishing the presence of enlarged mediastinal lymphatic glands on the left side, which in tuberculous subjects constitute a possible cause of pressure on the recurrent nerves, but on the right side enlarged glands so located would scarcely be beyond the reach of deep palpation. However, a radiograph was taken of this particular patient, who recovered, and no abnormality was shown. Her reaction to the tuberculin test was positive.

Tumor Group.—Another departure from the typical image of complete paralysis is presented in Fig. 5, in that the ventricular band is hypertrophied and almost covers over the paralyzed cord, nature having gradually put forward this false cord in compensation; it vibrates with the sound cord and produces a fair voice. It is selected from my next group of eight cases in each of which a tumor was the cause, and in all but two of which, unlike in the aneurysm group, the vocal disability appeared only as a late and gradual development. In this patient a primary malignant growth had been removed from the chest wall three years previously, a fact which he considered so irrelevant to vocal trouble that he deliberately falsified when I asked about the scar, saying he had been struck by a shell during the war. A grimly humorous episode served, in the interests of science, to complete my record of this case, for, the autopsy having been held in my absence, the widow, who, it appears, had fervently disapproved of his falsehood about the scar, entered one day and dramatically deposited a large package before me on the desk, stating exultingly: "There, that's what he had." It proved to be a sarcomatous tumor from the mediastinum.

In this group, also, I find another observation, that late in the course of a carcinoma of the esophagus, an irritable cough and weak voice having appeared within a fortnight, the left cord was found motionless, near to, but not exactly at the line of abductor paralysis and that the arytenoid had not "fallen in." Evidently the paralysis was progressing gradually and a remnant of innervation remained.

Esophagoscopy has been helpful, although usually, by the time a vocal paralysis supervenes in carcinoma of the esophagus, the diagnosis is plain. I was once temporarily misled with respect to the larynx by a condition which suggested a dawning vocal paralysis in consequence of esophageal neoplasm. There was post-prandial eructation of what the patient called "a lot of phlegm," but which in reality was a fermented mixture of mucus and food which irritated the arytenoids and enfeebled the voice, but obscured the image. The *x*-ray disclosed a bulge and showed the arrested bougie within it (Figure 6). The esophagoscope, passed under general anesthesia, was arrested at this same point, where an easily bleeding mammillated mucosa was plainly seen, the exact nature of which, however, it was impossible to interpret. As a palliative treatment in this particular case, which proved *not* to be one of paralysis, the expedient of assuming an inverted recumbent position after each meal, which by gravity emptied the pouch, has afforded a gratifying relief to the throat symptoms, which two years ago were quite distressing. Meanwhile, the obstruction in the esophagus, whatever its nature, remains still in *statu quo*. Having the appearance of a neoplasm, it is of interest in this connection because it is differentiated from aneurysm by the fact that it does not pulsate as observed in the fluoroscope, and because it is in line with the dictum that vocal paralysis, unlike in aneurysm, is not an early symptom of neoplasm of the esophagus, unless the latter is located high up.

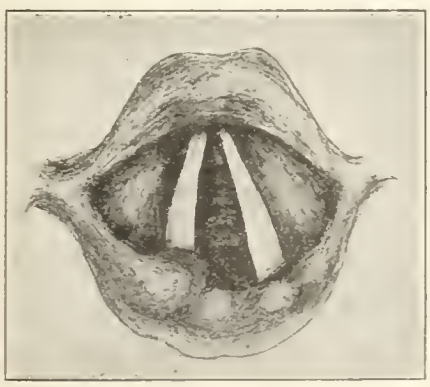

Fig. 4.—A variation from the typical image of recurrent paralysis. The arytenoid is swollen.

We recognize in the so-called "lazy cord" a symptom of carcinoma of the larynx, but I think it is little known that total immobility of a cord in the cadaveric position may be the first visible evidence of carcinoma of the larynx. Through a surprise of this sort at autopsy, I am able to duplicate

the single observation of it which Semon[2] records in these words: "*Einmal* habe ich eine bosartige Kehlkopfneubildung in Form der Unbeweglichkeit einer Stimmlippe in Cadaverstellung beginnen sehen."

The other exception to a late development in the

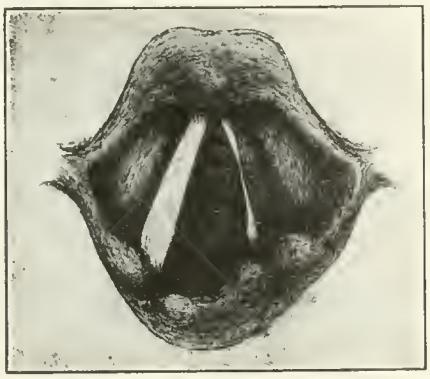

FIG. 5.—A variation from the typical image of recurrent paralysis The ventricular band is enlarged.

tumor group occurred with a high carcinoma of the esophagus and involved both cords, the left a cadaveric, the right an abductor paralysis. The end was then approaching, but aphonia two years before had been the very first symptom, the reason being that high up the recurrent nerves lie so close to the esophagus that not only one but both nerves are liable to be affected by pressure or to be incorporated in the carcinoma almost at the start.

Goiter was responsible but once for a complete paralysis of a vocal cord. It was a small, firm enlargement of the left lobe, which was treated by surgical removal, but the nerve had already atrophied. In goiter, when the voice begins to weaken, the cords should receive the closest scrutiny, for surely the first definite evidence of paralysis would be an additional incentive to surgical interference. This principle pertains equally to other cervical tumors and to enlarged lymphatic glands. Its value was brilliantly evidenced in one of this group by a complete restoration of voice which followed the excision of three tuberculous glands in a school teacher, whose left vocal cord previously had been motionless in the cadaveric position.

The large variety of conditions capable of inducing recurrent nerve paralysis is emphasized by an error in diagnosis of which I became apprised only when tracing the patients for the purpose of this report. The image of complete paralysis of the left cord was typical and without tumefaction inside the throat. A swelling in the neck at the site of the thyroid gland was naturally mistaken for a goiter, the subject being a girl of 18 years. Goiter was accepted as the cause of the paralysis and its surgical removal recommended, but not done. Signs of tuberculosis at the right pulmonary apex seemed to explain her anemic or cachectic appearance. The supposed goiter turned out to be a malignant neoplasm, which terminated as usual about a year later.

Centric Bulbar Abductor Group.—Like other respiratory muscles, the abductors of the vocal cords (dilators), being impelled by reflex action, have their main centers in the medulla oblongata (bulbus), so near together that naturally the symmetrical double abductor paralyses predominate in my bulbar group. The mere fact of *symmetry* in persistent abductor paralysis is indicative of a bulbar lesion. When uncomplicated, the appearance in the mirror is pathognomonic. The flaccid cords which will not separate, their edges flapping up and down like a sail in the wind, are unmistakable. The question of a possible overpowering spasm of the opposing adductor muscles did not need consideration in any of this class, although it may arise especially in connection with the intermittent stridor of an incipient stage of abductor paralysis and also in the unilateral type. The differentiation from ankylosis may require the same degree of critical observation as recurrent nerve paralysis. A paralytic immobility is liable to lead into a sort of ankylosis or stiffness of the joints, and, moreover, there is at least one form of arytenoid arthritis, previously described by me under the name of "Arthritis deformans of the Larynx,"[3] which causes a symmetrical ankylosis without much tumefaction.

An energetic course of mercurial and iodide medication is indicated whenever the centric degeneration is connected with tabes or with any other suspicion, however remote, of syphilis, for exceptionally one finds recorded a practical recovery. Eight cases of abductor paralysis compose this bulbar group, four of them being of the persistent symmetrical double type. Unfortunately, in all of these four the varied treatments did naught but eventuate in tracheotomy which, although far from an ideal remedy, remains still the best life-saving device. For eight years one of them had been wearing a tracheal tube of the sort which is fitted with a ball socket valve which enabled him not only to inspire with freedom but to talk with ease, for the obstruction by abductor paralysis is inspiratory only, the downward air pressure forcing the vocal cords even closer together, while the outward air pressure balloons them slightly apart. Thus, by a skilfully modulated use of the expiratory current which served instantly to close the tubal valve, forcing the air through the chink of the glottis, he could uninterruptedly intone and articulate sentences of considerable length. Neither this patient, nor another, who had been dependent for his life during several years upon a simple tube which to effect conversation required stoppage by the usual conspicuous method of holding the

FIG. 6.—Esophageal neoplasm, with arrested metal bougie. Differentiated from aneurysm by absence of pulsation when observed in the fluoroscope.

finger at its opening in the neck, would, on account of the risk of speech involved, consider any effort to widen the glottis to the small extent which would be adequate for ordinary breathing, either by means of an excision of one cord or by the proposed method of causing it to assume the cadaveric posi-

tion by a deliberate section of the recurrent nerve. The latter method, supplemented perhaps by mobilization of the joint if stiffened, would seem worthy of a trial considering that the wearing of a tracheal tube is in itself a menace to life. Neither of them suffered from tabes but both gave a history of syphilis.

Not only the parasyphilitic degenerations but also the degeneration incidental to advanced age may happen to strike these minute centers in the medulla. It was the only apparent lesion, without other cause, in a woman of 75 years. With her, a treatment by emollients and mild vascular astringents sufficed, under careful observation, to defer for some months the ultimate tracheotomy; and the same line of treatment in conjunction with antisyphilitic remedies was finally successful in another one of this group, but of a different type, the condition being a partial and unsymmetrical abductor paralysis in which the stridor became serious only during periods of acute exacerbation by "a cold."

The remaining representation in the bulbar group is of that combination which anatomically is far from clear, now that the spinal accessory nerve is not considered contributory to the recurrent nerve, in that the abductor paralysis being unilateral and devoid of symptoms was discovered incidentally, as the complaints had reference to difficulty in swallowing and articulating, in consequence of paralysis of the palatal, pharyngeal, and lingual muscles, together with atrophy, in one instance, of the trapezeus and sternocleidomastoid muscles. One, the victim of a generalized arteriosclerosis without syphilis, was not responsive to any form of treatment and succumbed from inanition, while another, a syphilitic, was benefited by energetic specific medication to the extent of regaining an ability to swallow liquids without a nasal reflux and to articulate with fair distinctness.

Centric Cortical Group.—Owing to the bilateral laryngeal action which ensues from an unilateral cortical stimulus, it is supposed that paralysis of one vocal cord from a lesion of the opposite side of the brain, really does not occur, and that some fallacy has underlain the few apparent cases which have been recorded.[4] Delavan[5] reports, in convincing detail, one case previously published as cortical, in which at autopsy was found a conjoined bulbar disease; but probably the fallacy also lies in mistaking the "stroke" of a syphilitic endarteritis for that of true hemorrhagic apoplexy. Laryngeal paresis can, of course, ensue from organic cortical lesions which affect the brain centers of both sides or interrupt the nerve fibers in transit from both sides, as in syphilitic degenerations or arteriosclerosis: and the six cases which compose my centric cortical group may have been either of this nature or else similar to Delavan's case. In three of them the vocal paralysis occurred in connection with attacks of so-called apoplexy, but as they were men under 50 years of age, with venereal histories, did not lose consciousness at the time of the "stroke" and had recovered in some measure, the attacks doubtless were due not to unilateral hemorrhage but to syphilitic cerebral arteriothrombosis which is often unequally bilateral. In none was a typical image of paralysis of any particular group of laryngeal muscles presented, although the left cord in one, was nearly, but not quite, motionless in the cadaveric position, the condition in two being an incomplete bilateral paresis which predominated in the larynx on the side of the paretic arm and leg, as evidenced by a feeble closure of the flaccid cords in a slanting position. Either an enfeeblement of the pharyngeal muscles or impairment of articulation or mild aphasia was associated with the laryngeal paresis in one or another of this subgroup. One of them has remained under observation, receiving antisyphilitic treatment during a period of seven years, and is now well.

The others of this group were persons somewhat advanced in years who presented symptoms, in general, of cerebral degeneration, the paresis of the vocal cords being the cause, only in part, of the difficulty in speaking. Although hoarseness and weakness of the voice were particular complaints, the laryngeal image was not typical and represented an unequal paresis of both cords rather than a complete paralysis of either cord. The local treatment was mildly palliative, only, but proved far from useless. The detergents and emollients applied by simple methods served to lessen the friction of vocalization and thus represented to the aged sufferers the difference between misery and contentment.

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MEDICAL TREATMENT OF APPENDICITIS.*

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The successful treatment of inflammation of the bowels by removing the appendix is one of the great achievements of the nineteenth century, yet this very success brought with it the expected evil, too much operation for abdominal pain.

It must be acknowledged that there are some cases that can be well treated only by operation and more that are best treated this way, but physicians cannot agree with Deaver, that "the only true conservatism in appendicitis lies in recourse to the aseptic scalpel," or with Osler that, "there is no medical treatment for appendicitis."

The purpose of this paper is to elicit discussion and only those points will be presented upon which there is difference of opinion.

Where there is much operating there is a high death rate. It is acknowledged that England and especially Germany are behind the times in operating for appendicitis. Osler shows that the death rate from this disease per million is: in New York, 129; in Chicago, 140; in England about 45. During ten years in the Boston City Hospital 2.2 per cent. died; in Vienna, 0.3; in Munich, 0.5. That is four times as many in New York as in Munich, and seven times as many as in Vienna. These figures were used to show the relative prevalence of the disease, but is it not remarkable that the higher death rate should occur where appendicalgia operations are the fashion? The same author says that the mortality has been increasing in England in spite of earlier and better surgery!

It may have been just such a situation as this that caused Ochsner to say: "The death rate after appendicitis operations in the hands of incompetent surgeons is absolutely frightful." It seems we must concede that where there is more operating there is a higher death rate and look for less operating or

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greater competence. How are we to know who are competent?

There is much needless operating. Many surgeons who open into the abdomen for other complaints remove the appendix whether it is apparently diseased or not. Petersen in 285 cases found lesions in the appendix in 50 per cent., Hunter Robb in 370 cases found lesions in 267. J. G. Clark in 120 laparotomies found only 25 appendices normal. It may be presumed that much of the pathological work was done in the laboratories of Ann Arbor and the Johns Hopkins Hospital. Kelly thinks 60 per cent. of these tissue changes are of pathological origin. Ochsner says a large proportion of all human beings suffer at some time from appendicitis. If this be true and if the best treatment for appendicitis is the scalpel then at least 25,000,000 on this continent need an operation at once.

Physiologists tell us that these changes are not pathological, but due to involution. In 25 per cent. of the human race epithelium and glands perish, lymph nodules disappear, and the tunica propria is transformed into an axial connective tissue strand. These views are commonly accepted to-day. If the physiologists are right the surgeons are wrong, and their statistics unreliable, besides they remove enormous numbers of normal appendices, 25 per cent. at least free even from physiological change.

The amputation of the appendix would not be a matter of much concern if it were a developmental vestige of no use whatever, but an actual menace to its possessor. I have not seen statistics anywhere as to the longevity of those whose appendices have been removed, but those whom I have met have not always been distinguished for robust health. It is not certain that the appendix is a developmental vestige of no use whatever. Berry has advanced good reasons for considering it rather the opposite, a higher grade of lymphoid development and accumulation of these elements. The colon is the seat of lymphoid tissue. In the lower animals it is scattered over the gut, in the higher it becomes collected, and in man mainly concentrated in the appendix.

McEwan, who studied this organ through a wound in the side, noticed that the glairy secretion of the appendix was alkaline and mixed with the acid chyme of the ilium, neutralizing it upon its entrance into the colon. He noticed also that the secretion was influenced by the mental states of the patient, in a manner comparable to the saliva, and concluded that the secretion of the appendix is a valuable aid to the completion of digestion.

Prior to 1888, the birth year of appendicectomy, Fagg's System of Medicine says: "Not one death from typhlitis had occurred in Guy's Hospital during five years except in those who were moribund on entrance." In St. Thomas' Hospital about 70 per cent. are allowed to recover without operation.

I am sorry I have not a record of all the cases of appendicalgia I have treated during twenty years, but during this time I was pretty busy in a small city where appendicitis was the fashion and only one death occurred and that was of a patient whom I passed to a surgeon four hours after I first saw the case. During this twenty years only ten patients were operated upon.

A large proportion do not have a recurrence and those who do, usually have mild attacks if they take care of themselves. I have always maintained this stand and it is pleasing to note that this is now generally acknowledged. Surgeons take a gloomy view of this matter because they see only the severe cases.

The contents of the colon form a culture for an enormous number of pyogenic germs, harmless so long as the mucous membrane is entire and the germicidal power of the serum is sufficient. Anything that injures the mucous membrane, such as trauma or distention, or that interferes with the circulation, such as kinking or thrombosis, especially if the resisting power of the blood is weakened, may cause an attack.

The differential diagnosis is not easy. The disease may be confounded with lesions of the gall-bladder or kidney, or with tuboovarian diseases. Every intestinal pain does not come from the appendix and we must consider fecal impaction, neoplasms, nerve and cord affections, injuries of the body wall. I saw a distinguished operator remove ten appendices in one day, one contained pus, one was club-shaped, one was in a case of typhoid fever, and seven apparently were normal.

A not uncommon cause of error is hysteria. An imaginary appendicitis is quite common in both sexes and this condition is fostered by unwarranted assurances of disaster by surgeons. Five years ago a young woman was warned by a prominent operator that if she did not submit to an operation she would have a recurrence and likely death. She has had no recurrence to date. That hysteria is not confined to patients is clearly illustrated by the history of appendicectomy.

Treatment.—In most cases the lesions begin in the mucous membrane as a bacterial infection and inflammation which may proceed to ulceration, abscess, perforation, or gangrene. Resolution may occur before the formation of an abscess and even with abscess, perforation, or gangrene there are undoubted instances of recovery.

The original infection is usually in the mucous membrane and exists before the patient is aware of his illness. There may be very little discomfort or pain but in most cases a careful inquiry will disclose a prodromal period in which the patient has suffered from malaise due to the toxemia. This is a stage of the disease overlooked by textbooks which speak of the onset of the disease at the time of the attack of pain.

Pain does not usually commence until the deeper structures of the wall are involved and consequently may not occur at all. The recognition of this prodromal period is important for reasons that I shall refer to again in speaking of purgatives. Some twenty-one different germs have been isolated in these lesions, but Dudgeon and Sargeant have shown that usually the first of the bacteria to migrate are the *Staphylococcus albus* which stimulates phagocytosis and causes the peritoneum to protect itself with a fibrinous exudate that walls off the infected area. Marked pain does not usually occur until this stage, when nature makes any movement of the bowels painful in an endeavor to save its protecting wall. Meanwhile if recovery ensues the phagocytes and antitoxic elements destroy the bacteria and permit the healing of lesions in the usual manner. Obviously our treatment must be directed towards securing rest for the inflamed part and aiding this phagocytic action.

To secure rest, we must endeavor to arrest peristaltic action, and since the mental state causes a flow of appendicular secretion, to avoid even a suggestion of food. As soon as the condition is suspected the patient is sent to bed and nothing but very little water is permitted until the symptoms have subsided. It is not unusual to keep a patient on water for ten days. During this time I do not favor even much rectal alimentation for fear of

stimulating peristalsis. The return to food must be very gradual. It is remarkable how little hunger patients really have. If questioned closely, their desire for food is found to be a mental process, instinctively they do not want it. I have known children at the hungry ages of five and six to have no desire for food for a week. I wonder if our habits of eating when not hungry have not much to do with causing this disease.

As to purgation, most authorities favor at least one initial purge, many favor purgation throughout. I do not believe a purge at any stage is advisable. If it is permissible at all it must be during the prodromal stage before the onset of pain, with the hope of lessening intestinal autointoxication. If the rectum is loaded a saline enema may be in order, once only.

If the intestinal inflammation is slight the purgative will do little harm, and if little harm results the case is certainly a mild one, and this suggests a possible use for a purgative, viz., as a means of diagnosis. A case that is so mild as not to be markedly aggravated by a purgative is so mild that an operation is not called for. Defecation has no more to do with recovery than a thermometer with the weather. I commence the treatment by assuring the patient that I do not care if the bowels do not move for a week. I recall a case that was presented at a hospital for operation in a moribund condition. The attending physician stated that he had used every means to produce an evacuation, even croton oil, but in vain. The patient suffered from complete paralysis of the bowels with extreme distention. Of course he died. I believe that purgation has caused more deaths than operations. The advocates of purgation reason that the feces are a mass of virulent germs and should be gotten rid of. In reply to this it may be stated that at operations the cecum is never loaded with feces; it is impossible to sterilize the mucous membrane with a purge, and the bacteria in the lumen are of little importance as compared with those in the wall.

Morphine is objected to because it masks symptoms. But what objection can there be to this? If the pain is severe enough to call for morphine it is time to decide whether to operate or not.

Nothing can be gained by a day's delay. Now is the time to decide. Operate at once or not during the attack. If the case is treated during the prodromal stage severe pain will not likely occur. If it is first seen shortly after the onset of severe and sudden pain, one should operate. If the pain sets in suddenly, even if it is not severe, an exploratory incision is in order. If there is any doubt as to these points, the life at least of the patient will be safe with nonoperative treatment. Morphine by relieving spasm may permit the escape of a fecolith. In any case by securing rest it will do much more good than any harm it is said to do by inhibiting leucocytosis. After the first few hours by the aid of an ice-bag morphine will not be required to relieve pain.

There is no specific for this disease, nor is there for typhoid fever, but the art of the physician where there is no specific is of an inestimable value in these and many other conditions. If there is no medical treatment for appendicitis then there is no medical treatment for typhoid fever.

To operate or not to operate, is the question, as well as when to operate. It is a common practice to use nonoperative means until there is evidence of an abscess, then to operate. This I think is unwise and I believe it to be the chief occasion of the deaths. If we wait till the leucocyte count indicates that pus will form we have waited too long. The heaven gifted artist can operate with impunity any time, but the average surgeon should delay till pus is walled off, has lost some of its virulence, and the patient has developed some immunity.

The operator is afraid the abscess may burst into the peritoneal cavity. As to this Ochsner says, "the last cause for diffused peritonitis results from the bursting of the circumscribed abscess. I believe this is practically always avoidable by limiting the motion of the small intestine." This is the conclusion of all conservative physicians. By waiting the death rate has been reduced 11 per cent.

I have seen a most desperate case that one of the most eminent surgeons in America declined to operate upon recover with nonoperative treatment.

L. M., daughter of a physician, was seized with violent pains, high fever, hard pulse on December 1. Her mother was so much averse to operation that it was decided to use nonoperative means. She was placed in bed, hypodermics of morphine were given, an ice-bag was applied, and water only was allowed. Temperature 99° on December 5. On the day after eating an orange the pain recurred, the temperature rose to 104°, a tumor was distinctly outlined; decided leucocytosis was present. It was decided to wait. The ice-bag was continued, the patient was placed in Fowler's position, and no food was allowed; the temperature was normal by the 11th. Tumor was still present but gradually disappeared. The child is now perfectly well, and the operation is indefinitely postponed. If an attack occurs again it will be milder, and if it recurs the appendix will be removed as a matter of convenience.

This case should have been operated upon at once, but it illustrates nonoperative recovery of a pus case. This has been my experience often. It is not necessary to operate because of the presence of pus, but it is much better and safer to do so subsequently. Every case of violent and sudden pain calls for an immediate exploratory incision, as it may indicate perforation.

A case of neurasthenia or hysteria with intestinal indications calls for exploratory incision. The presence of a fecolith should not cause the sacrifice of the appendix. Chronic or relapsing cases should be operated upon as a matter of convenience and not as a matter of life and death.

Conclusions.—A few cases of appendicitis can be treated successfully by operation only; others are best treated by this means, but the great majority of cases are amenable to nonoperative treatment, no food or purgation, rest, judicious use of morphine, ice-bag or hot applications, and Fowler's position. Enormous numbers of healthy appendices are removed. An operation should not be done during the acute stage.

"The mortality from appendicitis operations in the hands of incompetent surgeons is absolutely frightful."

If there is doubt whether to operate or not,—don't.

Every expert operator is not a surgeon, the former possesses merely dexterity and the latter wisdom. The former works for various reasons and the latter for the comfort and longevity of his patient.

The Ontario Board of Health should establish a Pathological Laboratory to which every operator should send all tissues removed for a private report so that he at least may know if he has removed normal tissue.

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THE PHYSIOLOGY AND PATHOLOGY OF THE EMOTIONS; THE PHYSICAL BASES OF MENTAL ETIOLOGY.

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NEW YORK.

Medical literature is filled with reports of clinical observations of disease causation from mental and emotional sources, but, notwithstanding that the best clinicians and most acute and reliable observers have been numbered among these writers, however singular it may seem, their statements have been contradicted, their observations have been disputed, and their veracity has been questioned. Why? Because the less careful observer and the less competent thinker could not reason out the relation existing between the mental and emotional states and, supposedly, more physical functions of the body.

There are three principal classes of theorists in regard to the so-called relation of the soul and the body, or rather the mind and the body: First, the class who believe the soul is the spiritual entity which presides over and operates through the medium of the body. This doctrine is taught by all religious sects in connection with the doctrine of the immortality of the soul, and receives its extreme significance in Christian Science, in which nothing tangible is recognized except the soul, the divine ego, which is all in all with the deity, and nothing further exists except as the materialization of thought; thus, in the above class, we have in the first subdivision a body simply as the vehicle or medium of the mind, and in the second subdivision we have a body and environment in general which exists and undergoes modifications as a mental function, so to speak.

The second class represents that class that can conceive of no possible relation between the mind and the body, and regards as absurd the interrelations of physical as well as mental influences, as little less than idiotic.

The third class, the cause of which this paper is to espouse, conceives of the mind as the functional product of the brain, which is part of the body, and dependent for its sustenance upon the general body vigor. Even the will, which apparently dominates the voluntary functions, is subject to the perversions of disease, and is more or less suspended or in abeyance during emotional states, as we shall observe later on.

If the physiological and pathological observer is to interpret his observations correctly, he must at once discard the first two doctrines and pin his adherence to the third. We must admit the interrelations of the mind and the body, and either admit a mental or spiritual domination or creation of the mortal body, or recognize the physical bases of mental influences upon the body, originating in environmental and extrinsic conditions, operating through the senses and the balanced cooperation of the brain cells, representing memories of the life experiences of the human or subhuman animal in reaction with the current sense perceptions.

Theological dogmas are commonly inconsistent with physiological and pathological fact, and, unfortunately for medicine, policy or tact has led too many to either evade the direct discussion of the subject or to color the truths so as to avoid inconsistencies or direct incompatibilities. Physiology and pathology have been great sufferers from this fault, but the time has come when the truth must be spoken, whosesoever toes are stepped on. Someone must have the courage of his convictions to be the first to direct the attention to this fact, and it might as well be the writer.

I might mention that the churches themselves will soon be called upon to choose between the same incompatibilities. Some have already found it most consistent with their views to take up faith cure healing. Those who choose not to, may find it to their liking to accept the physical bases of mental influence upon the body, as many churchmen and many of the most eminent clergymen have already accepted the doctrine of evolution.

When the correct physiological and pathological principles of mental and physical interrelations are better recognized and understood, there will be evolved a revised code, ethical and penal, for the government of the interrelations of man. Mourning customs, which prolong and revive the agonies of grief and sorrow, will be dispensed with, and happiness, good cheer, and wholesome pleasures will be cultivated. Laws will be enacted to punish the offender against the senses as against those offending against the flesh. Unnecessary noises, aggravations, hectoring, scolding, tantalizing, and other offenses that cause worry, anxiety, loss of sleep, etc., will be punished by the index of the physical suffering which will be recognized as so produced. Unwarranted damage suits, blackmail, robberies, buncoing people out of their property on the stock exchange and otherwise, will get the added penalty for the physical suffering inflicted upon the victim. Fright and fear will be among the physical injuries punishable.

Medical literature is full of recorded observations of chorea, epilepsy, shock and collapse, nausea, vomiting, jaundice, and other ailments occurring as products of fright and fear; even death has resulted. Melancholia, mania, chronic nephritis, cancer, and diabetes from grief, worry, anxiety, dread, and disappointments are not uncommon. One could fill several volumes with detailed clinical records of such cases, easily collated.

The question arises, What is the physical basis of emotional pathology? What structural changes have been found to result from the emotional states that have escaped earlier observers?

Modern biology has proved that the reaction manifestations of protoplasm to all of the five forms of energy, namely, mechanical, chemical, thermal, photo, and electrical, are practically the same. If on irritates any protoplasm, from a rhizopod to a muscle of a higher animal, with any one of these agencies, it first exhibits a state of hyperesthesia and an imperfect contraction, exhibiting tension or twitching. If the irritation is increased, a well defined contraction is observed; continuing on we observe a tetanic contraction is developed; further still and the breaking integrity of the contraction is observed; and if further extended, a complete exhaustion relaxation is attained to. This, I have dubbed *The Biologic Series*, because of its being common to the plasm reaction of the entire zoologic scale.

This series exhibits other attributes besides those above described, and it may be said that a muscle may be irritated to go through the same series of phases when the stimulus is conveyed to it through a nerve. If the muscle is connected with its nervous centers in a living person, it is found that twitching but no pain accompanies the first stage. The second stage is characterized by a tensional or "nervous" sensation. The third or tetanic stage is characterized by pain, and the acuteness of the pain depends upon the size of the muscle as well as the degree of the tightness of the contraction. The cramps of the

thigh muscles are less painful than those of the calf, while the small facial muscles involved in a neuralgia, are the most painful in the body; and the pain is most acute. As the incomplete contraction involves twitching, the breaking integrity of the contraction involves clonic convulsive movements, and as the fore part of the responsive phenomena extending up to the maximum of the reaction vitality, ranges from the disagreeable hyperesthesia, involving hypersensitiveness with its exaggerated responsive phenomena, to actual pain. Then follows an exhaustion relaxation of the tetanic contraction, which ranges from an irritable weakness to actual anesthesia.

Epileptics pass, in their body aggregates, through this series; gradually attaining to tetanic, then to clonic convulsions, ending in flaccid relaxation and exhaustion. Some diseases exhibit this grades series in localized areas. The numbness that follows excessive fatigue and then anesthesia (the God given relief) that comes to the relief of great suffering, are examples of this law.

If a muscle or any segregated area of the body be deprived of oxidation (and I have presented evidence in another paper to prove that all the irritations, above mentioned, act by disturbing the oxygen equilibrium of the tissues), the reaction is the same as when irritated. All protoplasm proceeds on through the biologic series as a reaction to a sufficiently continuous deprivation from oxygen, or its oxidation, might be caused by depriving it of a sufficiency of its normal catalysis or its alkalimity. Suffocation will cause the body aggregate to pass through a modification of the biologic series: hanging, as capital punishment; carbonic oxide poisoning, and other agencies, when not too rapidly accomplished.

This leads us to the connecting web between the above described effects of the emotions upon the respiratory function, and gives us the explanation how the serious disturbances of our respiration, our prime means of oxygenation, prove so serious to our bodies.

Now, another feature of the biologic series is in this line. I refer to the density of the protoplasm. Beginning with a normal tissue, we find it has a high density or specific gravity, but, as we excite it past the physiological limit, beyond its functional capacity for response, we observe that it becomes by gradation progressively rarified; it is losing its surface tension and osmotic pressure, and if in the presence of water, it absorbs it. When it proceeds to a certain degree, it loses its impermeability to the blood: first, to its fluid, and secondly, to its more solid constituents, and these elements are extravasated out into and are absorbed by the tissues, which thus become correspondingly more succulent or liquefied. The significance of all this is that the degree of rarefaction attained is an index of the degree of pathogenesis developed from any cause.

Unfortunately for medicine, pathologists have heretofore studied morbid changes in tissues in regard to their structural modifications: *i.e.*, such as atrophy of parenchymatous tissue, or thickening of connective tissue, a phase of retrograde metamorphosis beyond that representing simple softening Mental and emotional factors may seldom enough produce actual structural changes as pathological anatomists use the term, but rarefaction, with a significance, serious enough, is easily determined as a sequence of emotional states.

Hack Tuke graphically defines by analogy and relationship fear, grief, anger, and hate as follows: "Fear, and its acute or sudden form of fright, an intenser form of terror or horror, with the minor ones of faint-heartedness, anxiety, and care, though the last may be regarded as gaining in chronicity what it loses in intensity. When epidemic, fear assumes the panic form. Allied to suspicion."

"Grief, or sorrow, is, in its various stages and degrees, synonymous with sadness, affliction, distress, discontent, melancholy."

"Anger and its aggravated phases of rage, fury, wrath, or what is commonly understood as passion."

"Hate, the ignoble and more chronic form of anger, leading to revenge: the antithesis of love."

Tuke mentions among the physical manifestations of the emotions, such symptoms as: "In the early stage of grief, acute pain induces wringing of the hands, grinding of the teeth, tearing of the hair, sobbing and groaning. . . . In a later stage, grief induces feeble respiratory movements and sighing, and produces on all the muscles very different effects from joy. They are, in fact, the natural result of pain which has been felt to such a degree as to exhaust the system: the flaccid muscles now droop under their own weight, those of the cheek especially tending to produce by their own action on the eyelids the familiar expression of sadness. . . Fear amounting to terror, by causing spasmodic respiration, may, as in grief, choke the utterance, or the voice is husky. The facial expression is that of dyspnea. . . . Fear, if it does not proceed so far in the direction of terror as to paralyze the muscles, induces rapid muscular action in the form of flight, while it fixes and contracts other parts of the body in the instinctive attempt to conceal and, as if it were, diminish their size. . . . The muscular states alike of contraction (or tension) and relaxation find illustration in the motion of terror, for with the signs of the former already mentioned, and the stare of the eye, are combined the relaxation of the masseters, the sphincters and the processes of organic life with which we are not now concerned." . . .

"Rage and anger contract the masseters, inflate the nostrils, expand the chest, furrow the forehead, and expose and roll the eyeballs, clinch the fists, and induce a violent action and more or less rigidity of the muscles generally. . . .

"Contraction, it has been said, is the natural language of the painful emotions; relaxation, of the pleasurable ones, and it is true that in the early stage of grief, we witness violent contractions of some of the muscles. In anger, again the muscles are vigorously contracted; but there are many exceptions to this rule as laid down. . . . It would be more correct to say that the pleasurable or joyous emotions impart expansion to the expression; the painful or sorrowful ones, contraction." . . .

"Relaxation, again, we have seen exemplified in the later stages of grief, in which it results from the exhaustion of pain and despair. In weeping, in which there appears to be relaxation of the muscular fibers surrounding and controlling the mouth, the effort is really due to the powerful contraction of the muscles of the cheek, and especially the *triangularis oris*." The unusual and undue prolongation of the *tetany of grief*, instead of the *relaxation of weeping*, is generally conceded to be of far greater import and seriousness.

Sir Charles Bell expresses the manifestations of terror as follows: "There is spasm on his breast—he cannot breathe freely; the chest is elevated; the muscles of his neck and shoulders are in action; his breathing is short and rapid; there is gasping and a convulsive motion of his lips; a tremor on his hollow cheek, a gulping and catching of his throat; and why

does his heart knock at his ribs, while there is no force of circulation? for his lips and his cheeks are ashy pale." He then continues on grief: "Why comes at intervals the long drawn sigh? Why are the neck and throat convulsed? What causes the swelling and quivering of the lips, and the deadly paleness of the face? Or, why is the hand so pale and ghastly cold? And why, at intervals, as the agony returns, does the convulsion spread over the frame like a paroxysm of suffocation?" His answer is found in that the outward signs of expression of passion in the face and elsewhere cannot proceed from the direct action of the mind. He proceeds: "However strange it may seem to unaccustomed man, it is to the heart and lungs, and all the extended instruments of breathing that we are to trace these effects."

Upon the above quotations Hake Tuke comments: "It is impossible not to see in the oppression of the breathing, and in the expression of the muscles of the face most concerned in respiration, the same effects produced by certain violent mental emotions, which are the result of morbid condition of the heart and lungs, without these mental changes." Tuke continues: "Thus the mind acts figuratively through all the muscles of the body, the limbs, the trunk, and the face; but it so happens that the great group of movements classed under the head of 'expression' are mainly those of respiration, and hence the muscles of respiration may be regarded from Sir Charles Bell's point of view as emphatically, though by no means exclusively those of expression also. . . .

"Joy accelerates the action of the heart and the circulation; the respiration is quickened, and the muscles of the mouth tell the tale, while laughter is effected by a convulsive form of respiration. On the other hand, fear takes away the breath, and produces on the facial muscles the character impressed by dyspnea from pulmonary obstruction. . . .

"By way of summary, it may be said: we suffer pain of two kinds—bodily, as toothache; mental, as grief or anxiety; and when the latter occurs, the outward signs, allowing for differences, are the same as those which are exhibited in the former."

. . .

"Terror, which often causes excessive or spasmodic contractions, sometimes amounting to tetanic rigidity; the sobbing of grief, the laughter of joy, afford daily examples of spasmodic muscular contraction from emotional stimulus. The spasm which chokes the voice and converts the fibres of the *platysma myoides* into rigid cords in terror, the convulsion and tremors of the facial muscles in despair, the clinched hands, the convulsive opening of the mouth and spasm of the diaphragm and muscles of the chest in fear, the spasm of the jaws in rage, the spasmodic rigidity of the muscles in a maniacal paroxysm—are they not written in the graphic pages of Bell?"

Charles Darwin, in his classic work on "Expression of the Emotions in Man and Animals" says of the manifestations of anxiety, grief, dejection, and despair: "The circulation becomes languid; the face pale; the muscles flaccid; the eyelids droop; the head hangs on the contracted chest; the lips, cheeks, and lower jaw all sink downwards from their own weight. Hence all features are lengthened; and the face of a person who hears bad news is said to fall."

. . .

"The breathing becomes slow and feeble, and is often interrupted by deep sighs. As Geratiolot remarks, 'Whenever our attention is long concentrated on any subject, we forget to breathe, and then relieve ourselves by a deep inspiration; but the sighs of a sorrowful person, owing to his slow respiration and languid circulation, are eminently characteristic.' (*De la Physionomie,* pp. 53-367. On sighing, p. 232.) As the grief of a person in this state occasionally recurs and increases into a paroxysm, spasms affect the respiratory muscles and he feels as if something, the so-called *globus hystericus,* was rising in his throat. These spasmodic movements are clearly allied to the sobbing of children and are remnants of those severer spasms which occur when a person is said to choke from excessive grief." (Sir C. Bell, Anatomy of Expression, 3rd Ed., 1844. p. 151) p. 1791.

Bain, in his well known work on the "Emotions and the Will" has aptly defined anxiety, suspicion, etc. "The term anxiety represents the condition of fear with reference to our various interests that are apt to be more or less imperilled. The rational and measured exertions to meet our known emergencies may be said to indicate anxiety of the mind. Yet the phrase is not properly applicable unless there be present something of the perturbation of fear. The anxious condition of mind is a readiness to take fright in connection with our most vulnerable points on all occasions of apprehension or uncertainty. As no one's future can be clear throughout, there is never wanting the matter of anxiety to a mind susceptible of the state. The lives of some are spent in a constant flutter of agitation, varied by moments of inexpressible relief."

"The term Suspicion expresses the operation of our fears upon belief. The state of alarm being by its very nature the breaking up of our confidence, things in general become the objects of distrust."*

In cases of so-called reflex irritations, the climax of manifestation is attained only after time flaccidity and hyperesthesia are produced at the distal point of irritation. Eye strain is now quite generally recognized as such a factor. Congenital phimosis and adherent prepuce and clitoritis are not infrequent causes of acquired deformities in children, especially those of reflex muscular contractions. The cicatrices of lacerated cervixes, of burns, etc.; reflex disturbances from flat foot strain; and the more severe reflex manifestations from certain diseases of articulations are all significant examples of transmission to a distant area of initial tissue irritations. As is well known, so-called nervous exhaustion, spasms, convulsions, tetanic contractions, and a whole list of sequences, result from such transmissions of the initial reaction manifestation to some distant part.

In many of these instances, the tissue of original causation is kept in a state of continual flaccidity and hyperesthesia, and this biologic phase is thus the real cause for the exaggerated reflex transmissions which are so typical, and not an exaggeration of the nervous function as so commonly conceived by superficial observers.

Whatever be one's theory of the mechanism of the transmission of exciting causes of emotional manifestations, one fact rises in importance above all others, and that is that the real index of the vital reaction of the muscular system is the phase of the

*The same ambiguity is seen in Dr. Thomas Brown's exposition of what he calls the prospective emotions. "With him fear is simply the contrary of desire. These are some of his expressions: 'Our fears, which arise equally from the prospect of what is disagreeable in itself, and from the prospect of the loss of what is in itself agreeable.' 'We fear to lose any source of pleasure possessed by us, which has long been an object of our hope.' The want of a good term for the opposite of desire is probably the reason of this abused application of 'fear' to denote simply what stimulates efforts of avoidance. The true antithesis lies between fear and coolness, composure, or measured expenditure." (p. 163.)

biologic series in which said muscles preexist up to the time that their reactions are induced. In other words, the morphological index, the tissue density which varies parallel with the acuteness of the response phenomena of the muscles, is a criterion of the reaction producible by unit factors of stimulation, or perturbation.

In fact, in the higher animal organisms, including mankind, the tissue density governs the degrees of acuteness of excitability ranging all the way from hyperesthesia to anesthesia, together with its corresponding elicitation of response, similar to the most rudimentary forms of life.

The excitability and corresponding reaction of the tissues follow their state of density and biologic series phase so closely that little room is left for the alleged modifications of purely nervous origin.

The hyperesthetic stage of protoplasm reaction characterizes the so-called emotional temperament, the "nervously predisposed," etc. Those prone to hysterical attacks on slight provocation come in the same class. Children on the verge of chorea from fright or other causes, are also in a continual stage of hyperesthesia. Involuntary movements among children and also some adults are due to the same phase of tissue reaction. Emotions are reactional states and they occur either from tissue hyperesthesia or a correspondingly more forceful causative factor.

Undue activity is not due to or associated with great strength. Exuberance in children is not an indication of endurance or strength. Powerful individuals are slow movers, weak ones are generally active, often swift, even if jerky, as characterizes cardiac and other cases of short limitations.

Infants and children, with their immature tissue cells and succulent muscles, are as correspondingly exuberant as the adult in the prime of life is slow moving in the full strength of his adult and dense tissues. All through the biologic series, the phase is characterized by both density and function.

The significance of marked respiratory disturbances, with their resulting suboxygenation of the blood and ultimately the tissues, should be apparent to any medical man. When an equal suboxidation is due to cardiac incompetency or anemia, it is recognized quickly enough, and it receives proper recognition and attention, yet it is no more serious than the same when produced through the senses and the intellect. Not only are serious and deadly diseases caused by prolonged bearings of mental and emotional factors, but sudden death is not an unfrequent sequence when a weak heart or other contributing factors of importance coexist.

The physical status of the depressing emotions corresponding to their degrees of suddenness or abruptness and force, is a contractile manifestation of the peripheral or superficial tissues, exhibiting the faculty of expressing the blood from the principal seats of oxidation in the muscles and skin, into the great visceral reservoirs, largely the great splanchnic veins, thus attaining in some degree to the venous stasis of the moribund condition, and to one involving such obstruction to the blood circuit as to exceed the projecting capacity of a weak heart.

We observe in the so-called mental states, conditions ranging from a prolonged tetany of the superficial tissues to the state of shock or syncope in which the most pronounced effects are present and the blood is most deflected from the seats of oxidation compatible with life.

It is the vital reaction of the tissues to suboxygenation that involves the manifestations of dyspnea and other forms of expression of suffocation or asphyxiation, and these response phenomena are expressed in relation to the reaction vitality of the tissue or animal body. It is evident that the exclusion of the blood from the capillary circulation of a large percentage of the body, excites the same difficulties of oxygenation and elimination of carbonic dioxide as when the same ultimate effect is produced by other factors accomplishing the same result. It is not clear how such causes act through the so-called respiratory center in the medulla, but conversely it would seem to offer good evidence that the respiratory center of the medulla is not an exclusive center or presiding organ, but rather an area, the asphyxiation of which, like perhaps many others, excites efforts at compensation.

The fact that Mind is the functional product of the brain and is dependent like the balance of the body upon the blood supply and the processes of oxidation and nutrition, is attested by the observation that when the blood is deflected to the venous trunks as exhibited in pronounced terror, for example, the intellect and the will are no longer at the command of the victim, for the brain, as well as the muscles, is paralyzed, so to speak, by the asphyxia of exsanguination.

But one logical conclusion is permissible, and that is, that through the medium of the senses and the intellect, or more physically through the organs of sense, extrinsic impulses, of a nature incompatible with the normal equilibrium of the recipient, are transmitted through the nerves and brain, unbalancing principally the circulation and distribution of the blood, and thus finally the oxidation processes of the body, by virtue of which the whole body, not excepting the brain and its functional product, the mind or intellect, suffers dire consequences in accordance with the nature and force of the external impressions, be it an abrupt action resulting in a blood clot apoplexy, in epilepsy, chorea, or mania, or a long continued peripheral tetany, venous stasis, and anemia leading to cachexia and perhaps melancholia, chronic nephritis, diabetes, cancer, or to an earlier death by an intercurrent infection, to which the antecedent condition has predisposed the subject.

Whenever the student of etiology thoroughly grasps the true significance and importance, nay, *necessity*, of oxidation in the life processes, he will appreciate the true rôle of the so-called mental factors of etiology, and he will not be obliged to become a faith healer or a "Christian Scientist" to fathom their mysteries or to treat them as physical rather than mental ailments.

The treatment of peripheral exsanguination and splanchnic venous stasis, however produced, by mental or physical traumatism, is the same; namely, that of the physical treatment and management of shock, that of rehabilitating the peripheral circulation by surface heat, stimulation, and massage, and hypodermatic injection of ergot by Livingston's method.

It is a reproach to our profession that we have not long ago taught students of medicine and educated the laity on these fundamental problems. We have permitted ourselves to conform to theological dogma so long that it is now a problem how best to throw off this yoke of oppression. Mental healing, securely based upon doctrines manifestly untrue, has thrived while the profession of scientific medicine has suffered in silence, and for no other tangible reason except that no one has the temerity to speak out the truth for fear of offending the theologian.

I cannot close this paper without quoting from Lagrange's splendid work on the "Physiology of Bodily Exercise", which so aptly elucidates the physical basis of emotional factors, and well illus-

trates their contributory cooperation with other physical factors.

"Every violent physical sensation, wherever situated, will react upon the lung; every powerful moral emotion, whatever its cause, will also make its influence felt on the respiratory function. Joy, sorrow, fear, can produce reflex effects on the respiratory movements which we call a laugh, a sob, a sigh, a cry. Every time that the rhythm of respiration is disturbed, breathlessness is produced, even in the condition of muscular repose. . . .

"An exercise which is performed with tranquil breathing if the mind is free from care, promptly produces respiratory disturbances if the mind is brooding and preoccupied. Those who have acted as seconds in a duel to men accustomed to the use of the sword, know that they become breathless in the duel much more quickly than they do in a fencing school. . . .

"Depressing emotions make their effects felt on the respiration of animals as well as of man. A sensitive horse which is badly used when at work, or even roughly spoken to, quickly becomes breathless. . . .

"The dog is incomparably less swift than the hare, but is able to catch it; the fright of the hunted animal disturbs its breathing and robs it of much strength. . . .

"The defect of coordination, the disorder of the respiratory movements which we observe under the influence of fright, much resembles the incoherence in the movements of the lips which prevents a man, deeply moved, from clearly articulating his words. It is thus that depressing emotions can bring on a kind of *stammering* respiration. The disorder of the respiratory movements destroys the regularity of the gas interchange which takes place in the lungs between the venous blood and the atmospheric air, and thus profoundly hinders the function of aeration of the blood. . . .

"The more impressionable the subject, the more easily do emotions influence his respiratory actions. Hence the superiority in certain bodily exercises of men who are calm and masters of themselves.

"If we find ourselves before a man panting from terror, we might fancy he was out of breath from fast running. In both cases there is the same picture: breathing irregular, speech interrupted, complexion livid." (p. 88-89-90.)

The undue softening and coalescence of disorganized tissues, from emotional as well as the more tangible physical causative factors, and the final desiccation of such tissues, accounts for the arteriocapillary fibrosis and premature senility so commonly attributed to emotional factors of etiology, especially worry, anxiety, and grief.

MARRIAGE FROM A MEDICAL VIEWPOINT.

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The study of marriage from a medical standpoint should logically be divided into two distinct questions, namely, health in the immediate physical or normal marital relationship, and, secondly, the health of the husband and wife from a purely hereditary viewpoint. In point of fact, we cannot limit ourselves to the simple consideration of heredity, because, before the birth of a son, the progenitors have lived a common life for a variable length of time, and to be rational, we owe a large portion of our considerations to the influence of health over the first months of matrimonial life. It has been said, from the moral standpoint, that marriage is a vast lottery, but this saying perhaps better belongs to the social status of modern unions. Defects of a personal nature have been so common in our present society that we rarely meet with those whose atavism is virgin to all imperfections or to pathological stigmata. As we look about us we unfortunately see only too commonly young married couples who have been devastated by that fatal disease, insidious and foudroyant phthisis, or some mocking neurosis. The number of young people who, instead of the hoped-for happiness, only find decay and death at the conjugal hearthstone are legion, and many neurologists are of the opinion that unfortunate marriages furnish an enormous contingent of neurasthenics. Perhaps this remark may be commonplace to-day when divorce is so much in vogue, but it nevertheless is instructive for those who look for peace and happiness in marriage.

Tuberculosis, neuroses, gonococcic infection, chlorosis, dyspepsia, and sexual perversion are diseases in which improvement or aggravation may result from married life—a fact important to mention.

Before, however, taking the above-mentioned conditions into consideration, I would like to refer to one cause of danger, which, perhaps belonging more to the domain of morals than physiology, certainly exercises a marked influence upon matrimonial biology; I refer to precocious marriage. To-day, when the struggle for life has become more ardent and difficult, and marriage is too frequently looked upon as a source of pecuniary benefit, precocious marriages are on the increase. I am perfectly willing to admit that in normal subjects genital life becomes rapidly sufficient for fulfilling the exigencies of married life. At the age of eighteen the majority of young men are quite capable of fulfilling the functions of progenitor and of procreating, physiologically at least, a healthy family. But excess in coitus fatally produces serious nervous depression and predisposes to medullary diseases. A husband too young, having constantly within his reach the causes of intense sexual excitement, being able to satisfy them easily, is apt to make an abuse of sexual intercourse and enters life in a dangerous condition. For this reason it is not infrequent to see young people who have married young become neurasthenics, especially if an arthritic or nervous heredity predisposes them to neuropathy.

It is not to be supposed for a minute that excessive venery is the only thing which is unfortunate in precocious marriages. A young man, thoroughly understanding his duties as a husband and worried by the serious charge that he has assumed, the moral preoccupation, the present greater difficulty for making a living for two, and the continual thought for the happiness of the wife bring about more quickly than excessive coitus a morbid hypotension of the nervous influx. Every form of worry is a cause for the development of neuroses, psychasthenia, or the various phobias. The worry resulting from marriage in a man who has entered into it precociously and who is thoroughly penetrated by his conjugal duties, may result in serious changes in his general condition of health as well as his mental faculties.

By precocious marriage, I mean those which are contracted by the male from 18 to 20 years of age. At this time of life, man is developed neither for the daily struggle for his bread, nor for genesic excess to which his youth and his active tempera-

ment and lack of will control over himself expose him. This fact has been acquired from general experience, namely that precocious marriage is bad, especially in the case of individuals whose nervous or uricemic heredity predisposes to neurasthenia, and the same may be said of those who are in a debilitated condition from an impoverishment of the blood. Excessive youth or old age of husband and wife, or of either one of them, is certainly without a doubt a cause of debility in their offspring and the oriental custom, authorized by law, of marrying very young can itself explain the decadence and infantilism of certain races.

To sum up, marriage should never be advised to youths under the age of 20 at least, and it is incumbent upon the physician to show them the many physiological and moral inconveniences resulting therefrom.

A question which unfortunately is of the highest interest at the present time is that of the marriage of tuberculous subjects. Much has been written on this question, but from the start it may be said that there is tuberculosis and tuberculosis, there is not a single tuberculosis, but tuberculoses. This common affection is not met with as a morbid entity with an identical symptomatology, and, in my opinion, pathology has been too greatly systematized, and authorities have endeavored to classify, to concentrate pathological manifestations under a single head, when in reality they offer a great disparity. In order to facilitate the study of pathology, there has been too much cataloguing and labeling; it is the day of divisions and subdivisions, so that the textbooks on pathology will soon take the place of clinics and make the study of medicine in the library an easy matter.

In most instances practical experience denounces theory. Medicine cannot be learned by books alone, and its knowledge must be largely accumulated by direct observation. At the present time our students are far too savant, and, so to speak, not artists enough. This paradox is justified in the subject which we are treating, and it is to be noted that the large majority of authorities discourage marriage to tuberculous subjects as much for them as for those with whom they are in daily contact and their future offspring. Many practitioners, relying upon their books, settle this delicate question ex cathedra, while others, who are more easily touched by pity, hesitate to emit any opinion, being divided between the fear of making a mistake and the very scrupulous fear of rendering a man unhappy forever, perhaps wrongly. As I have pointed out, every excess is a mistake, and to prevent marriage in every case of tuberculosis is, I believe, a useless cruelty, while to tolerate marriage in all cases of tuberculosis is a most dangerous imprudence, and there are two sides to all these cases. According to the nature, symptoms, and degree of the tuberculous infection, the physician should, and must, reason. In those cases in which the development of the disease is rapid, at the same time presenting a particular nervous erethism, making itself evident by early loss of flesh, severe hemoptysis, fever, and dyspnea, marriage would naturally result only in a fatal outcome, and coitus alone might bring about a fatal pulmonary hemorrhage. In these instances ordinary common sense indicates the advice to be given, but, on the other hand, it is a much more delicate affair to advise for or against marriage when one is dealing with cases of torpid tuberculosis, where the progress of the affection is slow and cure appears to be obtained easily. Certain eminent authorities advise against marriage, but there is a fact which seems to have been proven by daily observation, namely, that marriage has generally a favorable influence over tuberculosis with a slow progress, more particularly when matrimony coincides with the first stage of the disease.

Since I make this assertion, it is necessary to give my reasons, and they are these: Marriage regulates life and renders it more stable. A man who weds a woman who is dear to him, and who returns his love, will be greatly improved from the mere joy of living in the midst of affection and devoted care, and from this fact it is not at all astonishing that in instances of slightly advanced tuberculosis, the patients eating at regular hours, leading a calm and regular life, enjoying the well-being that an agreeable, conjugal life can alone give, are rapidly placed in biological conditions excellent for the production of a cure. The powerful influence possessed by the moral over the physical side of man is well known, and it is not at all surprising that in a happy frame of mind these patients note the return of their strength and a return to health. For all these reasons, it would seem most irrational to prevent a patient from marrying simply on the ground of medical tradition.

Relative to tuberculous heredity I will speak later, and for the present I wish to consider the relationship between health and marriage simply from the point of view of the husband and wife. From this viewpoint tuberculosis is far from always being a contraindication to matrimony, but, quite on the contrary, the disease may be ameliorated by marital life. There are, however, certain rules which should be followed; clinical observation has shown the tendency of tuberculous subjects to abuse the act of coitus. What I have already remarked when speaking of early marriages also finds its place here. The ease of satisfying the genital instinct will surely bring tuberculous subjects, especially those who are at their first period, to a state of biological inferiority, fatal to those who are in a somewhat weakened condition. Therefore, for this reason, it is incumbent upon the physician to warn these subjects in this respect in order to avoid disaster.

Another question of great interest is that of the dangers of pregnancy complicated with tuberculosis. Independently of the hereditary taint, gestation is a serious danger for the tuberculous. Parturition requires a consummation of strength and nutritive materials that these subjects can furnish only with detriment to their future health, and for this reason pregnancy should be advised against.

To sum up, it may be said that the marriage of tuberculous subjects should be prohibited only when formal indications exist; it should be tolerated on the condition that they are given a full understanding of the necessary hygiene to follow, but this only in cases which are in the early stages and capable of cure.

Much can be said in regard to the marriage of neurotics, because the various neuroses are at the present time extensively developed; the accumulated hereditary defects, the intense life now led, the abuse of alcohol and tobacco are all causes which contribute to the development of neuroses, neurasthenia and hysteria, and simply hasten the development of medullary diseases.

I am led to believe that marriage in neurotics has perhaps more influence than in any other type of affection. When one considers how important love is in nervous pathogenesis and the depression following in these subjects when they are opposed in

this respect, the loss of a wife or the separation of lovers, refusal of marriage, all of these conditions develop nervous and mental troubles in those who are predisposed, and frequently the ultimate outcome is suicide. Neurotics, more than other people, experience a special intensity, the joy and pain of love, and a tender affection fills them with a healthy force, while a deception or an infidelity may result in their ruin.

An improvement after marriage has been not infrequently noted in the case of melancholia, and the fulfillment of the conjugal act has a powerful, sedative effect in certain cases of hysteria, while it is well known how a calm and regular life with the tranquil atmosphere of the household is favorable for the cure of neurasthenia. All this can readily be understood on account of the influence of joy and happiness upon the nervous system; the nutritive changes are increased, the appetite likewise, the hepatic functions become regular, sleep repairs, and strength becomes more marked. Psychotherapy is a very powerful arm against many neuroses, and there is no suggestion or moral action more efficacious than that which imperiously rises in a human soul from the natural concourse of circumstances. Happiness is without doubt the best form of rational psychotherapy, and may be considered as the ideal tonic of the neurologist, and from all this it follows that a marriage, when desired by a nervous patient, is, in many instances, a therapeutic measure of considerable importance in the cure of the neurosis.

Another cause enters in the explanation of the happy influence of marriage on certain neuroses, namely, the regularity of life in eating and sleeping. A large majority of authorities incriminate as a cause of neurasthenia and certain mental affections, the intoxication produced by irregular meals, an excess in the meat diet, the rapidity of mastication, the use of alcohol in various forms, overindulgence in tobacco, irregularity in the hour for retiring and rising, all of which are done away with when married life is entered into, because habits become regularized and disciplined. I am far from believing, however, that such a fortunate outcome can be always realized, and there are psychopaths for whom married life is a perfect hell. Certain forms of hysteria develop from the fact of being married and renders the life of the healthy conjoint very unhappy. We all have encountered hysterical women who are excellent wives and good mothers, but when consulted relative to the question of marriage, it is always well to advise circumspection to a young person when the future partner appears to be too romantic in ideas, or when they are markedly original in character. Under these circumstances, the advice of a physician should be brought to bear and the antecedents, both personal and hereditary, should be carefully gone into in all instances of young people having a peculiar character. It is very important because upon the result rests future happiness or misery.

Insanity and epilepsy naturally are conditions absolutely prohibiting matrimony.

To sum up, it may be said that matrimonial life in the case of neurotics is a very frequent cause of an improvement in neurasthenia, the result of overwork, of poor hygiene, melancholia, and certain trifling mental disturbances produced by over-fatigue, on account of the regularity that it brings to all the acts of life. Latent hysteria should not be considered as a serious hindrance to marriage, but it, nevertheless, is well to ascertain all points relating to the pathological antecedents of the future wife.

Recent statistics show that the number of gynecological operations necessitated by gonococcic lesions increases every year. The story is always the same. A woman, either after labor or without any apparent reason, complains of severe pain in the lower abdomen. She becomes anemic, complains of lassitude, and passes all her days on a lounge; menstruation becomes painful and irregular, and when the physician is consulted he finds a metritis, salpingitis, or ovaritis, and concludes that a surgical operation is necessary. Happy is the woman who does not develop a rapidly forming pelvic abscess, or a serious peritonitis. The husband, either criminally or unconsciously, transmits the gonococcus to his wife, usually in the following manner: In his bachelor days he contracted a gonorrhea, which was treated according to the usual methods—that is to say, with contempt—the gonorrhea disappears, but leaves in its place an insignificant gleet, a chronic discharge of such apparently little importance that the patient neglects to have it treated, supposing that it will cure itself. Upon this he gets married, usually without any thought of the past and without consulting a physician as to the seriousness of his little morning drop. After a variable length of time, and as soon as a congestion of the uterus predisposes the organ to microbic receptivity, the young wife presents all the well-known symptoms of a gonorrheal infection.

To a certain extent the public has surmised the dangers accruing from this disease, but not to the extent that it should. In face of the terrible consequences to which gonorrhea may give rise, the mortal dangers to which the spouse is exposed, sterility following gonococcic complications, certain members of the profession have declared open war against gonorrheal subjects guilty of contamination. In Germany especially a law is under consideration which tends to protect women against venereal contagion from the husband, or even the lover. Professor Hegar, in Germany, and Jullien, Cazalis, and several other physicians in France, have proposed an obligatory verification as to the genital innocuity of the future husband. As a conclusion to this, I would advise that young men be told that, if they are unfortunate enough to contract gonorrhea or syphilis, they should loyally consult a reputable physician before their marriage to ascertain whether or not they are fit subjects for matrimony. It is high time that the profession put an end to public ignorance in these matters, and thus to a great extent avoid many catastrophes and moral pain.

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NOTES ON STERILITY IN WOMEN.

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Two desires control and govern mankind, one, the desire for nourishment, is founded upon the instinct of the preservation of the individual, the other, the desire for offspring, upon the instinct of the propagation of the kind. The former concerns only the individual, the latter is of a far more reaching importance, from a social as well as an economic point of view. Progeny is of an incalculable economic value to the body politic. Although the age of forty is not just the point in a person's life to be chloroformed out of existence,

yet there does arrive a time in the life of the individual when its usefulness to the community is nil. The individual does not any longer produce new wealth, and what it consumes, even of its own savings, is a direct loss to the sum total of the nation's wealth, except the individual has created new producers in its children who continue in the work of their parents. Sterile marriages are, therefore, a failure even in modern times and even from the materialistic point of view.

No wonder, therefore, that the problem of sterility has occupied the great minds of all times. Among the ancients barrenness was punished by the dismissal of the wife. The Roman law allowed the putting away of the wife for infecundity. The Jewish law allows a divorce after ten years of childless wedlock. Hence married women were since time immemorial in search of fertility and sterility has engaged the attention of the medical profession from the earliest periods.

Before entering upon the discussion of the causes of sterility, let us pass for a moment in review the mechanism of impregnation. When the sperm has been deposited in the vagina, or rather, has been aspired by suction during the organism within the cervical canal, the spermatozoa begin to move towards the interior. The celerity of their motion is, according to Henle, Kramer, Hensen, and Lott, from 1.2 to 3.6 millimeters a minute. They will, therefore, finish their way from the vagina through the uterus and tubes within one or two hours.

According to Bischoff and His, the impregnation takes place in the distal end of the tube. After impregnation the ovum continues its wandering by the current of the ciliated epithelium of the tube towards the uterus. The ovum needs according to Hensen from three to five days, according to Bischoff eight days, to traverse this way. It could not last longer, says Winckel, because the uterine end of the tube has a diameter of only 2 to 3 mm. while the diameter of the ovum in the second week is 3 to 6 mm. When the impregnated ovum has reached the cavity of the uterus, it penetrates through the epithelium into the submucous fibrous tissue of the uterus where it completes its development.

The complexity of the mechanism explains the importance of the presence of perfect organs to facilitate the accomplishment of this great task of nature. Any deviation from the normal condition at any point of the genital canal may cause prevention of impregnation or destruction of the impregnated ovum and thus cause sterility.

The time that has to pass before a childless wedlock is to be considered sterile is not the same with different authors. Chrobak, Rosthorn, and Hofmeier consider a marriage sterile when two years of childless married life have passed, while according to Jaquet two and a half years, and according to Kisch three years have to pass before they call such a marriage sterile.

At the outset two groups of sterility may be distinguished, the sterility caused by the man and that caused by the woman. In regard to the former we could say that not only impotency and aspermia will cause sterility but a certain changed quality of the spermatozoa will render the marriage sterile. According to Boweri the ovum has all the organs and qualities necessary for the development of the fetus except that its centrosoma, which starts segmentation, is in a state of inactivity while the spermatozoon possesses the active centrosoma but lacks the protoplasma, the material, by means of which this organ could begin its activity. Hence when through some cause or other the spermatozoon has lost its active centrosoma the result will be sterility.

But male sterility will be eliminated in this paper and we will consider only female sterility. Here we must again distinguish two kinds of sterility, the primary where no conception has ever taken place, and the secondary where there was fecundation but an abortion has taken place or the child died and after the first conception the woman ceased to propagate.

In considering primary sterility we have again to make a distinction between idiopathic and relative sterility. Idiopathic sterility is absolute and irremediable; treatment is useless. Relative sterility is an anomaly that yields in the majority of cases to appropriate treatment. Under the heading of idiopathic sterility we may name: (1) Absence of vagina; (2) fetal or rudimentary uterus; (3) absence or imperviousness of the tubes; (4) absence or fibrous degeneration of the ovaries.

Relative sterility which is eminently curable has the following causes: (1) Atresia vulvæ; (2) vaginism with the painful tetanic contraction of the sphincter cunni; (3) rigidity of the hymen; (4) carunculæ of the urethra; (5) ulcerations of the introitus vagina; (6) inflammation of the carunculæ myrtiformes or of the Bartholinean glands; (7) hypertrophy of the rugæ; (8) excessive acid reaction of the vaginal contents; (9) one lip of the cervix is considerably elongated, covering apronlike the external os; (10) obliteration of the cervix caused by caustics or scars after tears during confinements; (11) ectropion; (12) stenosis of the external or internal os or of the cervical canal; (13) endocervicitis causing an increased secretion; (14) swelling of the plicæ palmatæ; (15) polypi of the uterus; (16) hypertrophic chronic metritis; (17) endometritis chronica hyperplastica; (18) uterus infantilis or hypoplasia of the uterus; (19) uterine deviations; (20) bilateral salpingitis with swelling of the cervical folds and vili and often with closure of the ends of the tubes; (21) pelviperitonitis, perimetritis perisalpingitis, perioophoritis; (22) hypoplasia of the parenchymatous tissue of the ovary; (23) neoplasms causing pains during coitus; (24) absence of the aspiratory action of the uterus through its imperfect participation in the sexual orgasm.

In idiopathic sterility where there is lack of development of the genital organs it is useless to treat the patient for sterility. Even if we construct a new vagina to make coition possible, this vagina will never serve as the exit of a child.

In rudimentary uterus or even in uterus fœtalis, characterized by the cervix being twice as long as the corpus and the entire organ being long and thin, the organ is beyond repair.

In fibrous degeneration of the ovaries with a complete absence of ova, as the writer once found in a child one year of age, where the ovary was not longer than a pea and the microscopical examination showed it to consist of fibrous tissue only, treatment of any kind is useless.

Contrary to idiopathic, relative sterility is amenable to treatment and may be cured when the cause is removed. For the purpose of the therapy we may distinguish two classes of cases, those in which the lesions are accessible as at the vulva, vagina and uterus and those where the trouble is located in the tubes, ovaries and para- and peri-metrium.

In atresia vulvæ, vaginism, rigidity of the hymen, carunculæ of the urethra and hypertrophy of the rugæ or atresia of the vagina nothing but a surgical operation is of any value. Ulceration of

the introitus vaginæ, inflammation of the caruncule myrtiformes and of the Bartholinian glands will require local treatment. The excessive acid reaction of the vaginal contents destroying the mobility of the spermatozoa, will require alkaline douches.

The hypertrophy of the apron-like cervical lip as well as obliteration of the cervix, ectropion, and polypi will require surgical interference. Deep lacerations of the cervix may cause abortions and thus indirectly sterility. The latter may be cured by a trachelorrhaphy as in the following case:

Mrs. K., seven years married, has two boys living, the younger four years of age. Since her last confinement she had six miscarriages, as a rule in the third month of pregnancy. At the examination two deep lacerations of the cervix were found. Trachelorrhaphy was performed, and six months later the patient became pregnant and carried her child to term.

Stenosis of the os or of the cervical canal may in extreme cases—the popularity of the stenosis and atresia theory of sterility, says Massey, is due to the operative furor—require surgical treatment. But even in such cases slitting of the cervix is too radical an operation to be generally followed. This mutilation removes the stenosis but the result may be habitual abortion.

When the ends of the tubes are closed, as in hydrosalpinx, surgical treatment may be of some benefit. Also abdominal tumors which cause such pains during coition as to render it impossible and thus indirectly cause sterility will require surgical interference.

In uterine deviations a sharp anteflexion could be first treated by a thorough dilatation of the cervix, slight curettage and introduction of Foerster's pessary for eight to ten days. In extreme cases of retroflexio ventrosuspension by the round ligaments as advocated by the writer is of advantage.

All these accessible lesions may sometimes cause sterility but, in regard to frequency, are of slight significance in comparison with endometritis and pelviperitonitis. These two affections are the causes of sterility par excellence and are just the lesions which are seldom or never amenable to surgical treatment. Here electricity is almost the only remedial measure that promises success.

The physiological effects of the electric current take place by virtue of the vital properties of the body through its action on the nerve supply, influence upon circulation, secretory and excretory processes and the acceleration and absorption of morbid products. Electricity promotes the nerve tone, increases muscular activity and quickens circulation.

When the current passes through living tissues the interpolar action of the positive pole is, by contracting the capillaries, anodyne sedative, anticongestive, denutritive and antihemorrhagic. The interpolar action of the negative pole is, by increasing the blood supply, stimulating, congestive, derivative and alternative, thus favoring absorption. The physiological effects of the farradic current are mainly mechanical, producing a veritable interstitial massage.

These physiological qualities make electricity the best remedial agent in the treatment of endometritis, metritis, salpingitis, ovaritis, and pelviperitonitis. Now endometritis and pelviperitonitis are by far the most frequent causes of sterility. Fraenkel says chronic endometritis is the most frequent cause of sterility. Virchow called the attention of the profession to the perimetric inflammations being often the cause of sterility. Rokitansky teaches that perimetric adhesions as a cause of sterility are equal in importance to impermeability of the tubes. When the tubes are buried in adhesions sterility is inevitable; when the ovaries are covered by thick exudative membranes, ovulation is prevented, and only negative electricity with its quality of favoring absorption could remove these exudates. The absorption power of this current which dissolves even good-sized fibroids will surely remove all inflammations and adhesions, provided there is no pus present. In this event electricity is very dangerous and strictly contraindicated. But when pus can be excluded there is no better remedy for endometritis and pelviperitonitis than the electric current. We need only to see at one sitting the dirty mucus leaving the uterus under the influence of the negative pole and we understand how electricity can cure the worst endometritis.

By increasing the blood supply negative electricity acts also like Bier's hyperemia, upon all internal inflammations, but particularly upon chronic endometritis. The latter is seldom benefited by the routine currettage. It has been repeatedly proven beyond the shadow of a doubt that curettage never removes the entire diseased uterine mucosa, but rather leaves its greater part intact even in the most skilled hands. Hence before resorting to curettage electricity should first be given a fair trial. For the deep inflammations as metritis, salpingitis, oophoritis and pelviperitonitis no surgical operation should ever be tried. Cases of sterility that could be benefited by serious surgical operations are very few indeed.

Uterus infantilis is another anomaly that is greatly benefited by electricity. Some times a previous small operation is necessary. Uterus infantilis in itself, says Beizel, does not prevent conception but the conical elongation of the cervix is often so closed up by the vaginal walls as to leave no room between this point of contact and the external os. In such a case the amputation of the cervix and subsequently the application of the faradic current will be of great service.

When the cause of the sterility is deficient activity of the ovaries any remedial agent promoting the activity of the pelvic circulation, *e. g.* massage, will be of great benefit; but here again the best means to promote this desired activity is the uteroabdominal galvanic application.

Sometimes sterility is caused by orgasmus retardatus. Kisch found among sixty-nine sterile women twenty-six with dispareunia. He is, therefore, of the opinion that the sexual excitement of the woman is not irrelevant to impregnation. Fraenkel found in his one hundred cases of sterility the causes to be: dispareunia and lack of libido four times, pains in coition twelve times, and lack of orgasm five times. This deficient orgasm, as shown by the writer, is mostly caused by early masturbation. It is thus a weakness of the nerves and is greatly benefited by an electric tonic.

Nervous weakness is also not infrequently the cause in relative sterility where one child was born and no more children were desired. In such cases impregnation is prevented and the physiology defeated by coitus interruptus for a certain length of time, which weakens the entire nervous apparatus of the genital sphere. When later on, for some cause or other, the woman yearns for another child and the father is anxious for further progeny, they find that their wedlock has become sterile. In such cases no other treatment except the tonic effect of electricity will be of any benefit.

The last class of cases of sterility are those where the genital organs are apparently normal, but the uterus is not able to furnish the necessary nutritive

elements to the growing ovum. It suffices not, says Gruenwald, that copulation of sperma and ovum had taken place and the pregnancy had set in, but it is necessary that the uterus in its texture and nutrition be of such a quality as to be in a position to fulfill its function of furthering the development of the fertilized ovum and bring it to term, otherwise the patient without being aware of the fact may have an abortion almost every month. In such cases very few remedies except electricity will be of any value. The electric current tends to give to the uterus a certain amount of tonic which it requires to harbor the ovum to the end of its development.

The histories of the following six cases taken from numerous similar cases of the writer's private practice will prove the efficacy of the electric current in the treatment of sterility:

Case I.—Mrs. S., 25 years of age, had always had regular menstruation. She has been married four years and remained childless. For the last two years she has been running from one doctor's office to that of another without success. The obligatory stretching of the womb and the so-called cleaning had been performed on her without having the desired effect. The examination showed a large uterus with a thick hard cervix and an erosion. The adnexa were sensitive but otherwise normal. Electrical treatment was recommended and accepted. The patient received at the first sitting—the negative electrode within the uterus—10 milliampères for five minutes, which was increased at every sitting until twenty-five milliampères were administered for ten minutes. Three months later the patient became pregnant and gave birth to a healthy girl at term.

Case II.—Mrs. St. is four years married and sterile. The examination shows a chronic endometritis and an enlargement of the right adnexa and a considerable uterine discharge. The patient received ten treatments, the first two with the positive pole within the uterus to cause a diminution of the discharge. The other applications were made with the negative pole within the uterus. Four months later the patient became pregnant and gave birth to a healthy boy at term.

Case III.—Mrs. A. was three years married and sterile. The examination showed a stenosis of the external os, a narrow cervical canal and anteflexio. In the beginning only a very thin electrode, with the negative pole within the uterus, could be used until the lumen of the os and the canal was enlarged. Thereupon six treatments with the ordinary electrode were given. Three months later the patient got pregnant and gave birth to a healthy boy at term.

The following three histories are of cases of relative sterility.

Case IV.—Mrs. H., 30 years of age, has been ten years married and has one child nine years of age. A year after her first confinement she became again pregnant but had an abortion and was curetted. To avoid any more pregnancies impregnation was prevented by some means or other for about five years. During this time the patient suffered repeatedly from endometritis. For the last three years the couple have wished another child and coition is normal, still the patient does not conceive. At the examination the uterus was found enlarged with a knotty swelling at the left uterine horn. The left adnexa are enlarged, the tube being of the thickness of a small finger. The patient received eight treatments with the negative electrode intrauterine. The uterus became smaller but the knot in the horn and the swelling of the tube had not entirely disappeared. Six months later the patient became pregnant. In the seventh week of pregnancy the patient suddenly had a fainting spell while leaving the bath tub but soon recovered when brought to bed. The following day after a hearty breakfast she had again a spell, but this time remained in collapse for several hours. The examination showed a considerable meteorism of the abdomen, pulse 112, temperature 102° F. and a soft mass in the cul-de-sac. The rupture of an extrauterine pregnancy was diagnosed and the patient operated upon the same evening. The left tube was found ruptured, the embryo of about six weeks floating in the blood which filled the pelvic cavity. The swelling in the left horn was found to be a small subserous fibroid. The ruptured tube with the left ovary, on account of the precarious condition of the patient, was removed en mass. For the same reason the fibroid was left untouched to avoid the prolongation of the operation on a collapsed patient. The recovery was uneventful.

Case V.—Mrs. L. was confined with her first child eleven months after she was married. The child died when a year old. Since her first confinement three years have passed and the patient is still sterile. The examination showed an endometritis and erosion of the cervix. The patient received six treatments with the intrauterine negative pole. Two months later the patient became pregnant and gave birth to a healthy boy at term.

Case VI.—Mrs. M. was curetted three months after she was married presumably to remove the secundines of an interrupted pregnancy, but no traces of a preceding pregnancy could be discovered. From this time on impregnation was prevented by different means for about two years. When the couple then wished a child they found their wedlock sterile. The examination did not reveal any anomaly whatsoever. It was apparently a weakness of the nerves caused by the continuous prevention of impregnation. The patient received six treatments with the negative pole within the cavity of the uterus. Three months later the patient became pregnant and gave birth to a healthy girl at term.

From these six histories taken from the numerous cases of sterility seen by the writer it is easily seen that in cases of sterility caused by a diseased condition of the internal genital organs electricity is, if not the only remedy, the remedy *par excellence*. It is, therefore, to be marvelled at the extreme tenacity of the majority of surgeons to the efficacy of major surgical operations in such cases of sterility.

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FADS IN CLOTHING.

IN these days faddists of every kind abound. The man or woman with a crank is almost more the rule than the exception. To be very keen on any one subject is generally a good thing, for it is only those nowadays who specialize who ever arrive to eminence; but to be obsessed with a subject, or to carry a fad to excess does not certainly lead to eminence, and one who is bitten with the microbe of faddism is generally regarded as a bore. So far as fads in regard to health are concerned, with the possible exception of Christian Science, more noise is made in the world by the individuals who pin their faith to a particular diet or to an especial form of dress. The believer in nuts or in raw foods of one kind or another, or the advocate of extreme abstinence or of unceasing mastication, must declaim from the housetops that the thing which has happened to hit his fancy is the sole condition of health. True it is that, in a month or two, the same man will probably be praising a different diet altogether, but it matters little what the kind may be, the only thing certain is that he will do his best to let all the world hear of it. Regulating one's diet and adapting it to suit one's constitution are excellent procedures, and go far oftentimes to ensure good health, but there is a limit.

The bad effects of a "health" diet are generally obvious, but the harm done by hygienic clothing is not so readily visible. It has been for long a matter of settled opinion that corsets, at least these garments when worn tight, are a fruitful cause of illness among women, and many authorities in matters hygienic have, from time to time, advised women to give up the wearing of this popular form of attire. Dr. Bulstrode, an English expert on all pertaining to consumption, says the chief cause why pulmonary tuberculosis has decreased among English women is that corsets are worn more loosely than was formerly the case. Dr. Lillian M. Chesney, however, in a vigorous and entertaining article, which appeared in the July number of the *Journal of the Royal Institute of Public Health*, attacks the theory of Dr. Bulstrode and many other theories regarding women's clothing, which have come to be regarded as articles of faith. This lady denies that women have given up stays, and says that they are worn quite as much as ever, and further declares that it is not compression around the waist that is hurtful to health, but that garments hung from the shoulders are the injurious ones. The reason given is that, when garments which hang from the shoulders are worn, the apices of the lungs, being unprotected by any bony structures, are compressed, and in unmuscular subjects the constant weight of clothes hung upon the shoulder causes a tendency to stooping.

Again, as to the custom in civilized countries of women partially disrobing in the evening and wearing low-neck dresses of thin material, and thin shoes and stockings, while in the daytime, when the sun is warm, they will walk about with the bodies fully covered. In theory, of course, it is highly unwise to be in the sun, warmly clad, probably with fur or feathers round the neck, and at night to go out lightly clothed, with bare head, or to dance in a hot ballroom and then sit in a cool balcony, in scanty attire and in the thinnest of shoes and stockings. If all happened that should happen persons who thus offend against the laws of health as laid down by "authorities," should pay a heavy toll of ill health and death. As a matter of fact, Dr. Chesney asserts very few women do catch cold in the evenings. It is not the well-to-do who, as the Irish lady expressed it, "strip for the company," who get colds, pneumonia, phthisis, nearly so much as the poor, whose social customs do not extend to dressing, or undressing, in the evenings. There is far more harm, according to Dr. Chesney, in keeping the chest always covered up with woolen clothing than in covering it for one-third of the day and uncovering it in the evening. The writer also expresses her dislike, from hygienic and cleanly standpoints, of wearing heavy undergarments. She is of the opinion that the night sweats of consumption are largely induced by wearing woolen nightgowns and by the habit among the poor of going to bed in half their day clothes. The argument is extended that if, as most modern authorities say, there is benefit in an abundance of fresh, cool air, no danger in wet feet, no harm in draughts for the consumptive, the healthy cannot suffer from them either.

There is little doubt than many persons, at the present day, coddle themselves too much, and it is more or less certain that very many of the common ailments of children proceed from their being too warmly clad. It probably is true, too, that woolen garments are not nearly so hygienic as they were at one time supposed to be. They become sodden with perspiration, and, being very absorbent, take up all the effete matters given off by the skin. Common sense in clothing is as necessary as the exercise of that quality in any other question bearing on health.

THE ETIOLOGY OF CHRONIC NEPHRITIS.

STATISTICS appear to show that there has been a noteworthy increase in the prevalence of nephritis within recent years, as well as in the mortality from this disease. It is possible that this increase is apparent rather than real in consequence of improved methods of investigation and greater accuracy of observation. At the same time it cannot be denied that present-day modes of living may play some part in this connection. Inflammatory changes in the kidney are found frequently after death when their presence during life was not suspected from either clinical or etiological considerations.

Nephritis has been caused experimentally by

means of various toxic substances, but the resulting lesions are not identical with those so commonly observed in human beings. An almost constant feature of the latter is some grade of circulatory disturbance in the form of venous hyperemia or local anemia, or both together, and it has been thought that this may be the sole etiological factor in some instances. With a view to determining the influence of such circulatory changes on the function and structure of the kidneys Dr. Haven Emerson (*Archives of Internal Medicine*, June, 1908) undertook an experimental inquiry into the effects of repeated inhalation of general vasodilators, of mechanical injury to the kidney, of injection of alcohol, adrenalin, and physiological salt solution into the substance of the kidney, of increased viscosity of the blood from introduction of gelatin into the circulation, and of intravenous injection of adrenalin and lead acetate. As a result of these observations it would appear that interference with the blood-supply of the kidney can be brought about by means of chemical injury to the renal parenchyma, and that the process of repair that ensues may involve such a destruction of secreting tissue as to cause the death of the animal. In consequence of the use of general vasodilators the kidney suffers at least a mild grade of degeneration, which may be due not to the specific renal irritation caused by the drugs employed, but to the defective blood supply resulting from frequently repeated vascular relaxation.

An analysis of the accepted causes of chronic nephritis in man shows that a common factor in many of these is a more or less severe and prolonged stagnation in the renal blood-supply, and although this factor is often associated with the presence of irritants capable of injuring the tissues of the kidney, an insufficient supply of blood alone will cause first an error in the function and later an alteration in the structure of the kidney. Cardiac disease, bacterial toxins, and metabolic waste-products are probably the causes of the errors in circulation that bring about the changes mentioned. Accordingly, the prophylaxis consists in increasing present efforts to check the spread of infectious disease, and the correction of habits of over-stimulation and overwork, so prevalent in large centers of population.

NERVE SUTURING.

Partial or complete division of a nerve, sufficient to impair its function, may be spontaneously recovered from, but such a fortunate occurrence is not to be relied upon. In the *Centralblatt für die Grenzgebiete der Medizin und Chirurgie* (May 7, 22, and June 5) Ernst Oberndörffer reviews the entire literature on the subject. He collected 287 cases and found that in 128 the nerve injury was caused by a cut, in 46 by a stab, in 38 by a fracture, and in 22 by a severe contusion. In judging the results of neurorrhaphy he took into consideration the motility of the muscles alone; 72 per cent. were cured, in 15 per cent. the result was poor, in 13 per cent. doubtful. The result of the operation depended mostly upon the kind and extent of the injury and whether the wound was infected or not. The age of the patient, the distance of the injury from the spinal cord, and the after-treatment had little effect on the final result. The results following secondary suture were as good as those following primary suture, provided the former was performed within six months after the injury. It usually took from two to twelve months after operation before any improvement set in. The nerve injuries caused by a cut or severe contusion were usually sutured primarily, as the accompanying injury to the parts ordinarily required surgical attention. Those due to fractures or bullet wounds were usually sutured secondarily.

From Obern dörffer's statistics we see that two-thirds of the cases of neurorrhaphy were successful. Where there is a large wound the function of the nerve should be tested immediately, and if found impaired the severed nerve should be sutured at once. In fractures the nerve is usually not affected until a callus forms, but even if it is divided at the time of injury neurorrhaphy had best be postponed, as it would hardly seem wise to make a compound fracture out of a simple one. We may say that unless there is a large wound the treatment of nerve division should be expectant provided the nerve suture is performed within six months after the trauma. The operation has certainly been performed frequently enough and with sufficient success to justify repetition.

The Position of the Heart in the Presence of Pericardial Effusion.

Divergent views are held by different observers as to the position of the heart in the presence of an accumulation of fluid in the pericardial sac. By some the heart is said to be displaced downward and backward, others assert that it is pushed upward and forward, and still others that it retains its normal position. In all probability the heart occupies various positions under the conditions named in accordance with the varying physical factors present in individual cases. With the object of determining these factors and their action, Dr. W. J. Calvert (Bulletin of the Johns Hopkins Hospital) made a careful study of sections of the hardened bodies of two individuals with pericardial effusions at the time of death. It was found that the position of the heart in the presence of a pericardial effusion is governed by the size of the heart and that this depends upon the degree of distention of the heart or on the amount of blood contained within it. The latter in turn varies with the stage of compensation. So long as compensation is maintained the heart contains a relatively normal amount of blood and occupies a relatively normal position. When compensation fails the amount of blood delivered to the heart is diminished and the heart becomes smaller and smaller until collapsed. The size of the heart varies inversely as the pericardial pressure. During this change in size the heart successively occupies positions varying from normal to one in which it comes to lie against the posterior wall of the pericardium. The apex is in a normal position or displaced backward and slightly to the right; otherwise it is unchanged. When the pericardial pressure is high or when compensation is failing the signs should be a triangular area of dullness, high pulse-rate, perhaps pulsus paradoxus, low arterial tension, marked systemic venous congestion, and pronounced pulmonary symptoms.

Serum Injections in Hemophilia.

In the greater majority of cases hemophilia is an hereditary constitutional fault, at times, however, it is acquired. The symptoms of both varieties are similar and well known, and in both the coagulation time of the blood is much retarded. In a recent issue of the *Revue pratique d'obstétrique et de pédiatrie,* P. E. Weil differentiates between the accidental, transitory, and the congenital variety; in the former he found the blood to be thin and to flow rapidly through a needle inserted into a vein; the leucocyte count was normal, and the coagulation time was seventy-five minutes, the coagulation being solid and the serum plentiful. In the congenital variety the blood was sticky and flowed slowly, there was an increase in the percentage of uninuclear leucocytes, and the coagulation time was from two to nine hours, the coagulum being soft and the quantity of serum small. Weil found that when three minims of animal serum was added to three cubic centimeters of blood, taken from a patient suffering from either variety of hemophilia, coagulation occurred in five to ten minutes. When he injected ten to twenty c.c., of normal blood intravenously, or twenty to thirty subcutaneously into these patients, he found that the coagulation time was practically normal two days after the injection, and remained so several weeks, this effect being a little less marked in the congenital variety. He also found that normal serum applied locally had a styptic action. Weil therefore advises the injection of normal serum, or, if such cannot be had, diphtheria antitoxin, for the bleeding in hemophiliac patients in whom styptics, compresses, ergot, ice, calcium lactate, gelatin, etc., have been unsuccessful.

Chloroform Anesthesia and Exclusion of Part of the Circulation.

Since interference with respiration and failure of the heart are so liable to occur during the administration of chloroform, any new suggestion which may diminish the frequency of these complications or aid in their treatment is deserving of trial. About a year ago Klapp suggested tying off the extremities temporarily during a chloroform anesthesia, as in this way part of the blood was excluded from the general circulation. Thus less chloroform would be required to obtain the same degree of anesthesia, it being a well-known fact that the smaller the amount of circulating blood the less choloroform will be needed. Recently Ziegner (*Medizinische Klinik,* No. 17, 1908) proved the usefulness of Klapp's suggestion in a series of animal experiments. He actually found that much less chloroform was required to bring about the same degree of anesthesia, when the animal's extremities were tied off than when this was not done. He furthermore found that when animals had their extremities tied those which had the ligatures cut immediately after the anesthetic was stopped, recovered much more quickly than those in which the ligatures were left in place. The less chloroform used the less likely complications are to set in during the course of an anesthesia, and as the severity of the after effects is directly due to the amount of the anesthetic which the organism has to eliminate, it is necessary to limit the quantity given as much as the exigencies of the operation and the patient will permit. In those patients in whom we fear complications or severe after effects Klapp's suggestion would be advantageous in that less chloroform is necessary. Ziegner's experiments also demonstrate that in cutting out a part of the circulation during an anesthesia we have a valuable remedy in combating any interference with respiration and heart failure, for upon removing the ligatures blood not loaded with chloroform immediately reaches the vital centers and acts as a most powerful stimulant.

News of the Week.

Health Conditions in the Canal Zone.—The report from the Department of Sanitation of conditions in the Canal Zone during June, 1908, shows a death rate per 1,000 of employees of 12.35, a reduction of 15.18 as compared with the rate for June, 1907. Among white employees the rate in June, 1907, was 21.05, in June, 1908, 19.84; among colored employees, in June, 1907, 29.96, in June, 1908, 9.46. In the city of Colon the rate decreased 4.53, but in Panama City there was an increase of 8.04. The high rate is said to be due to the prevalence of tuberculosis and digestive diseases of children, and the increase is partly explained by the fact that the rainy season is one month earlier than in 1907, so that comparison of June, 1908, might more fairly be made with July, 1907, in which case there would be a reduction of 6.01. The improvement in the colored death rate is due to the general and progressive sanitary improvement, as well as to improved feeding methods, better bedding and clothing, and gradual adaptation to the new environment. There were five deaths from malaria, two deaths from typhoid fever, and five deaths from pneumonia, all showing a considerable decrease from last year. Of forty-seven deaths among employees, twenty-one were due to accidental violence. Two deaths occurred from rabies, the first instance so far as could be ascertained in which the disease had been reported from Panama. It was thought that a dog in the incubation stage had been imported from the United States.

Tuberculosis in Syria.—Dr. Mary Eddy, an American physician in Beirut, Syria, has established a sanatorium for the treatment of pulmonary tuberculosis on the heights of Mt. Lebanon, Syria. An English trained nurse has been installed as matron, and the consulting physician is Prof. Harris Graham, a Canadian. The dread of tuberculosis is very great in Syria; patients are shunned more than those suffering from leprosy, and in many cases are deprived of proper care. Up to the present there has been no place where they might find shelter and treatment. The new sanatorium has eighteen rooms and a group of tent houses for open-air treatment of men patients. It is situated at an elevation of over 3,000 feet and is surrounded on three sides by pine groves.

Cholera in Russia and the Philippines.—Since the outbreak of cholera in Russia and up to August 13, 225 cases and 150 deaths were registered at Tsaritsyn, where the epidemic has been most severe. The city of St. Petersburg has been officially declared to be threatened with the disease, and bacteriological examinations have revealed the presence of the cholera bacillus in the water of the River Volga. Eleven cases of cholera have been reported in Iloilo, Philippine Islands, and a soldier in camp near Manila has been stricken. Manila has so far been free from the plague.

Rabies Decreasing.—The New York State Department of Agriculture announces that whereas about six weeks ago thirty towns in the State were

under quarantine for rabies, there are now only twenty. The muzzling ordinances are being rigidly enforced.

Street Accidents in New York.—The Public Service Commission requires that the street railway companies notify it of all accidents occurring on their lines, and reports that for the month of July there were 239 serious accidents, 63 less than in June. In these 35 persons were killed and 13 suffered fractured skulls. In all, 3,578 persons were injured.

New York's Death Rate.—For the week ending August 8 the death rate in the entire city was 16.74 per 1,000. Last year for the same week the rate was 22.22. The total number of deaths for the week in 1907 was 1,825; in 1908, 1,419. There were 328 deaths of children under five from diarrheal diseases, as against 486 in 1907.

Charitable Bequests.—The will of the late Mrs. Annie L. Lowry of Philadelphia provides for the distribution among some twenty-one homes, hospitals, and charitable institutions in and about Philadelphia, of over one hundred and sixty thousand dollars. The endowment of several hospital beds is provided for, and in addition the Mission to the Lepers in India receives $3,000. One thousand dollars is left to Finley Hospital of Dubuque, Iowa, by the will of the late Senator Allison. The Deaconess' Training School and Wesley Hospital of Chicago have each received $1,000 by the will of the late Mrs. Eugenia Shumway of Polo, Ill.

Diphtheria Antitoxin in Pennsylvania. According to the report of the Pennsylvania State Department of Health, the mortality of cases of diphtheria treated with free antitoxin was a little more than 7 per cent. in 1908, as compared with a fraction above 11 per cent. in 1907. The results were best in the cases in which the remedy was used early and in large doses.

"Memphis Medical Monthly."—Dr. Richmond McKinney, for twelve years editor of the *Memphis Medical Monthly*, has announced his retirement and the appointment of Dr. J. H. E. Rosamond as his successor in the editorial chair.

"The Yale Medical Journal," in its issue of July, 1908, announces the commencement of a very considerable change in its aims. Affiliation with the State Medical Society of Connecticut has been effected, and the proceedings of the society will hereafter be published in the journal, a copy of which will be sent to each member of the society. The former advisory board assumes direct editorial control of the journal, which will thus become of more general usefulness to the medical profession of Connecticut.

Addition to St. Anthony's Hospital.—An addition, to cost $200,000, is to be made to the hospital of St. Anthony at Padua, Ill. The principal addition will be a five-story fireproof building, 112 by 50 feet.

The New St. James' Hospital, at Pontiac, Ill., built at a cost of about $100,000, was dedicated recently with appropriate ceremonies.

St. John's Guild.—More than a thousand a day has been the average number of mothers and little children carried on the Floating Hospital of St. John's Guild this summer, an increase over last season's average of over 200. In thirty-five trips made 35,470 persons have been taken for a day in the fresh air. The floating hospital trips usually stop with the end of August, but this year on account of the long spell of hot weather the guild is anxious to continue them at least through the first week in September and is appealing for funds. Contributions may be sent to Isaac N. Seligman, treasurer, at 103 Park avenue.

Professional Incomes in Berlin.—Official statistics have been published showing that among 4,000 physicians practising in Berlin 778 have a yearly income below $750, 683 more an income below $1,125, and only a very few get above $3,000.

Dr. C. A. Ewald of Berlin, Editor of the *Berliner klinische Wochenschrift* and a well-known writer on diseases of the digestive tract, has been made an "ordentlicher Honorarprofessor" at the University of Berlin. Dr. Ewald was born in 1845, in Berlin, and entered upon the practice of medicine in 1874. He was at first "Privatdozent," and later, in 1882, was made extraordinary professor at the University of Berlin. He was attending physician at the Berlin City Gynecological Hospital from 1876 to 1886, and since that time has been on the attending staff of the Kaiserin Augusta Hospital.

Dr. Jean Charcot, son of the late Dr. J. M. Charcot, the famous French neurologist, sailed from Havre on August 15, on the *Pourquoi Pas*, for the South Pole. This is his second voyage of discovery in that region, he having led a similar expedition in 1905. After reaching Alexander's Land, M. Charcot plans to continue his cruise in a southwesterly direction, to explore and define the southern limits of the Pacific Ocean and to determine accurately whether or not there is a vast continent extending as far south as the Pole itself.

Dr. B. J. Lloyd of the U. S. Public Health and Marine-Hospital Service has received honorary Ecuadorian citizenship by a special act of the Congress of the Republic, in recognition of his services in connection with the sanitation of Guayaquil. Dr. Lloyd was appointed by the Ecuadorian Government President of the Sanitary Commission and took a prominent part in stamping out the bubonic plague in Guayaquil.

Dr. Reed on the Political Situation.—Dr. C. A. L. Reed, formerly President of the American Medical Association, is reported from Hot Springs, Va., as saying that the medical profession of this country is preponderatingly for Mr. Taft for President of the United States. "On this point," he says, "I know whereof I speak, for I am in touch with the organized medical profession in every county in the United States and consequently have direct means of information." Dr. Reed is a candidate for the U. S. Senatorship, to succeed Senator J. B. Foraker of Ohio.

Dr. Frederick E. Lettice of Schenectady has been appointed prison physician at Sing Sing, to succeed Dr. R. T. Irvine, who recently resigned.

Dr. Hyman Cohen has been appointed chief disinfector of the Chicago Health Department, vice Dr. Charles W. Biehm, deceased.

Esperanto Congress.—Major Paul F. Straub, of the Army Medical Corps, is the delegate of the United States Government to represent this country at the Fourth International Esperanto Congress, held in Dresden from August 16 to 22. The Congress was formally opened on August 17 with an attendance of 1,800 persons. The delegates were welcomed by representatives of King Frederick Augustus of Saxony, and of the Dresden municipality. Dr. Zamenhof, the inventor of the language, made an address on its ideals. The program of the session announced that its close would be celebrated by a performance by the Dresden Royal Opera

Company of Goethe's "Iphigenie auf Tauris" done into Esperanto.

Pasteurized Milk Stations in Newark.—New stations for the distribution of pasteurized milk are being established in Newark by a joint committee representing the Babies' Hospital, the Newark Social Settlement, the Visiting Nurses' Association, and the Bureau of Charities.

Ozone for Hospital use.—A plant for the generation of ozone has just been installed in the Homeopathic Hospital in Pittsburg. This is said to be the second of its kind in the world, the first being in a hospital in Ireland. Great things are expected from the use of ozone in the treatment of colds and other infections of the upper air-passages.

Death of a Centenarian.—Born in Ireland one hundred and two years ago, Mrs. Elizabeth McClelland of Jersey City died on August 9, after a short illness. She had retained all her faculties until a breakdown three weeks before her death, following a mile walk on a hot day. Until she reached the age of 97 she had attended to all her housework. Mrs. McClelland came to this country when twenty years old.

The Mississippi Valley Medical Association will hold its thirty-fourth annual meeting in Louisville, Ky., on October 13, 14, and 15. The oration in surgery will be delivered by Dr. Arthur D. Bevan of Chicago, and will be on "The Surgery of the Kidneys." Dr. George Dock will give the address in medicine, the title being "Tropical Diseases of the Mississippi Valley."

Obituary Notes.—Dr. Lewis E. Wheat died at Philadelphia on August 9. He was graduated from Jefferson Medical College in the class of 1888.

Dr. John Harvey Borden of Tarrytown, N. Y., died suddenly at his home on August 10, aged 35 years. Dr. Borden was graduated from the College of Physicians and Surgeons, New York, in 1903. He was a member of the New York Pathological and Harvey Societies, and visiting physician to the Tarrytown Hospital.

Dr. Benjamin D. Ashton of Travers City, Mich., died on August 6, at the age of 79 years. Dr. Ashton was graduated from the Cleveland Medical College in 1854, and for forty years has practised in Traverse City, retiring from active work in 1902.

Dr. John O'Falvey of Marquette, Mich., a graduate of the Royal College of Physicians at Dublin and a veteran of the Crimean war, died recently at his home, aged 85 years.

Dr. Walter Hurst of Detroit, Mich., died on August 6 at his home, following a stroke of paralysis, aged 52 years. Dr. Hurst was a graduate of Owens College, Manchester, a pupil of Thomas Huxley, and had been in this country four years. He was for a number of years Secretary of the British Medical Association.

Dr. Charles H. Burr, formerly of New York, died on August 13 at his home in South Framingham, Mass., at the age of 53 years. Dr. Burr was graduated from the Harvard Medical School in 1882, and was on the staff of the Manhattan Eye, Ear, and Throat Hospital in this city for many years. He was obliged to relinquish his practice several months ago because of failing health due to kidney disease.

Dr. Albert G. Sprague of Riverpoint, R. I., died on August 2, after an illness extending over several years. He was a veteran of the Civil War, a member of the Rhode Island Medical Society, and for many years was president of the State Board of Health and health officer of Warwick.

LETTERS TO A NEUROLOGIST.

To which are appended brief replies purporting to set forth concisely the nature of the ailments therein described with remarks on their appropriate treatment.

XI. From a Doubting Thomas.

Washington, June 18, 1908.

Dear Doctor:

I have read with interest the "Letters to a Neurologist" that have been appearing in the Medical Record during the past few months, and I am moved to add one more to your collection. It is obvious that you have had considerable experience with the general practitioner, and I say to you that I have had not a little with the neurologist. This letter is not written to cast any aspersions, for I may truthfully say that it has been my experience that, when the neurologist is a practitioner of medicine who has had special training in nervous diseases, he is a most satisfactory consultant. But what I am particularly at a loss to understand—and desire for enlightenment is the object of this letter—is the quality of advice that many of my patients get from neurologists. Take, for instance, a patient seen by me to-day. A man in charge of a small business, a steam laundry, consulted me two years ago, seeking relief from attacks of pain in the legs—rheumatism, he called it—and difficulty in passing water. I couldn't make much out of him, so I suggested that he should go to see a nerve specialist in Baltimore. He did so, and was told that he had locomotor ataxia. He was given a saturated solution of iodide of potassium and told to take thirty drops of it four times a day. He says that he was told that his treatment could be carried out as well at home as there, and that the disease was incurable. However, it might be years before he would be incapacitated. He was warned to keep away from quacks.

This, it seems to me, was like taking a backwoodsman who had never seen a balloon but had heard of it, and who desired to make a journey in one, putting him in the car with something that was thought to be ballast, telling him to throw it out if the balloon did not go up properly, and then cutting the captive rope. You couldn't have any very sanguine expectations that he would come down in Philadelphia or other safe place remote from the starting point. In fact, one could not give reasonable assurance that he would come down at all. The truth of the matter is that the chances would be all in favor that the errant would come a cropper, and that's just what happened to my patient. He went home and took the medicine for a while, and as he didn't seem to be improving, he sought those who had no doubt but that they could cure him. First, he tried a "chiropractitioner" of this city. She rubbed him violently—that is all he knows about her treatment, save that he felt 100 per cent. worse when he came out of her establishment that when he went in. Then he went to a place where he was treated with vibration for three weeks. They didn't claim they could cure him, but they could relieve him. Promises, like piecrusts, one of your correspondents writes, are easily broken. These were of that brand. He was then advised to go to the Hot Springs of Virginia, and there they gave him the douche and hot-blanket treatment. He lost several pounds in weight and an incalculable amount of strength, and returned a weaker but wiser man. He then put himself under osteopathic treatment, which apparently benefited him, but he got discouraged when a particularly severe attack of pain seized him. Now he reads in

the Sunday papers that there is a doctor in New York who cures such diseases as his by treating the deep urethra, and he comes back to me to get my advice about going to see him.

Now, I submit that the neurologist to whom I sent him is to blame, in part at least, for this man's wanderings, and he is, in a measure, responsible for his present condition, which is infinitely worse than when I first saw him. Believe me, this is but one of several cases that have come within my personal knowledge. I can give you details if you desire them. Practically all my patients that have got into the hands of quacks and vicarious physicians have gone *via* the neurologist. I don't say they wouldn't have got there anyway. I content myself with stating the fact. The question I want to ask in this connection is: Is the impression which so many physicians have, that the neurologist seems to be content when he has made the diagnosis, founded in fact? Does he display the same keenness and insight in his search for the cure or amelioration of the disease as he does in detecting it? Is he as resourceful in suggesting means to combat the disease as he is diligent in discovering mo'es of eliciting it? Does not the mental picture which he has of the diseased tissues as he observes them upon the autopsy table blot out the nascent idea that anatomical and functional restitution may be possible, and leave in its place *cui bonum?* Is it not possible, now that tuberculosis is taking its place among curable diseases, that epidemic cerebrospinal meningitis is succumbing to the products of the laboratory, that the cause of syphilis has at last been discovered, that vaccine therapy is giving earnest of great promise, the neurologist takes an unjustifiable and untenable position in pronouncing many diseases of the nervous system incurable, and conforming his conduct to his dictum? Perhaps you do not agree with me that he does so, but I venture to say that such is the opinion of many general practitioners like myself, and I should be glad to hear from you relative to it.

Another point concerning which I seek information: I note that in many of your letters you lay great stress upon the rôle which heredity plays in the causation of nervous diseases. Don't you think heredity is overdone in this respect? I think you will agree with me that it has been the trend of science to show that disease of all kind is due to accident or design. Accident in encountering the various bacterial and protozoal causes of disease, and design in overeating and overdrinking.

You, no doubt, recall that it is not so long ago that the chief cause of tuberculosis was thought to be the inherited diathesis. Yet, what writer on the causation of tuberculosis wastes words on the inheritance of the disease to-day? Then, again, what facts, reliable, trustworthy, and uncontroverted, have we to show that any but a few rare diseases flow directly from our ancestors, and in those is not its occurrence to be construed as a protective effort on the part of Nature, which, Bard and Sage, inspired and profane writer, are unanimous in saying, tolerates no interference?

I appreciate that some nervous diseases, perhaps many, are considered to be distinctly hereditary, but to me the claims put forward regarding many of them do not seem to be entirely legitimate. Oftentimes, when I read a pedigree of nervous diseases, I am in doubt whether they should be regarded as illustrations of heredity, pure and simple. Some of the diseases regarded as hereditary, may, it seems to me, be due to the transmission of a disease germ through the reproductive cells, like pébrine of silkworms and like the inheritance of syphilis. There can be no doubt, it seems, that syphilis is hereditary. Therefore, the spirochætæ must be transmitted through the reproductive cells.

After a considerable number of years devoted to the practise of medicine, I have come to the conclusion that we attach too much importance to heredity. It may be that my observations, which have largely been in family practise, are too few to entitle me to an opinion.

Isn't it true that we are more in the air, as it were, in the treatment of nervous diseases than we are in the treatment of any other class of diseases? When a patient comes to me to be treated for gout, or diabetes, or aortic incompetency, I give him some advice, some instructions how to live, and some prescriptions, and I expect that he will improve or get well, but when a patient comes to me with epilepsy or amyotrophic lateral sclerosis, or tabes, and I treat him in the same way, I expect that he will get worse or never come back. In the latter respect, I am rarely disappointed, I regret to say.

I did not intend to burden you with such a long letter, but I venture to hope that you will deem it worthy of an answer. Believe me,

Yours cordially,

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New York, June 20, 1908.

My Dear Doctor:

I am glad to get your letter of the 18th inst., and to have the opportunity to reply to it.

I think I appreciate fully your motive in writing me. Although it may seem at first sight that your animadversions on neurologists are founded in fact, I hope to be able to explain them so that they cannot be construed as condemnatory.

The patient with tabes, whose history you relate, may have been inadequately treated by the consultant to whom you sent him, but you must remember that we have only his uncorroborated testimony. What the doctor said to him may have been quite different from that which he related to you. It seems improbable that anyone familiar with the history of tabes and the change that has taken place in its clinical course during the past twenty-five years should say unqualifiedly to a patient, or to anyone else, that it is incurable. The truth of the matter is that at the end of another generation it is not improbable that tabes will be a curable disease, for there can be no doubt, I think, that at the present time its course is materially influenced by appropriate treatment. The consultant may have erred in not having outlined to him with much precision the course of treatment which he should pursue, the frequency with which he should report to his physician, and the varieties of therapeutic aid which he should endeavor to secure, such as massage, electricity, counterirritation, methodical, purposeful movements, appropriate dietary, proper apportionment of work and relaxation, and the various other adjuvants that have been found useful in the treatment of this disease. He may have thought that the patient's circumstances would not permit him to employ these measures, or he may, unfortunately, be something of a therapeutic pessimist, particularly as he lives in a city in which therapeutic pessimism was a hall mark of good form at one time. Also, he may have thought that these adjuvants were not of sufficient service to make their serious employment justifiable. Of course, if he were of the latter type, I can say nothing in his defense, for the therapeutic nihilist has no justification for existence as a neurologist.

You say that practically all your patients that have come into the hands of quacks and clergymen have gone *via* neurologists. If you will absolve me from rudeness and assure me that your feelings will not be hurt by the expression of my honest conviction in this matter, I shall say to you that the real reason that they find themselves in the hands of quacks at all is that the practitioner to whom the neurologist returned them after making a diagnosis and suggesting a plan of treatment is incapable, from lack of training and serious inclination, to carry out the plan of treatment that is outlined. So little value in the treatment of any disease does the administration of medicine have, save in a few diseases in which it is specific, such as quinine in malaria, mercury in syphilis, thyroid extract in myxedema, and so deeply rooted is the belief that medicines are capable of coping successfully with disease, that it is very difficult for the practitioner who has been trained largely in the treatment of self-limiting diseases to liberate himself from the tyrannical hold that drugs have upon him. When he comes to the treatment of diseases in which restitution of function is largely a matter of metabolism and the regaining of a normal mental state, in other words to a class of diseases in which drugs play comparatively a small rôle, the practitioner does not know what to do. He can tell the patient to eat food that is nutritious and to avoid that which he has found from experience does not agree with him, to avoid fatigue and other debilitating encounter, to conform to the health maxims found in Poor Richard's Almanac, but as a rule he can't show some strong limbed member of the family how to give appropriate massage, he can't put in simple, plain, explicit language the directions for taking tonic baths, he can't outline a course of rhythmic movements for the cure of some distressing tic or habit spasm, nor can he write a dietary and convince the patient of the necessity of complying with every detail of it with the same scrupulous care as he requires them to comply when he is seeking to combat diabetes. In other words, the general practitioner does not take time and expend the energy to familiarize himself with the details of treatment which are not only necessary but essential in the treatment of nervous diseases. To what does the pediatrist of to-day owe his enviable position in the medical profession? To the fact that he has seen the necessity of mastering the details of infant feeding, and carrying them out with an exactness that rivals the martinet. The practitioner who competes with the pediatrist in the care of sick children, presents a sorry spectacle if he is not familiar with the dietetic requirements of the infant at different months of its life, with the details of modified milk, in short, with the whole paraphernalia of the bringing up of infants in the modern way. He finds that it is to his material advantage to acquaint himself with such details. The art of the neurologist is based on a much more intricate and complex comprehension. Yet I must say that I see very little evidence of any desire on the part of the physician to perfect himself in this art. Nevertheless it has been my experience (which I state reluctantly and regretfully) that the practitioner who admits that he knows little or nothing about neurology, displays a willingness to undertake the management of neurological cases. I need not say to you that the result of assuming such responsibility is not always successful. I am of the belief that the general practitioner should treat nervous cases and I have frequently urged this both in my lectures and in public print, but I maintain that before he undertakes to do it, he should give some evidence of his earnestness and good faith, and before we shall get that, I feel convinced that he must entirely change his attitude towards nervous diseases.

Let us go to the foundation of the matter. Are we not all familiar with the physician whose salutation in the presence of a patient suffering from disorder of the nervous system is, "You see I know nothing of nervous diseases"? A thoroughly trained physician is humiliated to confess that he does not recognize the ordinary diseases of the skin, or of the eye, or of the gastrointestinal tract, but the erudite and the mediocre seem to add a trifle to their stature by confessing that the field of nervous diseases is to them absolutely unknown territory. Moreover, it is a territory which apparently they have neither desire nor inclination to explore. In our great country with its hundreds of medical colleges there are very few professors of medicine who feel competent to participate in a discussion in the domain of clinical neurology even. There are comparatively few such incumbents who are willing to admit that they have sufficient training in neurology to make a diagnosis of any obscure nervous disease. These men imbue their students, perhaps not by word of mouth but by example, which is much more potent, with the idea that intimacy with nervous diseases is not of any great importance. The result is that the general practitioner has a feeling that it is not worth while.

The truth of the matter is that the practitioner of medicine who is best fitted to treat chronic diseases, it matters not what organ or system is diseased, is the neurologist, for he is a man who has had training to apprise him of the value of detail. He is a man who has had it impressed upon him that successfully to treat any disease, there must be constantly in the mind's eye of the man who essays to do so not only a picture of the disease but a picture of the process which he desires to initiate and carry through to a successful issue. The training that he has had in the laboratory and at the bedside, necessitating as it does protracted, repeated, and exhaustive examinations of the various constituents of the motor, sensory, secretory, and metabolic mechanism of the body, not to mention the unparalleled opportunities that he has for forming an estimate of the effect which the mind has upon bodily states, fits him preeminently for the treatment of chronic diseases. He has to study with scrupulous care and attention the application of the many agencies that aid anabolism and provoke catabolism. In determining them he must search like a detective and deduce like a philosopher. For in reality these conditions are the basis of every chronic disease. He observes the immeasurable effect which the mind has upon the body and he soon discovers for himself (even granted that he is deaf and insensible to what the past has to say to him upon this score) that hope and faith and confidence and other components of optimism are the most valorous soldiers in fighting diseases. He does not feel impelled to proclaim this knowledge from the housetops, nor to preach it from the pulpit, nor does he lend himself to cults, religious or other, that trade upon credulity of the feebleminded or upon the aboulia of the obsessed. He utilizes his knowledge for the welfare of the sick who entrust themselves to his care. He preaches the gospel of sane living and sound thinking. He believes these are even more important for the sick man than they are for the well man. When a leaking roof allows the water to percolate into the house and destroy plaster and paper and paint, the man who is asked to repair the

house does not go there and pour in a stream of cement hoping it will fill up the crevices here, and block the opening there, and thus make the house fairly habitable. He makes a careful survey of the original lesion, he repairs it as thoroughly as he can in order that no more injury may come through it, and then he proceeds with paperhanging, and mortar, and every other artifice of his craft or of his fellow-craftsmen to repair the damage.

This is what the neurologist does when he undertakes to treat a case of nervous diseases. Take for instance: The new neurologist sees a case of acute anterior poliomyelitis, he may be absolutely certain of the diagnosis, nevertheless he does a lumbar puncture, he has a complete chemical and microscopical examination made of the spinal fluid, of the blood, of the stools, of the urine, and the treatment he gives is suggested in a measure by the information which he gets from such examinations. He then has a very definite idea of that which he wishes to accomplish, viz., to mitigate the intensity of the inflammatory process in the spinal cord, to maintain the nutrition of the muscles whose nerves are diseased at their origin, to prevent deformity. He utilizes drugs which he knows have an effect to cause absorption of inflammatory products, he applies electricity and mild counterirritation to the spine, he massages gently the artrophying muscles, he injects strychnine into them, he wraps the limb in cotton wool and keeps it warm in the physiological position; in other words, he assists the reparative process of the body. He can't furnish new material as can the repairer of the house, but he can so order and arrange the reparative powers of the body that the job shall be well done.

That which he does in the treatment of diseases such as so-called essential paralysis of children is paralleled by his actions in the treatment of the majority of other nervous diseases. There are some diseases which he knows are uninfluenced by treatment of any sort, such as amyotrophic lateral sclerosis, but when called upon to treat these diseases he makes an effort to check their progress and he is constantly hoping to discover some treatment that will influence their course. On the other hand he deals with many diseases which experience has taught him are unamenable to treatment, such as the muscular dystrophies, general paresis, syringomyelia, etc., but I should like to ask you by way of answer to the latter part of your question whether you ever encountered a neurologist who did not attempt to treat these diseases with as much precision and orderliness, and I may add with as much hope of success, as the internist treats aplastic anemia, cirrhosis of the liver, or emphysema? I do not recall that any one claims that these latter diseases are susceptible of cure.

I think that you will find, if the matter is inquired into in good faith, that the neurologist is not the radiator of gloom that your letter would seem to imply. The reputation of the neurologist as a pessimist is like that of the stage Irishman, a figment of the imagination which custom has immortalized.

In reply to the second interrogation, concerning the importance attributed to heredity in the causation of nervous diseases, I confess that a suspicion has been filtering through my mind for some time that perhaps we were attaching a greater importance to it than it deserved. At least I agree with you so far as to say that the hereditary diseases, using the word in the sense of the naturalist, are few, but that many individuals get something from their heredity which facilitates the development of nervous and mental diseases cannot be denied.

One reason why heredity seems of such vast importance to me, and perhaps not to you, is that we may attach a different significance to the word. When I use the word heredity, I do not mean to imply that it is a force or a power making for continuity or for persistence of character, but the genetic relation between successive generations. All that the organism is or has to start with is its heritage. Its inborn potentialities it owes to its parents and ancestors. We physicians practically pay no heed whatsoever to this, in our interpretation and search for the cause of the disease, while on the other hand we devote the greatest attention to environment, which includes food, climate, housing, and scenery, and to function, which includes exercise, education, occupation, etc., in other words to influences that act upon an organization whose fundamental nature is determined by its heredity. It is natural that we should give more attention to the latter than to the former because in so doing we witness the fruits of our labor. Breeders and cultivators who have profited to any incalculable extent by discovering and applying the laws of inheritance, are able to point to results, but even though we were in relatively the same position as they are concerning these laws we should be unable to apply them.

My own belief is that we are on the threshold of making most important discoveries in the field of heredity from the application to the problems presented by disease of the principles laid down half a century ago by the Austrian monk, Gregor Mendel. I have no intention to say to you here, what the signs are that indicate such discovery. Certain it is that we were making little headway in the interpretation of nervous diseases on the hereditary basis along the lines laid down by Darwin, Wallace or Weismann but in the light of Mendelian heredity it is quite probable that many of them will yield the secret of their existence. Although consideration of the facts of heredity as they have been determined by experimentation upon the edible pea, and empirically by physicians in the study of disease and abnormality, does not tend to promote cheerfulness, neither does the fate of man unless one is deeply imbued with the religious spirit. Hand in hand with the advance made by preventive medicine, which is now used synonymously with the prevention of microbic diseases, should go progress in the science of generative or procreative development. I realize fully that we are not sufficiently advanced in civilization to enter fearlessly the domain of eugenics, but I believe that the day is not far distant when not only our profession will deal with it but the State as well.

The concluding paragraph of your letter discusses a phase of the subject which I should under other circumstances be very glad to take up, but this reply has already taken on such length that I can not permit myself to do it here.

Yours very sincerely,

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Reappearance of Diphtheria in Children Previously Treated by Antitoxic Serum.—Barbier records three cases of children previously treated for diphtheria by antitoxic serum, or injected for prophylactic purposes, in whom the appearance of another exanthem, measles, caused a recurrence of the diphtheritic membrane in the throat or elsewhere. Scarlatina may have the same effect. The evolution of the disease is then graver and the prognosis worse than in the first attack. A fresh injection of the serum should be made in these cases. The recurrence will often occur during the three weeks in which the child is supposed to be immunized.—*Journal de Médecine de Paris.*

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

THE BRITISH MEDICAL MEETING—ASSOCIATION FOR DESTRUCTION OF VERMIN—RELATION OF HUMAN AND ANIMAL DISEASES—PROPOSED LEGISLATION—ANTIMALARIAL FISH—THE POLYCLINIC—DEATH OF SIR T. STEVENSON.

LONDON, July 31, 1908.

THIS is the week of the British Medical Association, and, to a certain extent, the center of interest shifts to Sheffield, where the meeting is held this year. But London is by no means deserted by the doctors. In fact, there are about twice as many here as are wanted. A goodly number have gone to Sheffield—the officials, of course, were present at first for the general and formal business. Many others have only taken a day or two there, for the section in which they are interested or are to take a part. Still others go for one, two, or three days, and thence start for their holidays. A few have returned, some well satisfied and the rest disappointed. But none I have seen display much interest in the proceedings. As you have your own reporters there you will no doubt receive details of the scientific work.

At present there is much more talk about the "Association for the Destruction of Vermin," which held its first important meeting last week at the house of the Royal Society of Medicine. The London School of Tropical Medicine, to which practically the new association owes its existence, appeared in full strength to support their colleague, Dr. Sambon, who opened the discussion with a learned paper, which concerns many points connected with the relation of the diseases of animals to those of man. I say animals as a wider term than vermin, for there seems a tendency among our tropical friends to extend the latter word to any creature noxious to man by spreading disease. This seems too much of an "etymological inexactitude," and people will hardly agree to call birds vermin.

Dr. Sambon, you perhaps know, investigated the grouse disease and found five new microbes. He has since been engaged investigating the diseases of pheasants and other birds, and has made some discoveries in connection with them which seem highly suggestive. Such, for instance, as the prevalence of pneumonia and diphtheria in birds, especially those of migratory habits, and the coincidence of outbreaks among the inhabitants of certain localities on the arrival of flocks. This seems on a par with the migratory habits of rats, which are now recognized as carriers of plague—a revival of the view of the ancient Greeks and others. The terrible ravages of plague in India, where, it is said, above a million persons perished from it in the year, gives the utmost importance to this view, and accounts for the unusual vigor of the new society in the attempt to destroy these vermin. In the docks and warehouses on the Thames a regular campaign has been inaugurated, with the assistance of the port sanitary authority 550,000 rats have been slaughtered, and the war is still being vigorously prosecuted. An exhibition of traps and other rat-destroying appliances is also to be held. Moreover, the Society for the Destruction of Vermin is drafting a bill, with the hope of its passing through Parliament, to confer on local authorities extensive powers to enable them to exterminate the rodents. Several members of Parliament are giving their assistance. But, as I have shown above, the rat is not the only vermin that the society wages war on. A subcommittee has undertaken a raid on bugs and other nocturnal pests. The house fly is also to be attacked, and this is just the season for it.

A somewhat cognate subject—malaria—is receiving an unusual illustration at the Zoological Gardens, to which Mr. C. Kenrick Gibbons has presented a number of the small fresh-water fish from Barbados, where they are called "millions," and are credited with the power of preventing malaria. People visiting the gardens are pleased to see them in a tark in the tortoise house and to hear that enormous numbers are found in the fresh-water pools of Barbados. These fish (*Girardinus poecilloides*) are very voracious, and consume large numbers of the larvæ of mosquitos, so that their reputation of preventing or at any rate restricting the spread of malaria may not be altogether undeserved. The males are about one-half inch long, with brilliant iridescent coloring and large black spots on the sides. The females are less brilliantly colored, but are larger. It is proposed to introduce them into malarious countries.

An appeal is being made for help for the Polyclinic, on educational and charitable grounds. As to the first, because it provides postgraduate instruction on nominal terms (£1-1-0 per annum); as to the second, that its consultation department affords patients who cannot pay adequate fees the chance of consulting the most eminent specialists. On this point I feel some doubt about the charity involved. Most of these patients could pay a moderate fee, and that might be accepted by one who had not attained the foremost position. For example, why should not the assistant surgeon to a great hospital accept a fee which would not be taken by the full surgeon? Or the young physician, who has taken a house near the King's adviser, might very well be permitted these lesser fees, and perhaps his advice would be quite as good.

Mr. Jonathan Hutchinson has received from the Royal College of Surgeons a letter signed by the president and vice-president, congratulating him on having attained his eightieth year.

Sir Thos. Stevenson died on Monday of heart failure, aged 70. He had been ill for some time, but he was expected to recover. He was a Guy's student, took M.D. Lond. with scholarship in forensic mediciné and midwifery. He was lecturer on chemistry at Guy's from 1870 to 1898, on forensic medicine from 1878. He was F.R.C.P., a past president of the Society of Medical Officers of Health, of the Institute of Chemistry, and of the Society of Public Analysts. He had served as examiner in sanitary science at the University of Cambridge, in forensic medicine at the London and Victoria Universities, and in public health at the Conjoint Board. He edited the later editions of Taylor's "Medical Jurisprudence," and contributed to the journals and societies on his specialty. He was knighted in 1904. He had a full career as medical jurist and expert in toxicology, for he was the adviser of the home office in those matters, and you will remember that he was consequently prominent in all the most famous trials since the death of his predecessor, Dr. Alfred Taylor.

ORIGINALITY AND PRIORITY IN MODERN CYSTOSCOPES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the MEDICAL RECORD of February 29, 1908, and in the *New York Medical Journal* of April 11, 1908, Dr. F. Tilden Brown of New York is quoted as presenting a paper on "Ureteral Catheterization" before the meeting of the Medical Association of the Greater City of New York, held January 20, 1908. In this paper the essayist makes certain well-defined claims to originality and priority with respect to his instruments, and also claims that his originality has been trenched on. The allegations are so worded as to leave no doubt that I am the one accused, and also, leave no doubt as to the necessity of a reply, which is herewith presented.

In order that Dr. Brown's position may be correctly stated, this report is quoted, as follows: "Dr. Brown's

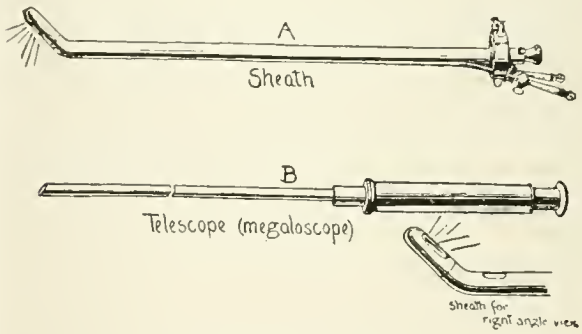

FIG. 1.—Boisseau du Rocher, 1889.

remarks were directed more particularly to instruments and methods with which he himself had to do, and were supplemented by wall drawings and photographs to demonstrate the various developmental forms, since 1900, of his original 'composite cystoscope,' the identical instrument which a St. Louis cystoscopist had recently appropriated, and had been presenting as his own 'universal cystoscope.' This composite cystoscope, made by the Wappler Co. of New York, was a vastly more useful instrument than its immediate predecessor, the author's double-catheter direct-vision cystoscope, which Leiter of Vienna made for him in 1898, and which was the first telescopic cystoscope, of any form, to provide for two catheters and effect synchronous catheterism of the ureters. But this Vienna instrument had no reserve channels for irrigation. It was with

the end in view of finding a way to add such irrigation channels to the already practicable double-catheter direct-vision cystoscope, while, at the same time, not increasing the circumference of the shaft beyond 24 French, that the Brown-Wappler efforts were first directed, in 1900. It should be here added that the

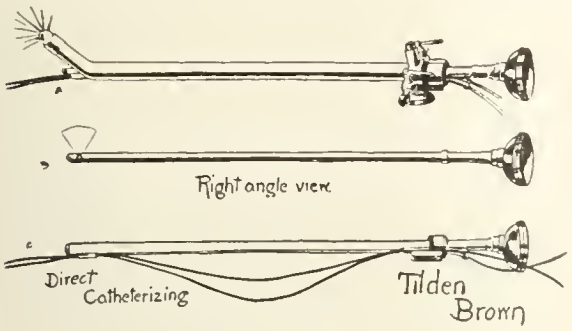

Fig. 2.—Tilden Brown, 1901–6.

speaker's first double-catheter instrument was but a modification of the then existing Brenner single cystoscope, whereas his subsequent instruments involved a wholly novel departure from all the preexisting types. The first essential change lay in getting rid of the old-time terminal window at the vesical end of the sheath, which was followed by the use of different kinds of interchangeable telescopic tubes for the same common sheath. Up to the present time its development on this basis had resulted in giving us at least three complete cystoscopes for different purposes, adjustable in one sheath."

So far from being the originator of the sheath-and-multiple-telescope feature in cystoscopes, or of the double-barreled catheterizing channels, Dr. Brown was antedated ten or eleven years in the presentation of these features. In 1889 Boisseau du Rocher described by both text and illustration* his early models (Fig. 1) of cystoscopes, which embraced the following several objects: (1) Direct view for inspection; (2) indirect view for inspection; (3) irrigation of bladder, either through the two catheter tubes during manipulation or through the sheath when obturator and telescope were not in place; and finally (4) double-barrel catheter channels for synchronous catheterization of both ureters.

As settling the priority of the double catheter channel feature, one has but to read the words of Boisseau in connection with his illustrations, as follows: "The little tubes [running in the lower wall of the sheath] have two different purposes. They serve as conductors for the ureter catheters. Nothing is simpler, with the orifice of the ureter in sight and the catheter in place, than to guide the latter and insert it in the ureter to the depth desired. Finally, being controlled and independent, every facility is furnished for catheterizing the two ureters without the necessity of withdrawing the instrument or disengaging the first catheter." Practical success in the use of this instrument was attested by Poirier.†

Following Boisseau's epoch-maing contribution of

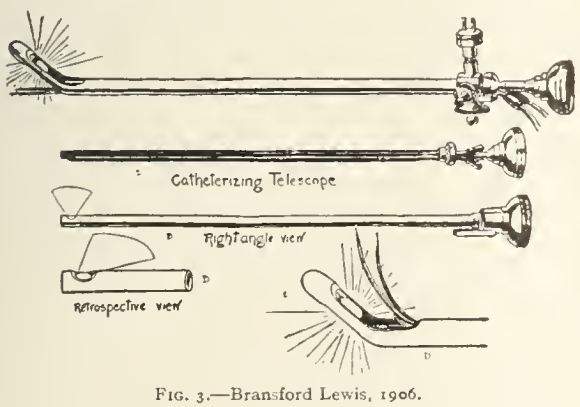

Fig. 3.—Bransford Lewis, 1906.

1889, a number of other cystoscopists adopted his sheath-and-telescope plan in the construction of cystoscopes, according to their individual ideas, among whom may be mentioned Güterbock, 1895; Fenwick, 1896; Nitze (evacuation cystoscope), 1897; Albarran, 1897; Koch-Preston, 1898; Lang, 1899; Schlagentweit (evacuating cystoscope), 1899; Kollman, 1900; Wassidlo, 1900, and the air-cystoscope of the writer, 1900. All of these antedated Brown's composite of 1901 in the sheath-and-telescope feature, whereas his double catheter channel feature of 1899 was antedated, as mentioned, by just ten years, by Boisseau.

The plan Brown adopted in his composite of 1901 of placing the lamp on the tip of the beak originated with Dittel in 1880, and was later used by him by placing Edison's incandescent lamp in that position on a Nitze cystoscope.

So far from being "a wholly novel departure from all preexisting types," as he claims, Brown's composite presented no feature of intrinsic originality or priority; for that reason, if for no other, I could not trench on him in the production of my universal cystoscope of 1906. Moreover, at the presentation of the instrument* the following definite disclaimer of originality was made use of: "In presenting the next candidate for cystoscopic favor, I do so with the full realization that there is no yawning vacancy in the cystoscopic field; that 'there are others' already in the field; also that it is difficult to find anything really new and original, at this date, in the cystoscopic world; that most of the supposed 'new' features are simply modified settings or assemblings of features already made use of. It is not desired to lay any especial claim to priority or originality in this instrument; utility is its basic principle."

As to whether my universal is the "identical instrument of Dr. Brown's," reference to the respective illustrations of the instruments (Figs. 2 and 3) will readily determine. The differences are so evident that it is scarcely worth while to bring argument to bear on the subject or mention the various and definite differences between them that existed when the universal was presented, in 1906. The accompanying illustration of Brown's composite (Fig. 2) is reproduced from his own writing.† If the later models of the Brown instrument (1907-1908) have grown to so closely resemble mine as to substantiate the statement of practical identity of the two instruments, it is not because of changes in mine, which has retained its essential individual features of double fenestration of the beak, inversion of lamp, complete double-catheter grooves, instead of closed channels, etc., from the first. Whereas I am informed that these features have been adopted for the Brown instrument since the beginning of 1907, the year after my universal was submitted.

Bransford Lewis, M.D.

1050 Century Building, St. Louis.

Annales des maladies des organes génito-urinaires, 1890, pp. 65-93.

†*Annales des maladies des organes génito-urinaires*, 1889.

A MEXICAN LABOR.

To the Editor of the Medical Record:

Sir:—From time to time the peculiar methods of midwives in various places are brought to the attention of the medical world, and I venture to think the customary technique in vogue among the Peons of Northern Mexico would be of interest. The Peon, or working class, of Northern Mexico is of nearly pure Indian descent and is born and raised in dirt. Imagine a rough, unceiled hut, twenty by fourteen feet, wherein a family of eight people are living with three pigs, a few goats and chickens, two dogs, and several cats. The house stands in the full glare of the sun, the doors and windows are tightly closed to keep out the gaze of the curious as well as the breeze. Here, in one corner, screened off by a few dirty old blankets, I found the woman in confinement. The bed was of two old blankets, a couple of bran sacks and a goat skin arranged on the floor, the goat skin being on top, fur side down, taking the place of our rubber sheets. The patient was a well-built, well-developed girl of eighteen, a primipara. It was because of this the mother insisted that I be present in case of accident, but not to do any of the actual work. The patient was wearing her usual house costume, consisting of an old, dirty black skirt and a waist that was dirty beyond description. There were two midwives in attendance, one being stationed behind, holding the patient's hips between her knees, both arms about the waist just above the uterus, a sort of human chair. As each pain came she hugged with all her force, which was considerable. Hanging in front of the patient was a rope of old clothes, bags, and towels,

*Am. Urolog. Ass'n, at Boston; *Am. Jl. of Urol.*, Dec., 1906.

†Bellevue Hosp. Reports, 1905.

up which the patient drew herself when the pains began. The chief midwife was in front, about the dirtiest, most ill-visaged bundle of humanity one would ever meet. She was squatted on her heels, with a hand on either of the patient's hips under the skirt.

Dilatation was not quite complete on my arrival, but in less than a half hour it reached the complete stage, the bag of waters emptied and things began to get lively. The husband, mother, and father were called and by the united aid of the family the child was born. As each pain began the patient started climbing the rope, dragging the posterior midwife up with her until they were nearly erect, the patient resting on the toes, the knees being flexed and widely separated. In this position the husband, mother, and father supported her, being arranged in the order named from above downward; the midwife in front shook and shouted, swaying the patient from side to side, forward and back, working so earnestly that the whole house trembled. Toward the last the patient thrust her fingers into her mouth until she gagged, repeating the operation until her hand was tired, when the husband took up the work. Between them there was kept up a continuous series of gagging until the child was born. After one long, hard pain the head popped out of the vulva like a pea being shucked under pressure, even making a slight pop, a deep breath was taken by all, then one more gag and the child slipped into the hands of the midwife, the woman was allowed to slip to the floor, while the cord was being tied and cut. The cord tie was a bit of string, which the midwife had laid on the floor in easy reach, along with the family scissors, the latter being used to cut the cord after being tied. Without moving the child from between the mother's thighs they had her climb up the rope once more, and after a couple of shakes and a gentle pull on the cord the membranes came away. A folded sheet, which had been loosely worn about the waist, was drawn as tightly as the father and husband could draw it, and then tied. The mother brought a good, generous bit of lard on the ends of the fingers, which was transferred to the midwife, who daubed it on the stump of the cord, and the third stage was completed. All with one accord lighted shuck cigarettes, the mother bringing a lighted one for the patient. The four women prayed in silence for a few moments, then a short prayer of thanks was offered, the patient kissed the picture of the Santa Niña, after which she was lifted to a dry blanket, without removing the dirty skirt. Here the posterior midwife crouched, holding the patient's head in her lap, crooning to her until she slept. The baby was at once put into the wash trough and given a good scrub with soap and water, after which it was dried, rolled in an old skirt, and given to the patient, and one more childbirth had been completed. I examined the woman for laceration, but much to my surprise found none. She and the baby were under my care for a couple of weeks and there were no complications aside from constipation on the mother's part and a slight conjunctivitis on the part of the baby, both of which yielded very promptly to treatment. The woman insisted on getting up on the fourth day, but involution seems to have gone on naturally without any harm, and at present the woman is doing her work and nursing the child, in the best of health as far as one can judge.

This is but an average case, no worse than half the labor cases of the camp. Still, with the average of six or seven full-term children each, the proportion of healthy old women is considerably greater than of the men, which only shows a little of what woman was born to undergo.

N. B., M.D.

Hondo, Coahuila, Mexico.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 6, 1908.

Some Aspects of Gonorrhea.—Frederick Forchheimer has made some investigations to determine the truth of the statements which have been made, in this country as well as abroad, by men and women who are interested in the suppression of venereal diseases. Whenever his figures have shown anything it is always that the propagandists have greatly overestimated the frequency and complications and the dangers of gonorrhea. This has been notably the case with specialists in genitourinary diseases in the male and in the female. Many who have written have been satisfied with the old figures of Ricord (80 per cent. of all males have had gonorrhea), which, combined with the views of Noeggerath, would make it appear that very few men and women could escape having gonorrhea. If to this there are added the remarkable mathematical gyrations of Blaschko, it is little wonder that the layman becomes an antigonorrheic howling dervish. That there is much damage done by gonorrhea is abundantly shown by all statistics; therefore, it is a righteous cause to fight for its reduction. But no righteous cause is aided by such lurid statements as have been made in connection with gonorrhea. He recapitulates the results of his studies as follows: The morbidity of gonorrhea is diminishing; the American army and navy are exceptions to this rule; the present mathematical methods of deducing incidence of gonorrhea in all men from morbidity lead to fallacious results; 54.1 per cent of all males have gonorrhea during their lifetime; we have not sufficient knowledge of the facts to state how many women have had gonorrhea during their lifetime; the small number of his cases of sterility does not justify any positive conclusion; prevention of conception is the cause of "one-child sterility" in the majority of instances.

The Tonsils and Their Relation to the General Health.—Charles P. Sylvester, after enumerating some of the anatomical changes produced by hypertrophy of the lymphoid ring, treats of a class of diseases originating through diseased lymphoid tissue of the nasopharynx, those of bacterial origin. The most important is acute rheumatic fever. This disease too often follows tonsilitis to be a mere coincidence. According to St. Clair Thompson, from 30 per cent. to 80 per cent. of all attacks of this infection begins with tonsilitis. Another infection, the germ of which is probably closely allied to that of acute rheumatic fever and found to begin in the tonsils (and probably only so), is erythema nodosum. Another important germ disease having its headquarters in one of the three tonsils is tuberculosis. Tuberculous meningitis has more than once been demonstrated to have had its birth in the pharyngeal tonsil, as also has tuberculosis of the middle ear. The severe and fatal cases of acute streptococcus infection beginning in the tonsils are not easily forgotten. Staphyloccus and pneumococcus infections from the tonsils begin also with extremely high temperature and rapid prostration. Fourteen cases of phlegmonous appendicitis associated with or preceded by acute tonsilitis, with post mortem findings in all, are reported by Professor Kretz. Deaths from acute nephritis in children following infection of the kidney from the tonsils have recently been reported. Retropharyngeal abscess is another form of bacterial invasion often secondary to diseased lymphoid tissue in the nasopharynx.

New York Medical Journal, August 8, 1908.

The Tonsil from an Evolutionary Point of View.—Jonathan Wright refers to the recent work of Brieger and Görke, who regard the pharyngeal tonsil as an organ which protects childhood. They seem to find sufficient evidence to warrant them in the belief that in its hypertrophied condition it is a more efficient protection against the entrance of the unknown germs of the diseases of childhood than when it retains its normal dimensions. The tonsil is a definite organ; it is the most highly developed of all the lymph glands. It is situated at the gateway of nourishment and disease; it is not only at the beginning of the hollow tubes of respiration and nutrition, but it is the first of the internal filters which lie across the bypath from the surface of the vena cava, traversed by the agents of infection. Change in the habits of man brought about by the forces of civilization may be supposed to increase the frequency of tonsilar enlargement, and it certainly increases the amount of bacteria-laden dust. The absorption of these from the pits on the surface of tonsils where drainage and inspiration have carried them, where they have lodged from passing food, is increased, and the inner organs of defense make a larger demand on the outer organs of defense for protection. The clue to a connection which may exist between the hypertrophy and the efficiency of the organ as a bacterial filter possibly may be found in the observation that the small, submerged tonsil is a tonsil of infection, and the large discrete tonsil is the tonsil of health. He does not wish positively to assert that the enlargements of the tonsils are always a protective physiological act of the organism. Neither does he wish to deny that they are frequently, or even usually in adolescence, a menace solely when diseased. Whatever may be the conclusions as to their marked enlargement, the knowledge derived from certain sources and the experimental evidence unite in pointing to the function of the tonsils as one of defense against infection.

Real Conservatism in the Treatment of the Prostate.—G. Morgan Muren says that in the many papers upon senile hypertrophy of the prostate gland, two points must be apparent to the careful student, first, the writer's remarkably good results, particularly as regards mortality, and, second, the cases reported are almost always "selected." He is positively in favor of the removal of the gland whenever the patient's condition justifies the risk. Personally he has operated upon nearly one hundred cases. In a number of these cases, where great infirmity, crippled kidneys and heart contraindicate the immediate removal of the gland, the "two-stage" operation may be well borne. By this is meant the preliminary drainage of the bladder, and later, when the patient has sufficiently improved, the complete removal of the gland. This preliminary drainage affords immediate relief in many cases. Until recently it has been his practice to drain these cases by the perineal route, and later to remove the gland the same way. Recently he has been draining suprapubically, as it seems to be a more rapid method; the abdominal route disturbs the patient less, and if later there is not sufficient improvement to warrant prostatectomy, the suprapubic fistula may be made permanent. There are several classes of cases in which there is every reason not to attack the prostate. An old, broken-down prostatic who has had little or no treatment, after a week or ten days' careful attention, may show such improvement as to be fit for operation. There is a large number, however, so fragile and worn out that any attempt to remove the gland must prove fatal. In these cases he believes permanent suprapubic drainage is the treatment indicated. Preference is given to the suprapubic method of drainage, as there is less subsequent dribbling than by the perineal, less discomfort from the tube or obturator, no added irritation to the inflamed vesical neck, and the interior of the bladder can be explored at the time of operation.

Acute Anterior Poliomyelitis in the Adult.—LaSalle Archambault knows of no commoner organic affection of the spinal cord in infancy and early childhood; but in the adult poliomyelitis anterior acuta is rare. He reports a perfectly typical case of infantile paralysis in a man who has reached his fortieth year. There was a widespread atrophic motor paralysis involving all four extremities. So far as he has been able to ascertain, there is no case on record of poliomyelitis in the adult in which the affection appeared later than the thirty-third year.

Journal of the American Medical Association, August 8, 1908.

Frontal Sinus Operation.—J. C. Beck describes and illustrates a method of opening the frontal sinus by first determining its limits by a skiagram, making a tracing of the same on celluloid, applying this tracing to the exposed bone surface and cutting the osteoplastic flap on its lines. The celluloid tracing can be sterilized in bichloride of mercury and alcohol for use in the operation. The bone flap, after division of the periosteum, is cut through with a chisel, except at the base over the superorbital borders and root of the nose where the periosteum is left intact. There the bone is carefully divided with a Gigli saw from the inside after the bone flap cut away above has been slightly pried out, great care being taken not to injure the periosteum. After eradication of diseased mucous membrane (without curetting) and the anterior ethmoid cells, and enlarging the natural opening, a wick drain in a rubber tube is passed down into the nose, the bone flap replaced, and the skin flap closed. The advantages claimed for the method are the ascertaining of the exact limits of the sinus before cutting the bone flap, and the prevention of the flap falling in by the securing of a firm hinge at the base, and its natural upper marginal bevel, where the anterior and posterior tables join. The operation, he says, is not a radical, but a conservative one, and if it fails the radical operation of taking away the bony flap can be done under local anesthesia. The gauze he removes the day after operating and the rubber tube is replaced the third to the fifth day by a silver filagree or gold tube.

A Cerebellar Diagnostic Symptom.—A. Gordon calls attention to a special symptom observed by him in six cases of cerebellar tumor. Four of the cases came to autopsy which verified the diagnosis. In the other two purely clinical cases the symptoms were typical. The phenomenon in question is the forced deviation of the head to the side opposite the lesion, together with great increase of vertigo and headache when the head is turned forcibly to the other side. He considers the phenomenon of diagnostic value. It does not occur always at the same period of the disease, a fact that is not explainable any more than the appearance of the symptom itself.

Poker-back (Spondylose Rhizomelique).—J. W. Rhein reports a case of this affection in a man aged 64, with complete spinal ankylosis and partial ankylosis of the shoulder, hip, and knee joints. The patient succumbed to general tuberculosis, which developed two months before death. The pathological findings in the nervous system, etc., were slight degeneration of some of the anterior and posterior spinal roots, slight peripheral neuritis, and degenerated muscles in the plantar region of the foot. Rhein holds that these were more probably the results of the bone lesions than their cause and believes, with Leri, that certainly not all these cases have a nervous origin. The relationship of arthritis deformans to these cases is, he thinks, remote.

Compensatory Diarrheas.—H. Stern defines the term "compensatory diarrhea" as "a phenomenon of varying degree and duration apt to ensue and return with more or less frequency in the course of systemic deterioration, and characterized by the diarrheal discharge of incompletely or perversely catabolized substances, or by that of catabolic products normally excreted by other emunctories." He recognizes three types: First, diarrheas occurring with deficient or perverse catabolic processes. Second, diarrheas resulting from functional or structural disease of certain excretory organs. Third, diarrheas occurring during the period of physiological systemic decline. Each of these he considers in detail. Of the first type, among others, are the specific diarrheas of gout, exophthalmic goiter, Addison's disease, and diabetes. In gout constipation is the rule, but it is not uncommon in so-called irregular or retrocedent forms of the disease for an attack to be aborted, or even serious internal complications prevented, by a succession of free bowel discharges carrying off the toxic accumulations. The peculiar diarrheal attacks in exophthalmic goiter, like the excessive activity of the sweat glands, must be regarded as compensatory, and when confined in proper compensatory limits are nearly always followed by temporary improvement. The same is true of one form of diarrhea in Addison's disease; the other type occurring near the end and colliquative in character, is dependent on typical anatomic changes in the intestine. Diarrhea is common in diabetes, where it may be a symptom of the underlying pathological condition. It is indisputable that sometimes a compensatory diabetic diarrhea originates in the small intestines, that by its agency sugar may be excreted, and that during its presence and for some time afterward the intensity of the glycosuria may be markedly lessened or even disappear. Of the second type of compensatory diarrheas Stern mentions only those following severe burns and those concomitant with impaired or suppressed renal function from other causes. Uremic diarrhea is the best known of all compensatory diarrheas, and when occurring without ulcerative changes there can be no doubt as to its compensatory nature. The diarrhea of systemic decline belongs largely to the two above classes, but since it is not as much the sign of disorder of any one organ or function, but of the general decline of all, it is proper to include it in a class by itself. Women are more subject to this type than men, and the cessation of the menses seems to favor it. Old people who perspire rarely are subject to chronic diarrheas, and lessened pulmonary exhalation in the aged is compensated for through the bowels, which seem to retain their physiological efficiency longer than other organs. The intestinal tract is the most efficient regulator of the shortcomings and disturbances in the economy of the aged. An attack of compensatory diarrhea generally indicates that there is no immediate danger to life, and that their frequent occurrence is sometimes a means of rendering life more comfortable is a fact not generally recognized by clinicians, who are apt to institute measures of suppression in all cases. Stern reports a case illustrating this fact. As long as a diarrheal process continues to compensate efficiently for loss of function of the skin, lungs, kidneys, and the organs of internal secretion, there is little immediate danger so far as life is concerned, and the suppression of the discharges may cause grave symptoms and danger. A true compensatory diarrhea should not be interfered with unless there is evidence that the local intestinal irritation and hyperemia unduly prolong the process. Local measures, rest in bed, heat to the abdomen, high rectal or colonic flushings with normal salt solution, and attention to diet are all that is needed in ordinary cases. The diarrhea being symptomatic of insufficient excretion, points toward what treatment is needed for stimulation of the catabolic processes and elimination.

The Lancet, August 1, 1908.

Some Blood Changes in Ankylostomiasis.—A. Hocart Brehaut says that the anemia in cases of ankytosomiasis is due to the presence of a toxin, and it appears probable that the eosinophilia is, in a way, a measure of the amount of toxins circulating in the blood. While in Egypt he made a number of differential counts on adult natives who were suffering from the disease. An analysis of these counts shows that the average percentage of eosinophiles is small compared to the European percentages, and also that there is none of those high eosinophilic counts which have so frequently been described. The average percentage was only 10 per cent. He attempts to explain this by stating that the poorer Egyptians suffer from old-standing bilharziosis, and this is known to be associated with eosinophilia. It appears possible, and in fact probable, that they are in a state of tolerance to toxins of a certain nature.

A Note on the Treatment of Erysipelas.—H. Tyrell Gray dismisses the local treatment of this disease by saying that the infected part should be kept dry by dusting with powder; calomel, zinc oxide, and starch in equal parts were used. The constitutional treatment may be medical only, or combined with vaccination or the use of sera. He favors the use of Metchnikoff's serum in this disease, especially when combined with the use of quinine, stimulants, etc. In the six cases he reports the dose of the serum was from forty to fifty minims.

An Unusual Fracture of the Clavicle.—J. W. Rob reports the case of a medical man who fractured his clavicle during a game of football. The right clavicle was fractured straight across the middle. The inner fragment was about half an inch higher than the outer and slightly in front. Between these two fragments was a third fragment, the upper end of which was square and about three-eighths of an inch across. This fragment projected upwards above the outer fragment about a quarter of an inch. It was freely movable within limits. This case was of interest because, first, the bone was not broken at the junction of the outer and middle thirds, as is usually the case when the violence is indirect. Second, the fracture was not oblique, as is usually the case when the violence is indirect. Third, injury to the brachial plexus or subclavian vessels is more often due to fractures of the clavicle by direct than by indirect violence. There was pressure on the inner cord of the brachial plexus, but there was no obstruction to the return circulation from the arm.

British Medical Journal, August 1, 1908.

Idiopathic Dilatation of the Colon.—M. Feldman says that the great rarity of true congenital dilatation of the sigmoid flexure of the colon is shown by the fact that out of 16,000 post mortem examinations made at Guy's Hospital, only one such case was discovered. He reports a case in which the important symptoms were constipation, distension, and relief of both by means of a finger in the rectum, or on the part of the patient himself by putting himself in a certain position. This last sign would seem to show that there is some kind of valve mechanism at work, although none has been found post mortem. This disease is more frequent in boys than in girls. Most of the cases end fatally before the age of twelve. The best treatment is colotomy above the dilated part, so as to give the affected part a rest. This treatment has been followed by good results. Unfortunately it is seldom that a correct diagnosis is made in time.

Two Consecutive Cases of Strangulated Hernia in the Female.—Horace Brown reports these cases, which were interesting because (1) inguinal hernia in the female is rare; (2) femoral hernia was diagnosed by a surgeon of great experience; he also thought it to be a femoral hernia which has pursued its usually upward course towards Poupart's ligament after escaping from the saphenous opening; (3) the fact that healing by first intention took place under the circumstances. In one of the cases the hernia must have existed for years. From the appearance of the appendix in the sac, it seemed to have occupied this resting place for some time; the walls of the sac were permanently indented by the nodosities on the appendix.

Consumption and Ozonated Air.—John A. Mackenzie has treated two patients with ozone; they were suffering from pulmonary phthisis in an advanced stage. The patients felt better while under this treatment; the dyspnea was relieved, the fever and night sweats became less, the coughing and expectoration were less, the pulse became slower, the arterial tension was improved; whenever the production of ozone ceased they complained of feeling worse, and the symtoms became aggravated. All danger of infection to the members of the household is obviated by the germicidal action of the ozone.

Berliner klinische Wochenschrift, July 27, 1908.

Antiferment Treatment of Cancer.—Hofbauer says that the fertilized ovum forms the best analogy to the cells of a carcinoma showing the same characteristics of progressive and persistent growth, destruction of the tissues of the parental organisms at the point of contact, and general parasite-like activity. This activity of the ovum is brought about by the effect of the entrance of a spermatozoon and the latter's influence, in the light of most recent research, rests upon the ferments it contains or produces after contact with the ovum, thus activating the cells of the latter. Hofbauer thinks that the cells of cancer are likewise activated by some similar ferments, and therefore antiferment treatment is quite logical. There are many substances which have an inhibitory effect upon the action of ferments, and of these Hofbauer has experimented with atoxyl, quinine, horse serum, cholesterin, and others, using them individually or in various combinations. Twenty cases of cancer, mostly in the inoperable stage, have been treated with these substances, injections being made in the neighborhood of the tumors. In general a uniform diminution in size of the tumors has been noted, so that the fact of a special influence of these injections upon tumor tissues is beyond any doubt. In no case, of course, recovery from the malignant disease has been effected; moreover, the effects being present only with the use of local injections, tumors inaccessible to such treatment are excluded from the list of those in which the new treatment may be tried.

Munchener medizinische Wochenschrift, July 28, 1908.

Milk Diet in Obesity.—Moritz uses exclusive milk diet in the treatment of obesity. The quantity of milk allowed the patients ranges from 1 1-4 to 2 1-2 liters in twenty-four hours, administered in five portions. Boiled milk is preferable to raw milk. It may be drunk cold or warm, as preferred by the patient. If thirst exists, the milk is diluted with water, but more than two liters of total liquid is seldom given. This cure is very simple and can be carried out anywhere; the rapidity of the loss of weight may be regulated by the quantity of milk given. Patients with cardiac or renal affections are very favorably affected by the treatment. An untoward symptom is constipation, which frequently accompanies exclusive milk diet, but this is easily overcome by proper medication or enemata. The feeling of hunger is never as intense with the use of this diet as with many other forms of treatment by means of dieting. Headache is often complained of, but it does not last very long after the cure has been followed for a few days. The great advantage, in addition to the cheapness and simplicity of the method, is its easy adaptation to each individual patient by the increase or diminution of the quantity of milk allowed.

Nontuberculous Consolidation of the Apex of the Right Lung.—Blümel says that Krönig has for many years observed a symptom complex suggesting tuberculosis, and accompanied by signs of induration in the right pulmonary apex. Such patients are usually mouth breathers from early childhood, and the mere lack of ventilation of the apices leads to the physical signs which are often mistaken for tuberculosis. The use of tuberculin and the further course of the disease usually prove the innocent nature of the affection, depending, as it does, upon mechanical conditions and not upon a specific infection. The inhalation of dust, the passage of which to the lungs is not prevented in the case of mouth breathers, leads to interstitial bronchitis and pneumonia, which are responsible for the physical signs of the affection. The therapy consists of treating the intranasal conditions responsible for the mouth breathing.

Deutsche medizinische Wochenschrift, July 9 *and* 23, 1908.

The Effect of Measles on the Cutireaction with Tuberculin.—V. Pirquet has noticed no diminution in the reaction to cutaneous inoculation with tuberculin in tuberculous children affected with measles up to two days after the onset of the disease. The reaction then progressively diminishes and is usually absent by the fourth day after the exanthem. It becomes again perceptible after this day and gradually assumes its former character before the attack of measles is over. V. Pirquet examined altogether 159 cases of measles in reference to the behavior of the reaction described by him and the great majority of them gave results stated above. Analogous phenomena may be observed in mili-

ary tuberculosis, in cachectic individuals, and in connection with the injections of large amounts of tuberculin. The reaction, however, does not reappear in these instances as it usually does in the case of measles. In the latter instance it may be due to the rapid spread of the infectious process which often accompanies the appearance of measles in tuberculous children. No such phenomenon could be observed in scarlet fever, in diphtheria, in epidemic cerebrospinal meningitis, or in typhoid fever. Vaccination, however, has a similar effect upon the cutaneous reaction. The result of the inoculation may be used in differential diagnosis between measles and other diseases attacking a tuberculous child. The persistence of the cutaneous reaction in a tuberculous child suffering from a suspicious exanthem speaks strongly against measles. V. Pirquet has thus differentiated two cases of rubeola and one of erythema multiforme from measles.

The Frequency of Mitral Stenosis.—Hampeln says that pure mitral stenosis is a frequent affection, both in an anatomical and clinical sense, composing about 10 to 20 per cent. of all lesions of the mitral valve. The most important sign of such involvement of the valve is found in the accentuation of the first mitral sound and the presence of a presystolic murmur at the apex. The latter may only be slightly developed or even quite imperceptible. The second pulmonic sound is usually markedly accentuated; but this accentuation is not heard best at the normal pulmonic area, in the second left interspace, but further down, at the junction of the third or fourth rib with the sternum, or even at the lower portion of the sternum and its borders. Pure mitral stenosis is the most benign of all valvular affections, and is therefore often unrecognized, the insignificance of the murmur combined with the lack of symptoms serving to hide its existence.

Method of Culturing Meningococci.—Conradi says that the presence of Gram negative intracellular diplococci in the spinal fluid of patients suffering from meningeal symptoms gives the diagnosis of cerebrospinal meningitis. Often enough the mere microscopical examination is not conclusive, if the bacteria are not found in the cells or are very few in number. In such cases culturing the fluid is necessary, agar with ascitic or hydrocele fluid being used. The latter fluids are not always to be obtained, and, instead of them Conradi uses the very spinal fluid obtained from the patient as the culture medium. This fluid is obtained under aseptic precautions, is then centrifuged, and the clear supernatant liquid heated for one or two hours at 60°. Then it is divided into three portions and each added to some neutral agar, which is then poured into Petri dishes. The sediment remaining from the centrifuging is spread over the surface of this medium, and each inoculated dish is placed into a larger dish, which contains some cotton wet with 1 per cent. solution of bichloride of mercury. In this damp chamber the meningococci grow as well as upon the usual culture media.

Operative Treatment of Tuberculosis of the Foot.—Stich says that radical treatment has been found to be the best in dealing with the tuberculosis of the joints of the feet. Operation is undertaken in all cases in which the focus of disease may be removed before the joint is involved; if the joint is involved, conservative treatment may be tried only in the case of young individuals showing marked resistance to the spread of the infection, the *x*-ray picture testifying to the fact that only a small portion of the bone is affected. In all other cases operation is indicated without any previous attempts at conservative treatment, in the absence of other contraindications to operative procedures. In 73 per cent. of cases conservative treatment was begun, but the results were so unsatisfactory that, later, operative treatment was used in 77 per cent. of these. The best mode of procedure consists in the larger resections, the removal of too little tissue being frequently followed by recurrences.

French and Italian Journals.

The Incomplete Cure of Insanity.—F. Petro discusses the proper treatment for certain cases of insanity in persons predisposed to nervous disorders who live for a long time normally in society until some lack of success, the death of a relation, or some unusual strain destroys the mental balance, and they must be placed under control to avoid injury to others. These persons, after the cessation of the acute symptoms, become practically sane and remain so as long as they continue in the routine of the institution, living a healthy, regular life. If they are sent away from the asylum they relapse into the original condition and must be returned to the institution. While they remain there they are able to work, to aid in the routine of the institution, and to continue useful members of society, although they are not able to struggle against the ordinary odds of outside life. They remain at the institution willingly, even gladly, being conscious that this protected life is better for them. The author believes that for such cases there should be established a sort of colony life, not in but connected with the asylum, where they may remain and live a regular life, with useful employment. Such colonies should belong to several communities, since the number of such cases is comparatively small. This system of care would lessen the number of casualties that happen by relapses in such cases after they have been liberated.—*Rivista Italiana di Neuropatologia, Psichiatria, e Elettroterapia,* May, 1908.

Maceration of the Fetus in Relation to Legal Medicine.—G. Pisane, after a study of sixteen fetuses that had undergone maceration, with reference to the reliable signs of maceration and the length of time since death occurred, gives us his results tabulated. He states that the fetus is very flaccid, all the serous cavities are filled with imbibed fluid, the bones of the cranium are loose and flap about, and all the tissues and organs have imbibed blood pigments. The endothelium of the blood-vessels becomes softened and detached, and the blood pigment then passes out into the tissues. He finds that the amount of coloration varies with the length of time since death, increasing gradually. This pigmentation is of scientific importance and may be used for diagnosis if properly limited, but used too widely it may lead to mistakes.—*Annali di Ostetricia e Ginecologia,* March, 1908.

Mode and Duration of Contagion in Scarlatina.—Zilgien thinks that we are passing from the phase in which we believed that scarlatina was most contagious during the stage of desquamation into one in which we recognize the fact of its marked contagiousness during the period of the angina. He believes from his observation of such cases that after the acute symptoms in the throat have ceased in many cases the patient may be allowed to mingle with society without danger. The products of expectoration from the throat are the most dangerous means of carrying the disease. In other rare cases the contagion appears to continue long after desquamation is complete. The author describes a case in which there was severe angina and isolation was carried out. Some time later another attack of angina occurred and in this also isolation was carried out, and no contagion was carried to any other person, although a profuse desquamation went on for several weeks. To offset this case he describes an epidemic occurring in a school, in which one child seemed to be the source of contagion to others long after desquamation was complete. The author believes that the means of contagious infection is generally a suppuration of the middle ear, or the presence of adenoids, or hypertrophied tonsils, in which the means of infection is carried for a long time. Prophylactic treatment would include the care of the throat and nose especially, and their daily disinfection as long as suppuration lasts.—*Journal de Medicine de Paris,* May 16, 1908.

Treatment of Cancer of the Female Genital Organs.—J. O. Faure describes his experience in the treatment of cancer of the female genital organs and his results. There can be no divergence of opinion as to the operative treatment of cancers of the external genital organs, tubes, and ovaries. The only appropriate treatment is removal wide of the growth and as early as possible. Cancer of the vulva requires the removal also of the inguinal glands of both sides. For cancer of the fundus the preferred operation is abdominal hysterectomy. It is sometimes advisable to leave the cervix, since this is generally entirely normal, and recurrence occurs not there, but in the pelvic glands. Total hysterectomy is to be preferred, however. Cancer of the vagina is to be treated as cancer of the vulva is—when occupying the lower two-thirds, being removed as that of the vulva is. When higher up it is almost impossible to remove it without taking away the uterus also. The vaginal route is not to be thought of, since it is impossible to see the boundaries of the growth on account of the narrow space and the hemorrhage that occurs. Cancer of the cervix should also be removed by abdominal hysterectomy for the same reasons. The author ligates the hypogastrics and removes all the glands that can be easily felt with the finger. To remove all the glands and cellular tissue is impossible, and the attempt is not advisable, since it opens to infection the large cellular spaces. The author's series of cases operated on between 1903 and 1905 includes eighteen cases, of which ten are alive and apparently cured. These durable results the author considers good. His later cases are too recent to be sure that recurrence will not occur.—*Annales de Gynecologie at d'Obstetrique,* June, 1908.

Book Reviews.

American Practice of Surgery. A Complete System of the Science and Art of Surgery by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., LL.D., Albert H. Buck, M.D., of New York City. Complete in Eight Volumes. Profusely Illustrated. Volume IV. New York: William Wood & Company, 1908.

This volume treats of Dislocations, Operative Surgery, and Orthopedic Surgery, the various chapters being contributed by sixteen authors. The first of these subjects is from the pen of Dr. Emmet Rixford of San Francisco, and the article, of only a little over one hundred pages, is perhaps one of the most concise, yet complete, and altogether satisfactory treatises on the subject that it has been our good fortune and pleasure to read. The illustrations, both *x*-ray plates and wood cuts, are numerous and excellent. The division of Operative Surgery begins with an excellent and practical essay on the influences and conditions which should be taken into account before one decides to operate. Dr. Nancrède of Ann Arbor, the author, discusses here many points which seldom receive adequate, if any, attention from writers on surgery, and many of the cautions he utters against operating at an inopportune time or in unsuitable cases should receive very respectful attention from the young surgeon, and even some of the older generation might read the article with profit. The preparation for an operation, the operation itself, and the care of the patient during and immediately after the operation are treated of by Dr. George Ben Johnston of Richmond, Va. The writer favors the use of gloves by the operator, though recognizing the increased danger of sepsis in case the glove is torn or punctured. For hand disinfection he relies entirely on "soap and water plus time and elbow grease," and has discarded bichloride, permanganate, and all other antiseptic solutions. In the chapter on Anesthetics Drs. Freeman Allan and F. E. Garland of Boston give an excellent description, with practical details, of the various methods of inducing general anesthesia, together with indications for the choice of anesthetic in individual cases. This is followed by a chapter on Local Anesthesia, including spinal anesthesia, by Dr. James F. Mitchell of Washington. Drs. William L. Rodman and John Stewart Rodman of Philadelphia contribute a thoroughly practical chapter on Amputations and Disarticulations, and Dr. Horace J. Whitacre of Cincinnati one on Excision of Bones and Joints. The section on Ligature of Arteries and Veins in Their Continuity is by Dr. John M. Keyes of New York; that on Minor Surgery (including Bandaging) by Dr. Russell S. Fowler of Brooklyn, and on Plastic Surgery by Dr. James S. Stone of Boston. This volume also contains some chapters on Orthopedic Surgery, namely, Congenital Dislocations and Infantile Paralysis by Dr. Charles F. Painter of Boston, Torticollis by Dr. George D. Stewart of New York, Deformities and Disabilities of the Lower Extremities by Dr. Royal Whitman of New York, and Tuberculous Diseases of the Spinal Column and the Deformities Resulting Therefrom by Dr. Clarence L. Starr of Toronto. As the successive volumes of this well written and carefully edited work appear, the conviction is forced on the reviewer that there is nothing in the English or any other language that will compare for completeness and finality with this treatise.

Why Worry? By George Lincoln Walton, M.D., Consulting Neurologist to the Massachusetts General Hospital. Philadelphia and London: J. B. Lippincott Company, 1908.

This is a most readable little book, full of optimism, and one that cannot fail, for the time at least, to impress upon the chronic worrier the folly of his worry. It is doubtful whether it will work a lasting cure in the inveterate pessimist, for his disease is beyond the reach of argument or even banter, but the young man or woman who is beginning to fuss and fume over the little bothers of life or even to be overanxious concerning the really serious things may be led to see the futility and the harm of such a mental state by a perusal of Dr. Walton's cheery book. The author's style is chatty and cheerful, but the book is full of wisdom as well, and there are many little nuggets of sound sense, lightly expressed, which the reader finds himself thinking over after he has closed the book and which are likely to occur to him at times when a cheerful thought is most needed. The author's argument may be summed up in the Irishman's advice to "be aisy, and if you can't be aisy, be as aisy as you can," and he shows that one often can be much happier than he thinks he can if he will only try. His advice to the over-particular, the people with a "New England conscience," in the chapter on "Maxims Misapplied," is excellent, not as an excuse for the shiftless, but is a corrective to the overworking neurasthenic who insists on never putting off till to-morrow what can be done to-day, not seeing that he may be able to do it much better to-morrow, when his mind and body are fresh, than he can when fagged out to-day.

A Manual of the Diseases of Infants and Children. By John Ruhräh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Second Edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1908.

The new edition of this little book follows out the methods of its predecessor in being primarily a compact synopsis on the subject of pediatrics, of use to students whose time for any special subject is limited by the great extent of topics necessarily covered in the college curriculum. The chief novelties consist in the addition of sections on inspection of school children and on the rules to be observed after contagious illnesses so that the spread of diseases may be lessened.

The bibliography is brought up to and through 1906 and has been largely limited, as the author states, to recent articles written in the English language. Good judgment in limiting these references has been shown, the author evidently realizing as a teacher that ideally complete knowledge of all that is written is impossible if not inadvisable.

Typhoid Fever: Its Causation, Transmission, and Prevention. By George C. Whipple, Consulting Engineer. New York: John Wiley & Sons, 1908.

This timely work deals exclusively with the problems of transmission and prevention of typhoid, and as it is written by an engineer it wisely limits the bacteriological parts to a minimum and wholly omits the question of treatment. Though it professes to be a mere summary for the use of physicians and engineers, it is in reality a bigger book than the author imagines, for he has written something which should be in the hands of every intelligent layman, no matter what his calling, but it is particularly valuable to all public officials. In the introduction, Prof. W. T. Sedgwick states that as the disease was formerly a scourge and progressively lessens as civilization advances, its frequent occurrence means defective civilization, and the author is particularly severe upon the shameful prevalence in the Southern states.

It is curious to note that the medical profession has been proverbially slow in recognizing the contagiousness of typhoid—a fact pointed out in 1873 by Dr. Wm. Budd in England in opposition to the medical profession—a theory instantly accepted by Prof. Tyndall with that wonderful insight which placed him a generation ahead of his times in so many other matters. Only recently have military physicians accepted this theory and acted upon it, but the results are already grand, for soldiers have less than half the sick rate of civilians of equal age.

Besides describing numerous epidemics, the methods of controlling them, and the influence of water and milk in spreading the bacilli, the author gives excellent rules for prevention and in the appendix he has quoted numerous articles on subsidiary topics, all of which can be commended except the praise of the Japanese, who really had a deplorable sick rate. The book is charmingly written in simple language and deserves to become a classic in the urgently needed campaign of education to end typhoid—for every death is preventable and perhaps the profession has been sorely derelict of its duty.

Hematological Atlas, with a Description of the Technic of Blood Examination. By Priv. Doz. Dr. Karl Schleip, Scientific Assistant Medical Clinic University of Freiburg i/B. English Adaptation of Text by Frederic E. Sondern, M.D., Professor of Clinical Pathology New York Postgraduate Medical School and Hospital, Director of Clinical Laboratory New York Lying-In Hospital. With 71 Colored Plates. New York: Rebman Company, 1908.

Those who are familiar with the German original of this work will feel that American readers are to be congratulated in having an English adaptation of it made available for their use. The translator has deviated but little from the author's text and has faithfully preserved its general tenor. The colored illustrations are of course identical with those of the original and represent the highest order of excellence. It must be admitted, however, that the use of a white paper as a background for the plates is an unfortunate change, for the gray paper employed for this purpose in the German edition makes a highly effective contrast, such plates as I, IV, and V, for example, losing much in appearance on the white surface. There seems also no very good reason for increasing the size of the margins so very much as has been done: the volume is thereby made more bulky without any gain in appearance. The atlas is a very beautiful example of modern skill in lithography and should appeal strongly to all interested in hematology.

A Mind That Found Itself. An Autobiography. By Clifford Whittingham Beers. New York, London, Bombay and Calcutta: Longmans, Green and Co., 1908.

We predict that this book will be widely read and that it will accomplish much good in the direction of more general humane treatment of the insane. It is written, says the author, "by one whose rare experiences impel him to plead for those afflicted thousands least able to speak for themselves." These experiences happened for the most part in three institutions for the care and treatment of the insane, in which the author was confined for nearly three years. The form of his mental disorder was apparently manic-depressive insanity, a form which is curable, and also one in which it is not uncommon that memory pictures of personal experiences and observations, during much of the period of alienation, may later be recalled with a vividness scarcely realizable to those who have had the patient in charge. In this instance, the narrator gives us, in minute detail, a most graphic account of the evolution of his psychosis and the genesis of his delusion, while he describes, in a fascinating way, his thoughts and experiences while insane, and the nature of the treatment he received. From the description, his "treatment" was, for the most part, tactless, heartless, and unsuited to the case, and, during the maniacal stage, often brutal in the extreme. In spite of this latter fact, however, the book is written in a temperate, judicial and forgiving spirit and it will challenge general as well as medical interest. It is but just to say that the abuses disclosed by Mr. Beers have been rapidly disappearing from many American institutions for the insane since the more uniform adoption of non-restraint; the advent of more liberal financial policies; competitive examinations for medical positions; and the existence of training schools for attendants.

The Theory and Practice of Hygiene. (Notter and Firth.) Revised and largely rewritten by R. H. Firth, Lieut.-Colonel Royal Army Medical Corps, formerly Professor of Hygiene in the Royal Army Medical College, etc. Third Edition. Philadelphia: P. Blakiston's Son and Company, 1908.

There is very little concerning the theory and practice of hygiene that is not to be found between the covers of this voluminous treatise. Originally the work of Dr. Edmund A. Parkes, it was rewritten in 1896 by Colonel Notter and Lieut.-Colonel Firth, and now appears in greatly amplified and practically new form as the product of the industry of the latter author. It is marked throughout by a completeness and attention to minutiæ often overlooked that should render it invaluable both as a work of reference and as a guide in practical work. While the large amount of matter concerning legislation bearing on the subject is of course primarily of interest to British readers, the bulk of the volume is exceedingly practical in nature and is well adapted for the use of medical men of any nationality. Particular attention has been given to the subject of water supplies, and stress is laid on the microscopical examination of water sediments, a subject that has been somewhat neglected of late owing to the greater importance of the chemical and bacteriological aspects of the question, but which none the less is not devoid of either interest or significance. A series of excellent plates illustrates the commoner animal and vegetable forms encountered. Another chapter of the greatest value is that on vital statistics; a difficult subject, whose scientific foundation is largely the work of Professor Karl Pearson. It is an unfortunate but unassailable truth that, as the author says, a working knowledge of the higher mathematics is as essential for the health official as is acquaintance with bacteriological technique. The last two chapters of the book are devoted to the subject of the sanitation of naval and land forces, and present what is practically a summary of the field of preventive medicine. The work is very fully and satisfactorily illustrated, and is undoubtedly one of the most complete and practical books on hygiene ever published.

Diets in Tuberculosis. Principles and Economics. By Noel Dean Bardswell, M.D., M.R.C.P., F.R.S. (Edin.), Medical Superintendent, King Edward VII Sanatorium, and John Ellis Chapman, M.R.C.S., L.R.C.P., Medical Superintendent, Coppin's Green Sanatorium. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, 1908.

There is no more promising field for clinical research in therapeutics than that which appertains to dietetics in general and to the principles and economics of diets in tuberculosis in particular. The stuffing process so long in vogue, under which the chief aim has been to force the maximum intake of heavy nitrogenous food compatible with the patient's tolerance, regardless of its physiological suitability, has at last provoked a protest on the part of those who have had the widest opportunities for scientific observation and study of the relative effects of over-feeding on the one hand and physiological dieting on the other. Among the earliest and most zealous to give this subject of diets in tuberculosis the attention which it so much deserves were the authors of the present work, and their experience and practical study of the subject gives added authority to their work.

The present volume incorporates the results of their investigations, extending over some seven years, and which have been made possible in large measure by a grant from the Government Grant for Scientific Investigation Made by the Royal Society. The authors have shown very clearly that the average among the consumptive poor, where every penny counts, spend much more for an adequate diet than is in any way necessary, and that this is because of ignorance as to food values and food preparation. If every physician who has to do with the consumptive poor were to familiarize himself with the facts which are so forcibly set forth in this little work, the greatest economic benefit would result both to individuals among this class of invalids and to institutions devoted to the treatment of tuberculosis where, it is well known, the dietary is usually extravagant out of all proportion to its nutritive value. It is interesting to note in the Appendix of this little book that an adequate dietary in the treatment of pulmonary tuberculosis can be so constructed as to cost in England about 16 cents per day. It is, of course, possible that so small a figure could not be approached in this country, but, on the other hand, it is certain that with intelligence in buying and skill in preparation, an adequate dietary could be provided in many parts of this country within 20 or 25 cents, whereas at present 30 to 50 cents per day represents the cost of such dietaries as are usually prescribed for the consumptive, irrespective of his financial condition. This little book is to be recommended to the careful perusal of all physicians and sanatorium superintendents who have to do with the treatment of tuberculosis.

A Manual of Fever Nursing. By Reynold Webb Wilcox, M.A., M.D., LL.D., Professor of Medicine at the New York Post-Graduate Medical School and Hospital; Consulting Physician to the Nassau Hospital; Visiting Physician to St. Mark's Hospital, etc. Second Edition. Revised. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1908.

This volume contains the lectures on fever nursing which were delivered to the nurses of St. Mark's Hospital. It commences with four introductory chapters, which contain much general information on such subjects as diagnosis, thermometry, hydrotherapy, diet, general treatment, disinfection, quarantine, etc. The various fevers are then discussed in turn and detailed information is given on every subject that can possibly be of any interest or concern to the nurse. For nurses this book is ideal, and will prove of more real value than several of the more pretentious volumes which profess to deal with the practice of medicine.

Traité Pratique de Thérapeutique Infantile Medico-Chirugicale. Par les Docteurs Le Gendre et Aug. Broca. Deuxieme édition complètement refondue. Ouvrage récompensé par l'Académie des Sciences et l'Académie de Médecine. Avec un formulaire, un tableau posologique et 170 figures dans le texte. Paris: G. Steinheil, 1908.

The first and smaller part of this book is given up to the consideration of the special elements in the therapy of childhood and to a general review of the means of treatment at the disposal of the pediatrists. Among them the most attention is properly given to nutrition: the choice of the wetnurse, the hygiene of a nursing woman, artificial feeding with modified milk mixtures are here fully considered. Then follow short but sufficient remarks on the external means of treatment, such as baths, mineral waters, electricity, etc.; general considerations about the administration of drugs and their dosage close this part of the book. The second part is given up to the special treatment of the various medical and surgical affections, arranged in alphabetical order. This, of course, does not allow any systematic presentation of the therapy of diseases classified either according to their etiology or to the organs involved. The book wins much, however, in the readiness with which it may be consulted. The work being arranged specially for such use, it may be questioned whether the giving of the operative technique in cases of surgical diseases, such as appendicitis, was well advised; the descriptions are not extended enough to be of real use to the practical surgeon, and the alphabetical arrangement of the book certainly stamps it as not intended for students. In other respects, the therapeutic advice given is full and well selected, cross-indexing is frequent, and the work, as a whole, forms a very useful book of reference in therapeutics of children.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

66th Annual Meeting, Held in Sheffield, July 24-31, 1908.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 292.*)

SECTION OF SURGERY.

Wednesday, July 29—First Day.

Diagnosis and Treatment of Malignant Disease of the Breast.—Sir W. WATSON CHEYNE, Bart, C.B., F.R.C.S., introduced the subject. Dealing first with the diagnosis of mammary cancer, he pointed out that manipulation of the diseased breast was capable of causing displacement and migration of cancer cells, the risk being greater in the case of deep-seated and doubtful growths. Hence undue handling or squeezing during examination should be avoided. Comparison of the two breasts was valuable to ascertain the position of the nipples, the presence of dimpling of the skin, and adhesion to underlying fascia. The nipple occupied a higher level in the diseased side—a feature also seen in mastitis. The relative mobility of the breasts in the direction of muscular fibers should be observed. The margin of a cancerous lump was often ill-defined owing to the drawing in of surrounding gland tissue. A deeply placed cyst might simulate growth; an exploring needle was then useful, and if fluid was found it should be withdrawn and a little carbolic acid injected to effect a cure. When a diagnosis had to be made by means of an exploratory operation, the presence of a pathologist was required at the time. The growth must on no account be cut into *in situ*, but approached through a wide incision, and if found to be cancerous, the operation should forthwith be completed. Turning to the question of operative treatment, he claimed that the propriety of extensive removal had been established by its results. The three guiding principles of operation were (1) complete extirpation, (2) the avoidance of disseminating cancer cells, and (3) the achievement of good functional results. With regard to (1) economy of skin was not permissible in the case of superficial growths, though more skin could be left when the growth was deep. Angular incisions were often useful. Fascia should be removed more extensively than skin, and to insure this being done, the underlying muscular fibers should also be taken away. Downwards and backwards fascia must be dissected from the upper part of the rectus abdominalis and from a wide area over the latissimus dorsi and serratus magnus. He removed the whole of the pectoralis major, excepting its clavicular portion, and the pectoralis minor as well. The costo-coracoid membrane was also removed. All the axillary fat and cellular tissue were taken away in one piece, much stress being laid on the importance of working from the apex of the axilla downwards. In some cases the posterior triangle of the neck needed to be cleared, and the opinion was expressed that this procedure was not often enough done. (2) To guard against infection by displaced cancer cells the growth must nowhere be cut into or squeezed; and the axilla should be dissected by beginning at the apex of that space. As to (3), viz., good functional results, the sequel was usually satisfactory, and it was unnecessary to make special connections with the deltoid or other muscles. The tendon of the pectoralis major should be cut close to the bone, so as not to leave a thick stump. During the time of healing his practice was to keep the arm at right angles to the trunk, the limb being afterwards massaged.

Dr. HAROLD STILES, referring to diagnosis, classified doubtful cases in two groups: (1) benign tumors liable to be mistaken for cancer, and (2) malignant tumors resembling innocent ones. While not favorable to exploration by cutting into a growth, because of the danger of grafting cancer-cells, yet, if this were done, the application of a five per cent. solution of nitric acid by coagulating cancer-cells would serve to distinguish between carcinoma and mastitis. In the case of the colloid form of growth he raised the question whether a radical operation was invariably necessary. He preferred chloroform as the anesthetic, believing there was less bleeding than when ether was employed. As regards operative technique, he recommended long skin incisions—eighteen inches not being an excessive length, and he removed the pectoralis minor completely in order to facilitate access to the apex of the axilla and the clearing of that space from above downwards, which was an essential step. The posterior thoracic nerve must be carefully preserved when working towards the root of the neck behind the axillary vessels. Glandular infection above the clavicle sometimes meant an extension of disease from the mediastinum, and in such cases a radical cure was impracticable.

Mr. RUTHERFORD MORISON thought that the discrimination of carcinoma of the breast from tuberculosis, cystic disease, and abscess was not always possible by external examination. He advised removal of glands from the posterior triangle. In young women the ovaries should be removed, because pregnancy after excision of a cancerous breast greatly increased the liability to recurrence. In the after treatment he considered exposure to *x*-rays was beneficial, and he insisted on the value of an out-of-door life.

Mr. LYNN THOMAS remarked on the clinical difference exhibited by cases which appeared to be identical in their histological characters, the tendency to recurrence showing a wide range of variation. He was in favor of using the *x*-rays; and, in regard to choice of anesthetic, preferred ether administered by the open method.

Mr. EDRED CORNER entered a plea for improvement in the means of making an early diagnosis. Only a minority of the cases submitted to operation could be spoken of as cured, the reason being that excision was done too late.

Mr. CRISP ENGLISH considered the most important of the early signs of cancer was impaired mobility of skin over the growth. He cited two cases of mammary tumor occurring in young women, aged respectively 20 and 24, in whom small tumors were mistakenly thought to be adenomata, whereas they were, in fact, malignant. Both these cases showed puckering of the skin when the lump was pulled upon. He preferred chloroform as the anesthetic.

Mr. CHARLES RYALL did not remove the pectoralis minor as a rule, and argued that each case should be treated on its merits. Division of the clavicle facilitated removal of the chain of glands extending up the posterior triangle. He objected to excision of the tumor for examination.

Mr. SAMPSON HANDLEY said that since metastasis through the lymphatics in the upper abdominal wall were not infrequent, the pelvic viscera ought to be examined for recording growths. Too much skin should not be sacrificed, but the flaps should be undermined so as to insure a wide removal of the fascia in whose planes the cancer tended to spread. Halstead's operation was unsound because it did not sufficiently meet the requirement of undermining the skin. Cancer diffused itself locally not by embolism, but by *permeation* in all directions equally; and, therefore, the growth must be the center of the parts. Failure to recognize this fact explained the unsatisfactory result which often followed removal of tumors in the periphery of the breast. Recurrence at the end of an intercostal space was due to extension from the chest where malignant cells were already present at the date of operation. After amputation of a cancerous breast it was his practice to submit the patient to eight applications of *x*-rays as a prophylactic. He strongly supported Mr. Morison's view as to the value of an open-air life.

Mr. WILMOTT EVANS was opposed to incising a doubtful growth *in situ*: it should be removed widely, and, if found to be malignant, fresh instruments and swabs should be

used in completing the operation. The incision should continue over the shoulder to a point one inch in front of the acromion; this gave free access to the apex of the axilla. As the axilla was a quadrilateral space, it was a mistake to keep the arm at right angles or to bind it to the trunk, because in either case two opposite walls were made to adhere, and the range of movement was thereby lessened. He preferred to bandage the trunk, and the arm separately right up to the top of the axilla.

Mr. Keith Monsarrat held that there was no standard operation, the amount of tissue to be removed in any given case being governed by the extent of disease. In a doubtful growth he advised taking out a small piece under local anesthesia; and, if necessary, the radical operation could be done two days later.

Mr. Douglas Drew was convinced that colloid cancer demanded a no less complete operation than scirrhus, and he cited two cases in support of this opinion. Both the pectoralis major and minor should be removed as a routine step in amputation of the breast for cancer; in his series of seventy cases so treated there was not a single death. He invariably drained the wound by an opening in front of the scapula.

Dr. Robert Bell protested against any operative treatment for cancer, whether in the breast or in any other organ.

Mr. Crawford Renton was in favor of exploratory incision when the signs of cancer were ambiguous. For malignant growths radical operation was imperative. Supraclavicular glands must be removed if not infected so seriously as to suggest disease beyond their limits.

Dr. J. B. Murphy of Chicago agreed generally with the views expressed by Sir Watson Cheyne. He made an energetic defence of ether as the best anesthetic during the performance of the operation under discussion.

Prof. Jordan Lloyd, after ample experience, had come to the conclusion that many cases of breast cancer were not benefited by operation. He had seen patients with the disease in a chronic form surviving for many years without any surgical interference.

Thursday, July 30—Second Day.

Indications for the Performance of Nephrotomy and Nephrectomy.—Dr. David Newman of Glasgow opened this discussion, the object of which he said was to fix the present position in regard to operations on the kidney. The symptoms which called for attention were: (1) pain, spontaneous and reflex; (2) sensitiveness on pressure; (3) frequent micturition; (4) vicarious action of other organs; (5) anuria. Symptoms in renal disease were very equivocal and needed physical corroboration, as exact and early diagnosis were most desirable. The objective methods of most value were: (1) Cystoscopy; (2) segregation of the urine from each ureter; (3) estimation of urea in each sample; (4) methylene blue test; (5) bacteriological examination of the urine, including inoculation experiments, and ophthalmotuberculin reaction; (6) sounding the ureters; (7) cryoscopic index of blood and urine; (8) radioscopy; (9) exploratory incision. Special attention was called only to the value of cystoscopy, radioscopy, and the objects and conditions which justified direct exploration, namely, (1) to determine the condition of the opposite kidney before a nephrectomy; (2) in traumatic lesions of the kidney giving rise to grave symptoms; (3) in cases of sudden anuria where medical treatment had failed to give relief; (4) in cases of doubtful diagnosis, especially in those suspected to be malignant tumor, tuberculous disease, and in calculous disease with sepsis; (5) for the relief of tension due to mechanical congestion, inflammatory hyperemia, or subcapsular extravasation of fluid. Nephrotomy was performed to expose and treat perinephritic lesions, to relieve vascular tension of the parenchyma or fluid distention of the pelvis or to enable the surgeon to remove a foreign body or a benign tumor from the kidney or its pelvis. Having opened the kidney, the following questions required to be considered: "(1) What is the general condition of the patient? (2) Is the lesion one that can be remedied or removed by nephrotomy? (3) If so, should it be dealt with at the time or by a subsequent operation? (4) Is the kidney so destroyed that it is functionally useless, and only a source of trouble and danger to the patient; and if so, is it safer to excise the kidney now or at a later date? (5) Is the lesion one which from its nature if allowed to remain is inconsistent with life, and should the disease be removed at once?" Primary nephrectomy was permissible only when the disease seriously threatened life, either on account of the nature of the malady or because other less serious operations had failed; it was necessary in primary tuberculosis, in malignant disease, and in serious injuries to the kidneys.

Mr. John Pardoe discussed the question of differential diagnosis from the standpoint of localization of the particular urinary viscus affected. Mimicry of kidney disease by lesions of the bladder and *vice versâ*, was not infrequent. He cited the case of a woman with a large left lumbar tumor associated with bright red blood in every micturition; cystoscopy revealed a papilloma of the left ureteral orifice, and on removal of the growth the renal tumor subsided and the hematuria ceased. Vesical calculus might also be simulated by a stone in the ureter, as illustrated by the case of a man with hematuria, penile pain, and sudden stoppage of the stream of urine; the cystoscope showed a stone in the mouth of the ureter; free diuresis caused the stone to pass and cure followed. In "symptomless" hematuria, *i.e.* where the only symptom is blood in the urine, cystoscopy is the chief means of diagnosis. To distinguish which of the two kidneys is diseased, attention must be paid to the appearance of the ureteral orifices, and to the character of the efflux therefrom, both as regards rapidity and regularity. Ureteral catheters and the segregator were also of value, but he objected to indiscriminate catheterization of the ureters, because this procedure was not free from danger, especially in septic cases. While in favor of conservatism in renal surgery, he did not agree with Dr. Newman in treating a septic kidney by prolonged drainage, nephrectomy being preferable.

Mr. Thelwall Thomas laid stress on the value of skiagraphy, and of bacteriological examination of the urine. In his experience of renal calculi, calcium salts were generally present and not uric acid. He regarded a septic kidney as too dangerous a condition to justify long-continued drainage through a sinus, unless the patient were under close and constant observation. He found that tuberculin gave satisfactory results in renal tuberculosis.

Mr. Andrew Fullerton remarked on the simulation of kidney disease by membranous colitis and appendicitis. He thought catheterization of the ureters superior to the use of a segregator for obtaining the secretion of each kidney separately. He found the specific gravity of the urine from a kidney containing stone or tubercle distinctly lower than that of the urine from its healthy fellow. He would remove a tuberculous kidney as soon as the diagnosis was certain, provided that the other kidney was sound. With regard to the injection of fluid into the bladder, overdistention was liable to the risk of forcing morbid material into a healthy bladder.

Mr. Leedham-Green pointed out that tuberculosis of the urinary organs began as a rule in the kidney and extended downwards to the bladder; and whereas small nodules in the cortex might heal, deep tuberculous foci usually progressed to a fatal ending. From several years' experience of tuberculin he found general improvement in respect of gain in weight and abatement of symptoms, but in not a single case of renal tuberculosis had he effected a cure by tuberculin. He was in favor of early nephrectomy before the vitality was sapped and the bladder infected. He

found tubercle bacilli present in a large percentage of cases of albuminuria. To obtain the secretion of each kidney, catheterization of the ureters with the aid of a cystoscope was superior to all other means. The functional activity of the kidneys should be estimated by examining the urine from each chemically, physically, and bacteriologically, the observations being spread over several days. For testing renal activity phloridzin was a better agent than indigo carmine. Cryoscopy of the blood was useful in children. He would not remove a tuberculous kidney if the opposite organ was badly diseased.

Mr. Lynn Thomas advocated conservative surgery in renal disease. He quoted cures following prolonged drainage in cases respectively of calculous pyelitis, hydatid of the right kidney, and tuberculous pyonephrosis.

Mr. Deansley urged that cystoscopy should be a routine practice in the investigation of surgical disease of the kidneys, and before operating on one kidney the functional condition of the other should be ascertained. In performing nephrotomy, the cortex should not be opened if the pelvis of the kidney could be entered; it was not sufficiently known that a pelvic wound heals readily without fistula. Nephrectomy was required in cases of renal tubercle beyond the early stage; and the same operation was indicated, rather than drainage, for chronic pyonephrosis.

Mr. R. Kennedy advocated the routine use of the cystoscope and segregator. In cases of neoplasm of the bladder or prostate attended by cystitis and pyelitis, he advised preliminary nephrectomy and drainage of the diseased kidney fourteen days before dealing with the primary disease by cystotomy.

Dr. J. B. Murphy called attention to a class of cases in which valvular or cicatricial obstruction of the ureter near its origin caused periodic retention in the kidney pelvis. He had successfully treated eleven such cases by resection of the diseased site and reattachment of the ureter to the pelvis. He pointed out that removal of one kidney was liable to cause congestion and edema of the other kidney, and therefore temporary renal drainage was a valuable procedure prior to nephrectomy in suitable cases.

Mr. Clay gave details of a case of multiple renal calculi whose removal caused profuse hemorrhage, requiring the retention of clips for some hours. He left the kidney outside the loin, replacing it after several days, and a cure followed.

Mr. Paterson, referring to "symptomless" hematuria, cited a case of angioma of the kidney pelvis which he cured by the use of a sharp spoon and zinc chloride. He agreed that incisions into the pelvis and ureter tended to heal readily; and he held that preliminary drainage of a kidney would, in certain cases, diminish the risk of a fatal issue when the necessary nephrectomy was subsequently performed.

Dr. Newman replied. He was less fond of segregation than formerly; nor did he practise catheterization of the ureters so frequently because it involved some danger of infection. On the whole, cystoscopy gave the greatest help in diagnosis. In nephrectomy he preferred to cut into the parenchyma rather than the kidney pelvis, because it facilitated a more complete exploration. He doubted if a ureter could be infected by the forcible injection of fluid into the bladder.

Cholecystenterostomy in the Form of a Y.—Prof. Ambrose Monprofit of Angers read a paper on this subject. The operation, which consists in making an anastomosis between the gall-bladder and jejunum, was first performed by him in 1904. The technique is as follows: the jejunum is completely divided; the lower end is then implanted into the gall-bladder; and lastly, the upper end of the jejunum is implanted into the side of the lower end, the segments of bowel in this way assuming the form of the letter Y. He claimed that reflux of intestinal contents through the portion of gut acting as a common bile-duct was prevented. Prof. Monprofit further proposed similar procedures in relation to the common duct and the hepatic duct, to be called respectively choledochojejunostomy in Y, and hepatico-jejunostomy in Y.

SECTION OF TROPICAL DISEASES.

Wednesday, July 29—First Day.

Tropical Abscess of the Liver.—Lieut.-Colonel Sir R. Havelock Charles, I.M.S., president of the section, opened this discussion. He said he looked upon tropical liver abscess as a suppurative hepatitis due to protozoal or bacterial forms of life, the pathogenic action of which was favored by a lessened resistance on the part of the organ owing to a condition of irritation and degeneration set up by tropical conditions unsuited to the European. A study of the statistics of the relative incidence of liver abscess amongst the troops of the British and native armies in India impressed one forcibly that there must be a factor strongly antagonistic to the European soldier in distinction from his native comrade. The native soldier gave a ratio of 52 for dysentery and diarrhea, as compared to one of 35 for the same disease in his European brother. The native was 17 times less liable to hepatitis, and 25 times less liable to hepatic abscess than the European. In India in 1907 the death rate due to liver abscess had been 21 times higher amongst British troops than amongst the native army. The jail population statistics showed even more evidently the greater incidence of liver disease in the European. In five years with over 42,000 cases of dysentery there had been only 42 cases of liver abscess. What were these 42 in the 800 cases of suppurative hepatitis which had accrued during the same period amongst British troops, though here the dysentery cases numbered only 5,500? Truly some other condition than dysentery must be operative against the European lives! His argument was that: (1) The liver of the European was handicapped by tropical conditions of life. (2) The induced vulnerability was to fall a more facile victim, on its invasion by microorganisms. (3) The condition of hepatic congestion and irritation was the prime predisposing cause, whether the direct cause be protozoal or bacterial. That is the necessary antecedent of abscess must be inadequacy of the liver to cope with the work thrown on it. Amongst the conditions adversely affecting the physiological balance of liver action, he mentioned heat, food, alcohol, malaria, abuse of exercise, congestion, and inflammation. He maintained that there was a tropical liver with its special etiology as a definite disease, distinct from the congestive liver trouble of temperate climes. In criticising the relation of dysentery to liver abscess one must bear in mind that association and causation are not the same. Recent researches (Foster) pointed to the view that the ameba was not causative of acute dysentery and was only found as a rule in association with other organisms. He believed that in no case had multiplication of amebæ in absence of living bacteria been seen. They did not develop in pure cultures but in relation to bacterial symbiosis. There thus came the difficulty of explaining how an abscess of the liver which contained amebæ had arisen when no bacteria could be found therein. It was possible that in the human body in the unhealthy state, other organic substances might be able to act in the same relationship to amebæ as did bacteria, and that the bond of dysentery and liver abscess might be a contingent one, other factors determining whether the dysentery would give rise to abscess. Given a damaged liver and dysentery, then abscess would follow. Dysentery was very common among the Indian sepoys—liver complication rare. European soldiers in India suffered comparatively much less from dysentery, but very heavily from abscess of the liver. The former were careless as to drinking water. This caused dysentery, why not liver abscess? European soldiers were careful about water drinking. Amebæ swarmed in the impure waters. The liv-

er appeared immune in the one case, suffered much in the other. The liver of the European, weakened by degeneration, had in it the organic substances which help the amebæ in their onslaught. There were countries where liver abscess was fatal, but dysentery was not common (Senegal); others where dysentery was prevalent but liver abscess rare (Jamaica, Lagos); others, as in Northern Europe, where amebic dysentery was rarely followed by hepatic suppuration. Authorities differed much in assigning the proportion of cases of liver abscess associated with dysentery, and intestinal lesions did not always accompany hepatic abscess. Amebæ were commonly found in otherwise healthy people. They appeared to live, with the other fauna and flora of the bowel till some breakdown in the controlling power allowed of organisms hitherto innocuous to inflict injury on the tissues. The symptoms, physical signs, and differential characters of liver abscess were lucidly and admirably summarized by the speaker. With regard to treatment he said his practice with patients threatened with abscess of the liver had been: (1) Rest in bed, absolute; (2) external applications such as that of iodine under hot fomentations; (3) the use of sodium salicylate, ammonium chloride, sodium sulphate, iodide of potassium, ipecac, according to the case; calomel, soda, and phenalgin, not forgetting the old blue pill, followed by a saline purge, which with him, had often cured the foul tongue, the painful, enlarged liver in which pus was of a certainty thought to exist or about to form. Having established the strong probability of the presence of pus by all ordinary methods the surgeon should confirm the opinion by the aspirator, which would tell him the position, size, and direction of the abscess. He regarded the action of the aspirator as diagnostic in some cases and therapeutic in others, and practically harmless in all. Save in exceptional cases one must be prepared to operate at once in case pus be found. Generally speaking, the earlier the pus was sought for the better. Even if pus was being spat up, he thought in most cases an operation was advisable. It was of the highest importance to ensure complete drainage. It might be often a wise precaution to make one or more counter openings. The cavity should be thoroughly evacuated by altering the position of the patient. It was sometimes necessary, owing to the condition of the patient, in very large abscesses to aspirate part of the pus—making the incision a day or so later—otherwise the sudden removal of tension might be followed by fatal collapse. He never washed the interior at the operation, though at each subsequent dressing he generally passed in a douche of hot saline lotion with quinine (5 grs. to oz.). The patient never failed to express his satisfaction at the comfort given by this washing. To wait twenty-four hours before douching was good policy, he thought, from there being less chance of setting up hemorrhage. One could not use a too large caliber of drain. One thing that strongly handicapped a liver abscess case was prolonged anesthesia. It was an operation which could often be done under a local anesthetic with advantage. It was an operation also which should be done with rapidity and no dawdling. In his hospital practice although fifty-five per cent. of cases were admitted in a condition of "bad" or "very bad," employing all the usual preparatory treatment, operating quickly, without hurry and with unwearied subsequent care, his mortality was only 37.8 per cent. Private cases amongst Indians and Europeans were on quite a different footing, and gave a mortality of 20 per cent. In the prophylaxis of the disease one should regard it as preventable to a certain extent. Regarding infection of the liver as part of a general intestinal taint one should direct thorough attention to food and drink. Temperance in the use of beer and ardent spirits, the avoidance of an excessively animal diet, rich sauces, hot curries, pastries; exercising daily at suitable times. Avoiding games in the heat of the sun, which are followed by a sense of fatigue, and not the exhilaration which a healthy pastime should furnish; avoiding also excess in ice-cold drinks, during profuse sweating, and in such a condition caution in exposure to the cooling summer evening breeze, or the tempting danger of the cold bath, for, as the exhaustion of fatigue, in sun exposure, leads to hyperemia of the liver, so would the habits mentioned often further this congestion to a hepatitis. As destructive of the hurtful microorganic life one should apply the good old rule that never fails—boil the drinking water, and eat only what comes direct from the fire—cold meats that have been the disporting grounds of flies for the previous twenty-four hours should be eschewed; raw vegetables for salad, ill washed, and prepared on a foul board or floor the wise man will pass by; fruits that have no removable skin the same holds in suspicion. Some Europeans, possessing a superior heat regulating apparatus, acclimatize better than others. They bear a higher degree of temperature and a longer duration of it than those less fortunate, and are likely to be false guides to their weaker brethren.

In conclusion he said, "Pray do not apply to me the language of Milton in his 'Eikonoklastes' as to one 'who goes on building many fair and pious conclusions upon false and wicked premises, which deceive the common reader, not well discerning the antipathy of such connections.' To-day I have not an audience of common readers, but one of experts, who have discernment to see and candor enough to censure."

Dysentery with Intestinal Amebæ, but without Hepatic Abscesses.—Major A. R. S. Anderson, I.M.S., read this paper. He referred to his experience in Port Blair, Andaman Islands. During the year 1905, 2,359 cases of dysentery were admitted to the Port Blair hospitals, and of 920 of these the stools were examined microscopically. In 262 flagellates and amebæ, 4 flagellates, amebæ and *Balentidium coli*, 2 flagellates and balentidium, 1 balentidium alone. In 167 no protozoa could be discovered. The flagellates consisted of *Tamblia intestinalis*, *Trichomonas intestinalis* and *Trichomonas hominis*—the last species being most frequently encountered and constituting about 75 per cent. of the total. As control the stools, obtained by administering a watery purge to 210 patients, admitted for diseases other than those of the bowel, were examined. Of these 7 exhibited amebæ alone, 54 amebæ and flagellates and 80 flagellates alone. The larger number of the amebæ found in the cases of dysentery were no doubt those described as *Entamœba histolytica*. In the nondysenteric stools the amebæ, but for the absence of blood corpuscles from their interior, could in no way be distinguished microscopically from *Entameba histolytica*. The ameba is charged with causing dysentery because it is found in the base and surrounding tissue of dysenteric ulcers, but he thought the same charge could with greater cogency be leveled against *Trichomonas hominis*, insomuch as it is found in the same situation and occurs more frequently than the ameba in the dysenteric intestine. In his 920 cases, while ameba was found 488 times, *Trichomonas hominis* was found 540 times. Since, in Port Blair, abscess of the liver occurs in less than 1 per cent. of all cases of dysentery, or 2 per cent. of cases of dysentery with intestinal amebitis, he considered that the ameba could not be regarded as the cause of liver abscess. That amebæ are found in the interior of abscesses of the liver was undeniable, but it was a very weak argument that they cause the disease. Many observers had found flagellates accompanying amebæ in liver abscess and yet, while the ameba was incriminated, the flagellate was exonerated. He had attempted the experimental infection of animals (1 kitten, 1 puppy, 2 monkeys) with dysenteric stools containing both amebæ and *Trichomonas hominis* administered per mouth or rectum, but failed to produce either dysentery or liver abscess notwithstanding that the introduced protozoa previously absent had persisted for many weeks in the stools of the experimented animals.

In Vacca and other places in Eastern Bengal he had

found *Entameba histolytica* to be almost, though not quite, as prevalent in cases of dysentery as in Port Blair and equally dissociated from liver abscess. He believed, therefore, that *Entameba histolytica* was not an important factor in the causation of liver abscess.

Intestinal Amebiasis.—Dr. C. M. Wengle, Protozoologist to the London School of Tropical Medicine, presented this paper. He said that members of all the classes of protozoa had been found in the alimentary canal of man and to their presence had been ascribed from time to time various pathological conditions. Without denying that this might sometimes be the case, it was a fact that in many instances the only evidence for this assumption was the presence of a large and conspicuous number of protozoa in the excreta, evidence which was quite insufficient and which would incriminate at once all forms of bacteria occurring at the same time. In order to arrive at some definite idea of the intestinal protozoa he had undertaken the study of the various forms found in the intestine of white mice. All forms there met with had been described from the intestine of man, and as far as could be judged, they were all of the same species; and this was not only true of mice but also of many other animals of omnivorous habits. The advantage of studying the protozoa in the mouse was the fact that perfectly fresh material could be obtained from the various parts of the alimentary canal of the newly-killed animal. It was obviously impossible to obtain material of that kind from man. Excluding the coccidia, which had only rarely and doubtfully been described from man, the protozoa commonly met with in the intestine of mice were three flagellates and one ameba. The flagellates were Tamblia, Hexamitus, and Trichomonas. In the intestine the protozoa reproduce and multiply by a process of division. They also become encysted and the cysts thus formed pass down the intestine and escape to the exterior where they serve the transmission of the infection to a new host. In the perfectly healthy animal it was unusual to find anything but the encysted forms in the feces and then only in comparatively small numbers. Under adverse conditions, as for instance, changes in the diet of the host, large numbers of encysted forms might appear in the feces, serving to indicate that the medium had become unsuitable for the protozoa, which accordingly encysted in order to escape. The cysts were quite characteristic and by an examination of the feces it was quite possible to tell what protozoa were to be found in this intestine, in just the same way as it was possible to recognize the presence of intestinal worms by the discovery of their eggs in the stool. The only difference was that the cysts of the protozoa were small, rarely more than 14 or 15 μ in greatest length, while the eggs of worms were much larger. If the change of diet produced diarrhea it would be noticed at once that large numbers of encysted protozoa appeared in the excreta. Encysted forms might or might not be present at the same time, but the point he wished to emphasize was that the protozoa occurring in the stool were merely washed out from the intestine by the unusual flow of liquid. To any one first seeing an animal with diarrhea, and then examining and finding the stool swarming with the protozoa, it might appear quite clear that they were the exciting cause. A study of the healthy animals would enable one to avoid such an error. It would be seen that much larger numbers of protozoa could, as a rule, be found in the healthy intestine or at least the intestine which gives no indication that anything is wrong; it was quite illogical to conclude that because a large number of protozoa were present in the stool, they must be the cause of the trouble. With regard to the amebæ our knowledge of these protozoa had been very confused until Schaudinn gave his description of the two forms met with in the human intestine, one declared by him to be a harmless commensal, the other a true tissue parasite. Schaudinn not only had given morphological differences as points of distinction between the two amebæ, but he had described differences in the developmental cycle. The morphological differences were difficult to recognize and one could not be quite certain that there were not variable features in one and the same ameba. But variations in the life cycles as described by Schaudinn were definite and quite distinctive of different species. The process of development described by Schaudinn as characteristic of *Entameba coli* he had been able to confirm in almost every detail by observations on mice, monkeys, and man, but so far he had been unable to discover the reproduction by budding and the encystment of the small buds described by Schaudin in *Entameba histolytica*. The tissue-invading ameba might be a distinct form capable of attacking the tissues and causing their destruction, or it might be the harmless form which had found a path prepared for it in the way of ulceration, or what was less probable, it might be the harmless form which had acquired new properties. In stained preparations the amebæ in the tissues could not be distinguished from the harmless variety, so that unless one could discover the encystment of this tissue-invading form it would be difficult to establish the identity or otherwise of these two parasites. The ameba which was to be found in the cecum of mice was indistinguishable from that of man and certainly nonpathogenic. Musgrave and Clegg had asked how were we to tell that an intestine was perfect? Without post-mortem examination this was, of course, impossible. The study of the conditions in animals might throw much light on the subject. Here, at any rate, it could be definitely determined that amebæ did occur in the perfectly healthy intestine.

Prevention of Tropical Abscess of the Liver.—Dr. Leonard Rogers, I.M.S., presented a paper on "Tropical or Amebic Abscess of the Liver as an Early Preventable Disease, and Post-operative Sepsis as an Important Lethal Factor, with a Suggestion for Its Prevention." He first referred to a previous paper on tropical liver abscess read in 1902, when he pointed out the constancy of the presence of the ameba, which he had found in thirty-five consecutive cases by examining the scraping of the wall at the time of the operation. In two-thirds of these cases the pus was otherwise sterile on first opening, no bacteria being present. Moreover, he had shown that in over 90 per cent. of cases dysentery of the amebic type was present, although often latent in character, being only found after death from liver abscess. Last year he had pointed out that amebic hepatitis might readily be recognized in the presuppurative stage by the presence of marked leucocytosis, with little or no increase in the proportion of the polynuclears, and that it could then be rapidly cured by treating the causative amebic dysentery, of an active or, more commonly, latent nature, with full doses of ipecacuanha, and liver abscess could thus be readily prevented from forming. His results had been confirmed by Captain J. G. Murray, I.M.S., at the Calcutta European General Hospital, and by Lt.-Colonel G. F. A. Harris at the Medical College Hospital. Now he had notes of forty successful cases, proving in the most striking manner that by early negotiation and treatment of the presuppurative stage of the disease, amebic or tropical liver abscess could surely be averted. In some cases suppuration occurred very insidiously without any definite signs of acute hepatitis. These could only be detected by examination of the blood, on account of the persistent intermittent fever leading to the discovery of the form of leucocytosis already mentioned. He had recently seen two instances in which the first evidence of hepatitis was the coughing up of liver abscess pus, the blood not having been examined during the previous lengthy fever. These cases might have been amenable to ipecacuanha if recognized by the blood condition before suppuration had occurred. The British army hospitals should furnish a very favorable field for the prevention of tropical abscess of the liver, as the soldiers came under skilled treatment from the commencement of their ill-

nesses, so that this disease should greatly decrease, and practically vanish from the army returns. With regard to operation, so long as there was little or no reason to look on a tropical abscess in the liver as essentially different in its causation from other forms of suppuration, the obvious treatment was to lay it freely open and drain it. The demonstration, however, of a protozoal organism, such as the ameba, as the one constant parasite in the actively secreting wall of a liver abscess and the absence of all bacteria in the great majority of cases on their being first opened, had materially altered our conception of the pathology of the disease. The disastrous results which used sometimes to follow the opening of cold tubercular abscesses, through septic infection of the extensive lining membrane, were well known. The danger of admitting the exceedingly germ-laden air of a damp, hot tropical climate, such as that of Calcutta, to a liver abscess cavity, usually containing from half to two or three pints of sterile blood-serum-like contents, the finest culture medium for pathogenic germs which could well be conceived was not, however, sufficiently borne in mind. During the last eight years this fact had repeatedly been impressed on him, and for a long time he had been accumulating bacteriological evidence on the point, and now he considered it his duty to bring it forward in order to lessen the present great mortality after operation for liver abscess, which in Calcutta was approximately 60 per cent. His bacteriological investigations showed that although 80 per cent. of unopened or just opened liver abscesses in Calcutta were sterile as regards bacterial infection, yet in cases subsequently proving fatal, freedom from septic infection was, unfortunately, extremely rare. That the infection not infrequently did take place at the time of operation was shown by the fact that he had several times found very numerous staphylococci and, once, streptococci in addition, at the first dressing in cases in which the pus obtained at the time of the operation had been proved to be sterile. The fact that half the cases proving fatal after operation were single, or practically single, well-localized, medium-sized abscesses, and that at the time of the death of the patients they almost invariably contained very numerous septic organisms, although he had shown that four-fifths were sterile at the time of the operation, afforded reasonable grounds for thinking that post-operative sepsis was, unfortunately, a not unimportant factor in the mortality of the diseases in the tropics, and at least indicated the necessity of more strenuous efforts being made to prevent its occurrence. Our present knowledge of the pathology of the disease suggested removal of the collection of pus by aspiration, without the admission of the external air, and repeated irrigation with quinine (the soluble bihydrochloride in a strength of 3 to 5 grains to the ounce), or other ameba-destroying solutions, as the most appropriate method of treatment. The ordinary straight, stiff aspiration cannula could not be left in the cavity of the liver abscess for the purpose of repeated irrigation. He had, therefore, devised a flexible sheathed aspirator cannula, which might safely be left in and used for siphon drainage and irrigation. The fact that a single aspiration and quinine injection not rarely sufficed for the complete cure of bacteria-free amebic abscesses of the liver afforded strong grounds for believing that repeated quinine irrigation would suffice for the rapid cure of a still larger number of cases, and do away with the necessity of laying them freely open, with all the risks of that method. The aspiration method could only be used for liver abscesses with sterile contents; therefore at the first aspiration the pus removed should be at once strained and examined, and, when possible, cultures made. If numerous staphylococci were found, incision and drainage should be carried out. He was strongly of opinion that in every case in which an amebic abscess was treated surgically a course of ipecacuanha should be given as soon as the patient was in condition to stand it. Small doses, such as 5 grains three times a day, were of great value when fuller doses could not be administered, and if given in keratinized capsules or in pills coated with melted salol, as he had advised, they rarely produced vomiting, but exerted their full action on the intestines. The specific drug would not only prevent a relapse of the dysentery, which was a most serious complication after operation, but would also be effective in preventing further abscess formation. Thus an additional material reduction of mortality might be expected from the post-operative use of ipecacuanha, in addition to that already accruing from its preventive action in the presuppurative stage.

Is Dysentery the Sole Cause of the Tropical Abscess of the Liver?—Rai Dr. Koelas Ch. Bose, Bahadur, C.I.E., presented this paper. He said that on careful consideration of the various factors of the tropical abscess of the liver one might be easily influenced to give greater stress on dysentery than upon anything else. Facts and figures taken from the records of the hospitals tended to establish the relation between the two diseases. But still we often come across cases where this link was hopelessly lost. It was true that with the rise of the dysentery and diarrhea curves there was sometimes a corresponding rise in the number of admissions of hepatic abscess cases in the wards of the Calcutta hospitals. Practitioners who were not attached to a public institution, but had a fair amount of town practice, could bear testimony to it. There was a popular belief among the people of India that liver abscess was exclusively confined to persons who were intemperate in their alcoholic drink—those who do not touch alcohol being immune. Close observation proved that belief unfounded. He believed that only where the conditions of life had rendered the liver peculiarly susceptible to inflammation did dysentery become the causative agent of liver abscess. The natives of India, in all stations of life, suffered more or less from diarrhea and dysentery, but only a very small number of them suffered from suppurative hepatitis. The prisons in Bengal, in spite of all sanitary arrangements, were sometimes visited by the worst form of dysentery, which occasionally swelled the death rate among their inmates; but so far as records showed, was not accompanied or followed by abscess of the liver. From the register of the Campbell Hospital it might be found that in 1905 admissions from dysentery were 1,603, and from liver abscess only 11. In 1906 there were altogether 894 cases treated for dysentery, while admissions from liver abscess were only 9. In 1907, 1,100 patients came in for dysentery, and only 12 for liver abscess. There was not the slightest doubt, however, that the number of hepatic abscess cases among the Indians was daily increasing. The time had come when every attempt should be made to ascertain the cause of liver abscess. Granting dysentery to be a factor, it should be clearly established what variety was most potent. The amebic form possessed many advantages so far as the transmission of the pyogenic germs through the tributaries of the portal veins into the substance of the liver was concerned. The bacillary variety, which the Indians chiefly suffered from, did not possess an equal amount of facility in carrying the pyogenic germs, still it was no plea to exclude it from the list of the causative elements of suppurative hepatitis. Considering the importance of the ameba as a carrier of pyogenic germs, its existence could not be altogether ignored in the absence of dysentery, for it had often been found in the feces of healthy persons, who never in their life suffered from dysentery. It was to be regretted that both Major Rogers and Dr. Neil McLeod, who had so greatly contributed to the literature of the subject, had omitted to give a time limit to dysentery to work out its way to produce suppurative hepatitis. The mere fact of a person suffering from dysentery during infancy and then subsequently suffering from abscess of the liver when he has attained the age of fifty-five

was no good reason to infer that dysentery was the exciting cause of the abscess. Nobody knew what happened to him during the long interval of so many years; he might have suffered from enteritis, which again might have been the cause of the liver abscess. It was, he thought, absolutely dogmatic to assert that the discovery of the marks of an old cicatrix in the intestine of a man dead of liver abscess was evidence sufficient to connect the disease with dysentery. Out of 52 cases treated by him, dysentery was the causative agent in 22. In 5 it was associated with the abscess; in 7 there was ancient history of diarrhea and dysentery. In 3 it followed ischiorectal abscess; in 5 it was associated with fistula *in ano*, and in 10 there was no definite cause, and abscess was primary in the strict sense of the word. After describing those cases in which dysentery had no part to play, and in which the phases of the disease were anomalous in their character, the author discussed the diagnostic signs, the duration, the age, sex, race and season incidence, and finally the treatment of liver abscess. With regard to age, he said he had seen two cases in infants of two or three months old. One was operated on by Lt.-Col. Raye. The majority of his cases were between 20 and 45. Females were less liable than men, and it was very difficult to explain the cause. Women of the Southali, the Halkurines (Methranus) and other low-caste classes of people, such as domes, chamars, etc., did not suffer from liver abscess, although they all drank to excess. All races were liable, but the Bombay "Benies" domiciled in Calcutta did not suffer from it—at least he had not seen one within the last quarter of a century. There was no special season for tropical abscess of the liver, but the majority of cases came under observation during the advent of the cold season. January, February, and March were favorable months both for hepatic abscess and dysentery. In speaking of treatment he stated that the exhibition of ipecacuanha in large doses in the presuppurative stages had sometimes been followed by most happy results. It wonderfully stopped the suppuration and succeeded in removing fever and pain, soon restoring the unhappy patient to health. The ipecacuanha treatment was commonly known as the Maclean method of treating hepatitis. For reasons quite unexplained, this excellent method of treatment was kept in abeyance for years. To Major Rogers was due the credit of reviving it, and the results obtained were indeed very hopeful and encouraging. To understand how ipecac aborts a threatening abscess was a problem still unsolved. Large doses were decidedly better than repeated small doses. But it must be administered in a way to prevent sickness or vomiting. The combination of chloralhydrate and liquor morphiæ with the ipecac did away with vomiting.

Treatment of Abscess of the Liver by Aspiration and Injection.—Major A. Hooker, I.M.S., presented this paper. He described a case successfully treated by the method recently advocated by Dr. Leonard Rogers. Large abscesses should be opened and drained at once. Two such cases, aspirated and injected with quinine solution, both refilled and had to be opened and treated in the ordinary way. Aspiration was a procedure of long standing, as the classical works of Bud, Murchison, Morehead and Fayrer proved. It appeared to have been given up somewhat hastily in deference to the generally received surgical opinion as to the necessity of the evacuation of pus where possible by free incision. Aspiration, with the additional prospect of success held out by subsequent injection, appeared to be safe and well worthy of an extensive trial. Incision and drainage was by no means uniformly successful, and the chance of septic infection of the peritoneum was not so entirely negligible a bugbear as it was sometimes described. Attempts to suture a nonadherent liver to the abdominal wound were more often than not worse than useless.

Sir Patrick Manson, K.C.M.G., said the statistics on which the president in part based his conclusions had only a relative value. Dr. Neal Macleod had clearly shown that in Shanghai practically every case of liver abscess was preceded by dysentery, either clinically recognizable or demonstrable at post mortem. Sir Charles would have them believe that the ameba was not the essential element in liver abscess, but the position he would take was that though it had not been proved to be such, it probably was. The ordinary microorganisms of suppuration were found only in a small proportion of liver abscesses, whereas the ameba was present in the majority of cases. It was of little use looking for it in the pus withdrawn by exploratory aspirators, but if searched for in the discharge coming from the drainage tube three or four days after the operation, it was nearly sure to be found. The fact was the ameba did not live in the pus, but in the abscess wall, where it could be found in sections in the liver tissue beyond the zone of suppuration. Another striking argument in favor of the ameba was the remarkable effect of ipecacuanha both in the amebic dysentery and in dysenteric hospitals. Generally it promptly controlled both, exercising a therapeutic influence on the ameba comparable to that of quinine in malaria. Again, he had seen liver abscess rupture into the peritoneal cavity. Had the pus contained the ordinary bacteria of suppuration, septic peritonitis would have ensued. This was not the case. Drainage was followed by recovery. He felt sure that in exploring for liver abscess pus not infrequently escaped into the peritoneal cavity, explaining the pain in the lower part of the abdomen often following this little operation, but nothing further happened. The ameba did not give rise to sepsis. He wished the president had laid stress upon the extreme importance of a blood examination before exploration with the aspirator. He was sure that some of the deaths from hemorrhage following puncture of the liver were to be explained by a leucopenia. The condition would have been recognized by blood examination, and a calamity thereby averted. He recognized the advantage of local applications in inflammatory diseases, but he confessed he did not understand how the application of oleate of iodine over the right hypochondrium could influence disease in the liver, which had little or no vascular connection with the superjacent skin. Of course, he knew that therapeutics were for the most part empirical, but still they should, if possible, get at the rationale of the drugs they used.

Dr. Louis W. Sanborn said the part played by the dysenteric ameba in the causation of tropical liver abscess was evidenced not so much by the frequent association of liver abscess with dysentery as by the presence of the same organism in primary cases of both liver abscess and dysentery. Both these morbid processes might be associated or independent manifestations of the same etiological factor, just like the pulmonary and intestinal lesions of tuberculosis, but we should not forget that each one might be brought about by other agents. Thus, for example, dysentery might be due to Shiga's bacillus, to *Balentidium coli* or to *Schistosomum mansoni;* liver abscess to a needle or a fishbone, to *Bacillus tuberculosis, Echinococcus granulosus* or *Ascaris lumbricoides.* Differences in the relative prevalence of amebic and bacillary dysentery in various parts of the tropics were no doubt the cause of much of the discrepancy of opinion as to the relation of dysentery to abscess of the liver. The president had given, he thought, undue importance to climatic conditions as affecting the liver of the European in tropical countries, and had almost entirely forgotten the far more important agency of parasites. Many bacteria and certain fungi, such as *Discomyces bovis,* the Plasmodidæ, and other protozoal organisms such as *Leishmania donovani,* numerous metazoon parasites, such as *Clonorchis endemicus, Opis torchis noverca, Schistosoma Japonicum, Porocephelus armillatus,* were surely more serious causes of liver degeneration than heat, food, or

abuse of exercise. But those parasites which selected the liver for their habitat were not the only ones which might injure that organ. Many other parasites passed through it, often in great numbers, during their migrations in certain stages of development. Within the last three years he had had the opportunity of making numerous observations on the parasites of wild animals that died at the London Zoological Gardens, and the pathogenic importance of the migrations of certain metazoon parasites in their early larval stages had struck him most forcibly. He could cite numerous cases of helminths, such as ascaris, lyngamus, heterakis, esophagostomum, sclerostoma, porocephalus, and various cestode larvæ and other parasites which might pass in veritable swarms through the liver, the lungs, or the walls of the bowels, causing, especially when numerous, very serious lesions. Surely such lesions must be of great importance in favoring secondary infections. When they considered the many parasites of all classes which might attack simultaneously, or within a short period, the European suddenly transplanted to a new tropical environment, his greater vulnerability, as compared with that of the native, became obvious. With regard to the difficulty expressed by many in accepting the amebic etiology of liver abscess and dysentery, on account of the fact that the ameba is frequently found without any accompanying morbid manifestation, he would point out that although they had no satisfactory explanation apart from that of their association with other organisms, they had many analogies, such as the presence of numerous specimens of ankylostomum duodenale in the intestine without anemia, the presence of Loeffler's bacillus in the throat without diphtheria. Finally, he would like to urge the great importance of the study of the zoological distribution of the intestinal ameba. Dr. Wenyon's observations were very valuable, and he hoped that others would also carry out similar researches. Without a complete knowledge of the zoological distribution of our pathogenic parasites all attempts at prophylaxis would be futile.

Dr. F. M. Sandwitt of London said the various papers showed how deficient our knowledge was with regard to amebæ. For years we had been acquainted with the clinical symptoms of dysentery and liver abscess, and something was now known of the morbid anatomy, but we were anxiously awaiting for decisive statements from the bacteriologist and especially from the protozoologist.

Dr. J. L. Maxwell of Formosa protested against the careless use of the word hepatitis and the idea of inflammation of the liver being a direct cause of tropical abscess. That abscess of the liver might be directly caused by acute hepatitis was possible but certainly very rare. Further he asked the president about the draining of large abscesses pointing subcostally as he (Dr. Maxwell) had found proper drainage in large abscesses pointing in front almost impossible.

Dr. A. Powell of Bombay stated that he had invariably found amebæ in all cases of dysentery, both in Assam and Bombay. In Bombay during the last two years there had been hardly any amebic dysentery, but previous to that cases were more numerous. In his opinion all cases of liver abscess were associated with dysentery. He had never found flagellates in the liver. Major Anderson had found amebæ more frequently in healthy people than in dysenteric patients. Possibly the amebæ might differ in different countries. In his experience when amebæ were found the host invariably presented signs of dysentery. With regard to quinine injections Dr. Rogers had sometimes failed; it was a pity he gave no figures, his statements were vague. As regarded the treatment of the abscess, Sir Patrick Manson's method had great advantages though unsurgical.

Dr. J. Croppe of Palestine said liver abscess in Palestine was not common, but constantly present. In most cases the connection of abscess with dysentery was well marked, following the latter in so short a time as twelve days.

Dr. F. Hadley of Sheffield said in a boat returning from South Africa amongst 200 invalids there were four with heated liver abscesses. This suggested that liver abscess is perhaps more frequent after military expeditions. The good results probably were due to its not being a tropical climate.

Sir Havelock Charles, in reply, said Sir Patrick Manson thought he had not sufficiently accentuated the relationship of dysentery to liver abscess. He disagreed with this; but while admitting the strong connection between the two diseases he denied that dysentery was the sole and only cause of tropical liver abscess. Sir Patrick Manson drew his attention to the necessity of blood examination before operation for abscess lest the case were one of malarial hepatitis, but he had strongly urged not only an ordinary blood examination for malaria but also a careful blood count. Sir Patrick referred to the "old woman's" remedies of hot fomentation. He (Sir Charles) called them the "wise woman's" remedies and he maintained that they had a scientific basis by their increasing the opsonic index of the blood. Sir Patrick spoke highly about ipecac. It was a powerful drug. But on the live ameba it was harmless; a theory was requisite to help its action. Let it pass—will do as well as any other idea. He also had had recoveries, and many, too, from threatened liver abscess, by the use of other drugs. Dr. Powell stated that ever and always had he found the *Ameba histolytica* in dysentery cases in Assam and Bombay. He denied not its presence but drew attention to the able researches of Captain Foster, I.M.S., proving that (1) it was not the cause of dysentery; (2) that its presence was ever secondary to that of other organisms; (3) that there was nothing characteristic in the type of stool which might contain the ameba; (4) and that this protozoon produced no distinctive symptoms in the case. Dr. Maxwell brought forward the important point as to the possible absence of all symptoms of hepatic suppuration. But he had already spoken on that point. He considered that in the cases of abscess to which Dr. Maxwell referred, and which were large and situated upwards and backwards, as well as pointing forwards, a second aperture would be essential for drainage. Major Rogers' paper was interesting as was everything that came from his hand. He submitted for their opinion a flexible silver tube for the permanent drainage of liver abscess. That pretty instrument was an invention of the pathologist and it was fortunate that Major Rogers was dependent on others for its trial. With that instrument the bad cases would still die, and those that might recover would have lessened chances. He agreed absolutely with Major Rogers in his strictures with reference to post-operative sepsis. The after care of such cases was as important as the steps of operation. They were not students' or nurses' cases but demanded all the care that surgical skill, intuition, and technique can give.

(To be continued.)

College of Physicians of Philadelphia: Section on General Medicine.

At a stated meeting, held April 13, Dr. H. R. M. Landis read a paper, entitled, "The Complications and Sequelæ of Measles, Based on a Study of Four Hundred and Sixty Cases." The patients were observed at the Philadelphia General Hospital, the great majority occurring in children under the age of five years. Many were recent immigrants, those from Russia and Poland being principally children, while those from Italy were largely adults. The respiratory tract was the principal seat of the complications, although the circulatory apparatus and the glandular system did not escape. Bronchopneumonia was the most common cause of death. Dr. George W. Norris read a paper entitled "Lobar Pneumonia; A Study of Four Hundred and Forty-five Cases, with Especial Reference to the De-

creased Mortality Since the Institution of the Fresh-air Treatment." The cases were observed at the Philadelphia General Hospital during a period of three years, and they were compared with a larger series of cases observed at an earlier period in the same institution. Whereas the mortality in the latter was upward of 50 per cent., that among the former was rather less than 50 per cent., but although the difference in mortality was not considerable, the patients themselves appeared so much more comfortable under the new conditions that the conviction could not be escaped that they actually did better.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

RELIGION AND MEDICINE. By ELWOOD WORCESTER, D.D., Ph.D., SAMUEL MCCOMB, M.A., D.D., and ISADOR H. CORIAT, M.D. 12mo, 428 pages, illustrated, cloth; $1.50 net. Moffat, Yard and Company, New York.

MEAT AND FOOD INSPECTION. By WM. ROBERTSON, M.D., D.P.H.F.P.S. 8vo, 372 pages, cloth, illustrated; $3.50 net. W. T. Keener & Company, Chicago.

THE HEART AND SUDDEN DEATH. By THEODORE FISHER, M.D., F.R.C.P. 12mo, 53 pages, illustrated, paper. The Scientific Press, Ltd., London.

OUTLINES OF PHYSIOLOGY. By EDW. GROVES JONES, A.B., M.D., and ROBT. GRIER STEPHENS, A.B., M.D. 12mo, 383 pages, illustrated, cloth; $1.50 net. P. Blakiston's Son & Co., Philadelphia.

PHARMACOLOGY. By MAURICE VEJUX TYRODE, M.D. 8vo. 255 pages, cloth; $1.50 net. P. Blakiston's Son & Co., Philadelphia.

THE PATHOLOGY OF THE EYE. By J. HERBERT PARSONS. Royal 8vo, 1427 pages, cloth, illustrated; $3.50 net. G. P. Putnam's Sons, New York.

SEX OF OFFSPRING. By FRANK KRAFT, M.D. 12mo, 112 pages, cloth. B. Barsuette, Cleveland, Ohio.

ZUR DIAGNOSE UND THERAPIE DER NIEREN-BLASENTUBERKULOSE bei der Frau. Von Dr. R. KNORR. 8vo, 48 pages, paper; 8 Mark. Carl Marhold, Berlin.

MODERN MEDICINE. By WILLIAM OSLER, M.D. Royal 8vo, 866 pages, illustrated, cloth. Lea & Febiger, Philadelphia.

UROGENITAL THERAPEUTICS. By FILIPP KREISSL, M.D. 8vo, 461 pages, illustrated, cloth; $5.00. Cleveland Press, Chicago.

DIE LEHRE VON DER INTUBATION. By Prof. Dr. J. VON BOKAY. 4to, 250 pages, paper, illustrated. 10 Mk. F. C. W. Vogel, Leipsig.

THE PRACTICAL MEDICINE SERIES (Vol. I.). By GUSTAVUS P. HEAD, M.D. 12mo, 406 pages, cloth, illustrated; $1.50. The Year Book Publishers, Chicago.

THE PRACTICAL MEDICINE SERIES (Vol. II.). By GUSTAVUS P. HEAD, M.D. 12mo, 614 pages, cloth, illustrated; $2.00. The Year Book Publishers, Chicago.

LEHRBUCH DER OHRENHEILKUNDE FÜR STUDIERENDE UND AERZTE. Von Dr. GEORG BOENNINGHAUS. 4to. 378 pages, illustrated, paper. S. Karger, Berlin.

CONSULTATIONS. By H. STAPFER. 4to, 501 pages, paper. Vigot Frères, Paris.

LES EUNUQUES À TRAVERS LES ÂGES. Par Dr. RICHARD MILLANT. 12mo. 205 pages, paper, illustrated. Vigot Frères, Paris.

THE OPSONIC METHOD OF TREATMENT. By R. W. ALLEN, M.B., B.S. (London). Octavo, 136 pages, cloth; $1.50 net. P. Blakiston's Son & Co., Philadelphia.

THE MOTHER'S YEAR-BOOK. By MARION FOSTER WASHBURNE. 12mo, 259 pages; cloth; $1.25 net. The Macmillan Company, New York.

THE DEVELOPMENT OF OPHTHALMOLOGY IN AMERICA, 1800 to 1870. By ALVIN A. HUBBELL, M.D., Ph.D. 12mo, 107 pages. Cloth, illustrated, $1.75. W. T. Keener & Co., Chicago.

LA DIATHÈSE URIQUE. By HENRI LABBÉ. 12mo. 95 pages; paper, 1 fr. 50. J. B. Bailliere & Fils.

THE SEXUAL QUESTION. By AUGUST FOREL, M.D., Ph.D., LL.D. 8vo, 536 pages. Cloth, illustrated. Rebman Company, New York.

NEWSPAPER DIRECTORY AND ADVERTISERS' MANUAL, 1907. 16mo, 656 pages; leather. The George M. Savage Advertising Agency, Detroit.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending August 15, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	443	160
Diphtheria	134	11
Measles	106	5
Scarlet Fever	87	7
Smallpox	—	—
Varicella	9	—
Typhoid Fever	124	17
Whooping Cough	18	5
Cerebrospinal Meningitis	5	7
Malarial Fever	—	—
Totals	926	212

Tincture of Iodine in Puerperal Fever.—Aldo Mergari describes his method of using tincture of iodine for the differential diagnosis between syphilis and tuberculosis seven cases with marked success, the improvement being manifested in a single day after treatment was begun. He washes out the vagina and uterus with antiseptics, curettes when it is necessary to remove placental fragments, and then injects through a Doleris sound from 100 to 150 grams of equal parts of tincture of iodine and water. This is allowed to flow out as soon as any pain is felt, and the excess is washed away with boiled water. No tampons are used. The author ascribes the good results to the large amount of normal iodine that enters the uterus.—*La Riforma Medica.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending August 14, 1908:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, San Francisco	July 18–25	2	..
San Diego County	June 1–Aug. 3	98	.
Illinois, Chicago	July 25–Aug. 1	2	
Indiana, Fort Wayne	July 26–Aug. 1	1	
Indianapolis	July 26–Aug. 2	1	
La Fayette	July 27–Aug. 3	1	
South Bend	July 25–Aug. 1	2	
Iowa, Burlington	July 15	1	
Michigan, Detroit	July 25–Aug. 1	1	
Missouri, St. Joseph	July 18–25	4	
Ohio, Dayton	July 25–Aug. 1	1	
Texas, San Antonio	July 18–Aug. 1	3	
Washington, Spokane	July 18–25	7	
Wisconsin, Milwaukee	July 1–Aug. 1	5	
SMALLPOX—FOREIGN.			
Arabia, Aden	June 30–July 13		6
Canada, Halifax	July 25–Aug. 1	1	
China, Shanghai	June 21–28	2	1
Egypt, Cairo	July 1–15	0	0
India, Bombay	June 23–July 7		8
Calcutta	June 6–20		16
Italy, General	July 5–19	72	.
Naples	July 4–18	35	3
Java, Batavia	June 18–27	9	
Portugal, Lisbon	July 11–18	1	
Russia, Moscow	July 6–Aug. 1	14	14
Riga	July 11–18	5	
St. Petersburg	July 4–11	47	13
Warsaw	May 30–June 6		7
Spain, Valencia	July 11–18	7	2
Turkey, Constantinople	July 5–12		5
YELLOW FEVER.			
Brazil, Manaos	June 29–July 11	5	7
Mexico, Vera Cruz	Aug. 8	1	..
	Aug. 10	1	
CHOLERA.			
China, Amoy	Aug. 11		Present
Hongkong	June 13–27	5	4
India, Bombay	June 23–Aug. 1	.	1
Calcutta	June 6–20		90
Rangoon	June 13–20	6	.
Russia, Batoom District	Aug. 10		Present
Moscow	Aug. 10		"
Rostov	Aug. 10		"
PLAGUE.			
Azores, Fayal	To Aug. 10	7	2
Terecira	To Aug. 10	17	10
Brazil, Rio de Janeiro	July 11–25	7	7
Chile, Antofagasta	July 4	3	
Iquique	July 4	4	
China, Hongkong	June 13–27	160	120
Egypt, General	July 8–14	22	9
Alexandria	July 10–16	4	2
Port Said	July 11	2	1
India, General	June 21–27	56	483
Bombay	June 23–July 7	..	54
Calcutta	June 6–20	..	71
Rangoon	June 13–20	.	40
Peru, General	July 6–11	47	28
Callao	July 6–11	3	1
Lima	July 6–11	6	3

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PLAGUE; MODE OF DISSEMINATION AND METHODS FOR CONTROL.*

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IT is not my intention to present a monograph on plague, dealing with the various clinical phases of the disease and the pathological changes that occur, but only to call attention to the symptoms and morbid changes to a sufficient extent to make my meaning clear and to form a proper connecting chain with the more important intents of this paper—the mode of dissemination of the disease and the proper remedial measures to be instituted for its control.

Plague is a disease of vital importance to the sanitarian and I trust of sufficient interest to the clinician to warrant a brief discussion of this subject. It seems to me that the time is opportune for the presentation of recent findings concerning the disease which I have been able to glean from recent literature together with that acquired from practical experience.

The Isthmus occupies the unique position of one of constant exposure and at the same time one of strategic importance. Our ports on the Pacific have been in constant commercial relation with plague-infected ports for the past four years. Each year the disease in its insidious approach has crept nearer, so that now we have a severe epidemic prevailing in Guayaquil only three days distant, and in the past two months our danger has been still further increased by the appearance of the disease in La Guayra, only three days from our important commercial port, Colon.

A moment's consideration will show the strategic position, because, if our ports can be kept free from the disease or are in such a sanitary condition that if infection gains an entrance, the disease will not become endemic or epidemic, the chain of Central American ports both on the Atlantic and Pacific will in all probability escape; on the other hand if our ports become badly infected the places mentioned will almost certainly fall, and not being properly equipped to handle such infection, they would remain a constant menace to the Isthmus after the eradication of the disease here. It is to show how this danger may possibly be avoided and if it should become an actual fact, how it can be eliminated, that this paper is presented.

A brief reference to the history of plague may not be amiss, especially that part which relates to the wide dissemination of the disease since its reappearance in 1894.

The description of plague handed down from ancient times is rather vague and epidemics bearing this name were probably not all of the disease under consideration. In fact the name plague was loosely used and apparently referred to any epidemic disease accompanied with a high mortality. The first authentic description recognizable as plague refers to an epidemic that prevailed in Egypt and neighboring countries at the end of the third century. Egypt in early days was a favorite haunt for the disease and in this country started the epidemic of 542 that lasted sixty years and spread over Europe with frightful devastation. Probably the best known of the early epidemics is that which prevailed in London in 1664 and 1665 and caused 70,000 deaths.

This now brings us to the consideration of the present epidemic that is slowly invading many countries of the world. Plague had been endemic in Southwestern China for many years and in the Spring of 1894 spread to Canton, where it caused 60,000 deaths during that year. In a few months Hong Kong became infected and suffered from a severe epidemic. The disease spread from Hong Kong to Macao, Amoy, Foo Chow, and other ports in China. It was while studying this disease in Hong Kong in 1894 that Kitasato and Yersin working independently discovered the bacillus pestis. A few cases of the disease were reported in Hong Kong during the following year, and it reappeared in 1896 with the resultant severe epidemic, and during this year was introduced into Bombay, India, in all probability through an infected cargo of rice. The infection has remained in these places ever since, and in India the yearly epidemics have resulted in frightful loss of life.

In 1899 plague gained an entrance into Japan, the Philippine Islands, Egypt and Oporto. Early the succeeding year some ports in Australia became infected. In the meantime the disease approached the Western coast of the United States, by the infection of Honolulu and early in 1900 was present in San Francisco. Glasgow became infected in 1901. About this time (1900) the disease gained an entrance into South America, the ports of Brazil becoming infected and later cases appeared in Buenos Aires. Mazatlan had a sharp epidemic in the fall of 1902, and plague was reported in Peru and Chile in 1903. Ecuador escaped until February, 1908, but is now suffering from a severe epidemic. The disease has been in Mauritius, Cape Town, and other ports of South Africa for several years. From the above it will be seen how the slow spread of the disease, starting from the epidemic of Hong Kong in 1894, is gradually invading a large part of the world. Where and when will it stop; who knows?

Symptoms.—The importance of recognizing first cases of plague, before the disease has been reported as present, is of such paramount importance that brief mention of the symptoms of the disease is proper. The value of alertness and careful diagnosis in all cases that present any suspicious symptoms in a town threatened with plague cannot be

*Read before the Canal Zone Medical Association, May 13, 1908.

overestimated. The bubo may pass as a simple one, especially if the person should recover, and pneumonic plague might be considered an ordinary bronchopneumonia of unusual severity unless the attending physician is alert to the possibility of having to deal with plague. This word of warning is not amiss, as what has been stated above is what generally occurs in the first stages of epidemics of this disease. The great value of determining the exact nature of such cases is apparent, because if the first cases are detected immediate sanitary measures can be instituted and the limited foci of infection may be eradicated and an epidemic prevented.

The bubonic type of this disease is the most frequent and is generally ushered in suddenly with chilly sensations, severe frontal headache and pain in the limbs, rapid rise of fever to 102° or 104° or higher (although the rise in temperature is not so sudden as in malarial fever). The skin is dry and hot, the face is congested, anxious, and often looks bloated in the early stages; the eyes are sunken and bloodshot. The strength of the pulse is early affected, and the patient becomes rapidly prostrated, dull, apathetic, and often delirious. Hemorrhages occur in the skin in spots varying in size from a petechial eruption to that of a dime or larger. I have often noticed the effects produced by a mustard plaster applied by a member of the family for pain; this, even early in the disease, and before cutaneous hemorrhages occur, almost invariably brings about this condition and there results a dark ecchymotic spot the size of the plaster.

The bubo is generally present and can be detected in the majority of cases after twenty-four hours, although I have seen them in a few hours after the onset or delayed until the fourth day of the disease. They are painful, infiltrated, edematous, hemorrhagic, and exquisitely sensitive on pressure; it is generally confined to one side and may be single, although very often the entire chain is involved so that a long infiltrated mass results.

The site of the bubo depends on the point at which the infection is received. They are most common in the femoral regions because infection is most often received through the lower extremities, but also occur in the axilla and the neck, near the angle of the jaw. They are symptomatic and represent nature's effort to control the infective agent. The following percentages generally hold good: 70 femoral, 20 axillary, and 10 cervical.

Septicemic Form.—In this variety most of the symptoms already enumerated are present, although the fever is not as high in many cases. The bubo is later in appearing, and is frequently absent altogether. The prostration is more pronounced and the disease runs a more rapid course. In this form when no bubo is visible there is general glandular enlargement noticeable on post-mortem examinations.

Pneumonic Type.—This is the most dangerous form of the disease, but fortunately is rare on the Pacific Coast. In this connection only the primary pneumonic form will be considered as that secondary to general plague infection of other types needs no especial mention. Unless plague is known to be present a case of this disease might be mistaken for a very severe pneumonia, as the physical signs are the same as those of a severe case of bronchopneumonia. However, the fever is high, the prostration is profound and occurs early, and the sputum is not pneumonic. The expectoration in plague pneumonia is profuse, bloody, frothy, and so loaded with plague bacilli that it is often possible to obtain pure cultures from it.

The symptoms of plague are sufficiently distinct to excite suspicion when a case of either type is encountered, and a bacteriological examination of the blood in the bubonic and septicemic form and of the sputum in pneumonic cases will remove all doubt for practical purposes.

The percentage of the different forms of plague in an epidemic seems to vary considerably in different countries. In Hong Kong in an analysis of 310 cases by Simpson 40 per cent. were septicemic and 4 per cent. pneumonic. Judging from the death rate from the disease in India it is fair to presume that the percentage of septicemic cases is high with more than the average number of cases of the pneumonic form.

On the Pacific Coast, in Peru and Guayaquil, the disease is principally bubonic, and I do not believe that the septicemic form exceeds ten or fifteen per cent. Pneumonic plague is not frequent on the coast and with the exception of the epidemic in Pisagua I believe the number of cases have been relatively small.

Pathology.—The pathological changes in plague are those of engorgement and hemorrhage. The liver is congested and the spleen shows a similar condition and is more than twice its normal size. Numerous punctate hemorrhages are seen on all the serous surfaces, and the pleural cavities often contain blood stained fluid. The kidneys are congested and punctate hemorrhages are seen on the surface and in the pelvis. The mucous membrane of the intestines shows general congestion, and I have seen in some cases considerable hemorrhages in the lumbar region. There is general enlargement of the lymphatic glands, those in the inguinal region forming a continuous chain in extension from the primary bubo in the femoral region. The mesenteric glands are nearly always enlarged, and this general affection of the internal glands is present when no primary visible bubo has existed. The gross changes are those of hyperplasia of the gland tissue with edema and hemorrhages in its substance. Most of the buboes undergo resolution, but suppuration is not uncommon, which prolongs the convalescence. The plague bacillus, a cocco bacillus which stains in a bipolar manner, exists in abundance in the enlarged glands, spleen, liver, and blood. This bacillus varies considerably and involution forms are common.

Treatment.—The medicinal treatment of plague is supportive and stimulative, and about the only remedy that produced good results is Yersin's serum. This to be effective should be given early and in full doses. An initial dose of thirty or fifty cubic centimeters should be given, to be followed in a few hours by another or a third until there is a decline of the fever and general amelioration of the symptoms. The serum to be beneficial must be given early and upon the stage at which the patient is put under treatment will depend its success. After the third day of the disease it does little if any good.

The ravages of plague are in some instances frightful. In the small town of Pisagua the deaths occurred so rapidly that there were not enough well people to bury the dead and dead bodies were seen lying in most of the streets. In Pacasmayo, a small town in Peru of 2,000 inhabitants, there were more than 200 cases in less than two months, and in Guayaquil there were nearly 500 cases in the first two months of the epidemic.

However, India furnishes the best example of the

ravages of this disease, as the following statistics will show. The annual mortality from plague in India has been as follows (Morehead):

1896.....	1,704	1902.....	577,000
1897.....	56,000	1903.....	850,000
1898.....	118,000	1904.....	1,022,000
1899.....	135,000	1905.....	951,000
1900.....	93,000	1906.....	332,000
1901.....	274,000		

(Nov. 24, 1906, to Nov. 9, 1907, 1,276,576)

During the first three months of this year the mortality has been about 495,000, and the total deaths since its first appearance has been as much as five and one-fourth millions, with a mortality as high as 76,000 in one week.

Modes of Dissemination.—In discussing the modes of dissemination it will be proper to consider the subject under two heads—(1) the introduction into a new port or town, and (2) the means by which it is spread in the town from its infected foci and to adjacent towns. Plague, when it is introduced into a new country, practically always appears in the seaport towns first, which shows the danger to be primarily in the commercial relation which the place has with infected ports.

(1) The introduction of plague in a new country or port occurs through infective material brought and the following agencies are responsible. I mention them in the order of their danger and responsibility: (*a*) Rats, (*b*) Infected cargo, (*c*) Infected clothing of passengers and crew of ships, and (*d*) Infected persons. These agents will now be considered separately and fully—

Rats.—There is no question in my mind but that these animals are the most potent factor in introducing plague in new places. Rats gain access to ships at infected ports and going on shore at ports of arrival communicate the disease to the same animals in their new locality, thereby starting the infection. Plague is primarily a rat disease, and an epizootic affection in all the rat family. The disease is secondary in man, as continuous observation has shown that plague exists in rats before human cases appear. Rat-plague should be treated by the sanitarian the same as human plague, but this phase of the disease will be discussed more fully later.

Infected Cargo.—Certain articles of cargo that have become infected in centers in which plague prevails either by serving as rat-foods or as a nesting place for these animals, becoming infected by the secretion or excretions of sick rats or harboring fleas from such, must be considered as the second most dangerous factor in introducing plague. In this class fall grain, bran, etc. Klein has shown by experiments that he was able to transmit plague to rats and guinea pigs by feeding them with grain which had been contaminated with old plague cultures, so there would seem to be no doubt of this danger. In fact I have always considered this danger and for the past four years all such cargo has been prohibited from being brought from plague-infected ports to those on the Isthmus. This grain which has been infected from sick rats when loaded and stored in healthy seaports gives plague to healthy rats on shore, which eat the contaminated portions of the grain or through fleas harbored. As already stated, plague is supposed to have been introduced into Bombay by infected rice.

Another article of cargo is hides, which by forming nesting places for rats, or rat food when damp or improperly cured, are in the prohibited list unless chemically cured and stored in rat-proof warehouses or disinfected. Rags or loose cotton and articles of such nature are dangerous, and plague was in all probability introduced into Japan through such cargo, as the first cases occurred in a factory at Osaka where such material recently imported from New Chang was being used. The first cases of plague in Glasgow occurred among rag pickers.

Clothing of Persons.—Clean, dry, and recently laundried clothing is safe: soiled, dirty, and damp clothing brought by passengers coming from plague-infected ports is not safe, unless previously disinfected, and may be the means of introducing infection. This clothing has often been in badly infected quarters and even used at times by the sick, and when packed in such places may be both infected with plague bacilli and infested with fleas, and bedbugs which will transmit the disease to rats and man, when set free in their new residence. Soiled, damp clothing when packed will retain plague infection for a considerable time.

Infected Persons.—Man plays a subordinate role in the introduction of plague or even in its spread, but nevertheless he must be considered a factor, as some may arrive who are suffering from the active disease and others in the incubation stage. Against introduction by this means the quarantine should protect, but in the event of a prolonged stage of incubation or for other reasons a person sick from the disease is allowed to pass into a healthy town he would be dangerous to the community not only on account of the infection but also because he carries the rat flea on his body and in his clothes. This flea finds its way to its natural host, so that the rats become infected and in turn give the disease to man.

Spread in Towns.—This now brings us to the consideration of the modes of dissemination in towns that have received infection. The agencies that produced the initial focus are also operative here, but one or two of those factors play an especially prominent part. Rats and the fleas they harbor are the important agents. Rats become infected first and an epidemic prevails in them before the occurrence of human cases. So certain is it that human cases will follow plague in rats that now as soon as it is proven that these rodents are dying from plague active sanitary measures are taken with excellent results.

Plague is insidious in its approach and spreads slowly at first. In San Francisco it was confined to Chinatown for four years, and one explanation of the recurrence of the diseases in 1907, was that after the earthquake, with the burning of Chinatown, the rats suffering from chronic plague fled to other and all parts of the city, especially to places of filth and plenty of food, which ideal conditions were found in the two principal camps for refugees. Around the site of these camps the worst centers of the epidemic existed, and the disease was widely disseminated throughout the city.

In Bombay the disease was for some time confined to one section of the city, a class of day laborers and their families residing in this section being the only ones affected. Although the laborers during their work were in close relation with others, none had the disease, showing that they contracted the infection at night by sleeping in an infected environment.

When plague appears in a place and a number of cases result in a short period of time the people become panic-stricken and flee to healthy towns—no cordon will prevent them; still very little if any plague occurs along the route of their flight, and it is not until later, when the rats migrate to escape the sickness prevailing in their old haunts,

that spread of the plague occurs. It has been noticed a number of times that the spread of plague has not followed the course taken by people but occurs in towns corresponding to the direction the rats have gone.

This now brings up for consideration how the disease is transmitted from rat to rat, and as it has been shown that plague in these animals precedes human cases, how plague is acquired by man and if the disease is transmitted from rats to him.

Fleas.—Symond was one of the first to show that rats acquired the disease from each other, not by contact, but through an intermediary host, which he considered the rat flea, *Pulex cheopis*. He also believed that this insect was responsible for plague in the human subject, leaving the rat dead from plague for man, thereby infecting him. This theory was supported by Thompson of Sydney, who has done considerable work along this line in his plague investigations in Australia. Most important experiments have been made by the Indian Plague Commission, which supports this theory, and I cannot do better than quote some of their findings.*

1. They found that healthy rats contracted plague by living near a plague-infected rat, where contact was impossible, but where there was an abundant supply of fleas that could pass freely from rat to rat.

2. Healthy rats living in flea-proof cages contracted the plague when fleas collected from a rat, suffering from plague in another cage, were introduced.

These two experiments show that plague is transmitted from one rat to another by fleas. Similar experiments have been carried out with guinea-pigs with the same result. When fleas were excluded these animals did not contract plague although they were in contact with feces and urine from infected animals. Close contact of the young, even when suckled by plague infected mothers, did not give the disease to the former.

If fleas are present then the disease once started spreads from animal to animal, the rate of progress being in direct ratio with the number of fleas present. Through the agency of the flea plague can be transmitted not only from rat to rat but also from rat to guinea-pig and vice versa, also from guinea-pig to monkey.

It was shown that infection could take place without any contact with contaminated soil. Guinea-pigs were placed in a cage two inches above the floor and developed plague, but when these animals were suspended in the cage at a distance of two feet from the bottom of the cage, at a distance beyond which a flea can jump, they remained healthy.

The rat flea prefers a guinea-pig to man, but if neither of these animals are present they will attack man. Advantage has been taken of the fact that guinea-pigs will collect such fleas by placing them in houses in which plague has occurred, and which have been disinfected and vacated, in order to determine whether such houses are safe to be occupied. In many such instances the pigs have taken sick and died from plague, collecting fleas in large numbers, thereby showing that the disinfection has been ineffective by not killing the fleas that have taken refuge in the cracks of the floor and under sand.

Rats attack and devour sick and dead rats and this constitutes a minor way in which plague is transmitted among these animals.

*Many of the experiments cited are quoted from Major Morehead's article, "Plague in India," in the *Military Surgeon*, March, 1908.

The next point to be considered is—will rat fleas bite man? That they will has been proven by experiments, and if plentiful will even do so in the presence of their natural host. They have been kept alive for more than three weeks by feeding them on man, also rat fleas have been found on the legs of men sent into rooms infested with them as well as when sent in houses in which plague had occurred.

It having been established that such fleas will bite man, how is the infection transmitted? The plague bacilli are contained in the blood they suck in, and they have been demonstrated in the stomach and intestines of both rat and human fleas. Multiplication of bacilli takes place in the stomach of the flea and they have sometimes been found in the esophagus, but nowhere else in the body cavity or salivary glands. The bacilli also exist in the feces of fleas taken from plague rats.

The flea has the nasty habit of squirting blood from its intestine at the same time it is sucking in blood, and as such contains bacilli, infection probably occurs by scratching and rubbing such discharged contents into the small punctate wound made by the bites.

Rat fleas leave the dead animal, and being in a starving condition readily assail man or animal and convey the disease to their new host. It has been noticed that persons who handle rats recently dead of plague contract the disease, while others can handle such rats that have been dead several hours without much risk. The explanation is simple: If the rat has just died the fleas are still on it and pass to the person handling, whereas in the other case the fleas have already left the dead body.

I have discussed freely the relation of rat to human plague and the method of transmission from the rat to man by the flea, as it represents the most recent as well as the most important work done concerning the dissemination and transmission of the disease.

While most cases of plague of the bubonic type are contracted in this manner, many authorities will not admit it is the method of infection in septicemic plague and think many cases of the bubonic form are contracted in other ways. We know that plague is inoculable, unfortunately there have been too many laboratory accidents that prove this, and I cannot see why a certain percentage of cases may not be due to persons with abrasions on their body contracting the disease by coming in contact with infective material.

Food.—If food products contaminated with the infective agent of plague will produce the disease in rats by them eating the same, it is reasonable to suppose that this might occur in man to a certain extent. Simpson is the strongest advocate of this and believes that septicemic plague is generally contracted in this manner. It is not difficult to see how an infection of cooked food might occur, especially from the excretion of plague rats, and it seems possible that the ingestion of such food might produce the disease.

Man.—Persons are secondary to rats in the spread of plague, but nevertheless they form a factor that should receive due consideration. Persons exposed to infection often contract the disease and proceed to new and healthy localities either with the active disease or with it in the incubation stage. While they are a menace to the community, their principal danger consists in the fact that they carry their clothes and often bedding, which if not soiled with the plague bacilli, generally contain fleas which, liberated in the new place, seek their natural host and start the disease among the rats.

In pneumonic plague man is an important factor as he contracts plague by contact, by inhaling the bacilli that exist in abundance in the small particles of expectoration that are in the air.

Season.—This is probably a good place to refer to the seasonable prevalence of plague and the most plausible explanations given for this characteristic. In India the plague lies dormant during the winter months, but appears in the spring, reaching its height during March and April. In Hong Kong the disease appears in January or February and increases until June or early July, when the epidemic reaches its height, then declining until few if any cases are reported during October, November and December. In Peru the seasonal increase in plague corresponds closely to what occurs in Hong Kong. Manila furnished a similar example.

There is a cause for this seasonal prevalence which has been sought by numerous investigators. For a long time it was thought that the plague bacillus lay dormant in the dirty floors or filth in the plague houses and the advent of plague the next season was due to increased virulence of these bacilli. This theory has been disproved. The Indian Plague Commission has shown that the bacilli soon die under such conditions, that plague bacilli are unable to live a saprophytic existence, and that the living tissues and blood of the rat are necessary for their propagation.

Plague exists in a chronic form in rats, the bacteria being encapsulated in the viscera, the cervical and the inguinal glands. These rats have been found alive, emaciated or not, but still ambulatory foci for the spread of the infection The virulence of organisms recovered from such rats has been demonstrated by laboratory experiments in San Francisco. This seems to be the principal cause of the continuance of the infection and the long intermission between cases.

As the seasonal increase of plague corresponds to the time when fleas breed and a new generation of rats susceptible to plague appears, it can readily be understood that with the chronic plague rats to furnish the foci of infection a fresh outbreak occurs among these animals with consequent increase in the number of human cases. The above is now considered the probable cause of seasonal prevalence.

Prevention of Plague Infection, Eradication of the Same and Control of Epidemics.—In the first place I wish to emphasize the importance of prophylaxis in all ports and towns, which from their commercial relations with nearby centers of infection, are threatened with invasion. Under this heading will be pointed out the preparatory sanitation of places from a plague standpoint, which enumerated briefly are: (1) rat destruction; (2) making houses rat-proof as far as possible, by remedying defects in construction so that rats cannnot gain access to buildings and by changes so that dark and illy ventilated compartments are freely opened to sunlight and air — both of which are inimical to rats and fleas; (3) by cleaning premises and attention to stables so that rats will not have places for harboring and for obtaining food. Wherever you have filth and food there you will find rats and fleas in abundance.

Another matter I wish to emphasize is that a careful watch should be maintained over mortality in rats, if any number is found dead in a locality, these dead rats should at once be examined pathologically and bacteriologically in order to determine whether they are plague infected. If this examination is positive, plague infection is present and human cases will soon follow unless the most energetic measures are instituted. Rat plague requires the same sanitary treatment as human plague, and following this timely warning prompt and energetic measures may prevent an epidemic and lead to eradication of the infection, especially if the town has been prepared as outlined above to meet the invasion.

The early recognition of human cases is also important and all that are in any way suspicious should be carefully studied both clinically and bacteriologically. Upon prompt recognition of plague whether in rats or man will depend success in controlling the infection.

The sequence of events in a newly infected place is: dead rats found in the houses or sick rats appearing in the daylight, then cases of plague occurring in the persons that live in houses in which dead rats have been found.

As this paper is growing longer than I intended I will not go into the details of quarantine methods by which plague is prevented from gaining access to healthy ports, but only briefly mention what are proper. They are as follows: (1) Fumigation of ships to destroy rats. (2) Prohibition of such cargo as is considered unsafe from a rat standpoint. (3) Disinfection of baggage of passengers embarking at plague-infected ports. (4) Examination of the personnel of the ship both at port of departure and at that of arrival to detect persons sick from the disease. (5) The quarantine detention of the personnel of the ship to cover the incubation period of plague.

Control of the Disease in Infected Centers.—To control the disease or eradicate the infection the same general principles appertain whether there are one or many foci, the methods being amplified to meet the conditions.

A working organization should be perfected and the town or city divided into as many districts as the situation demands, with a competent director in charge. Upon the occurrence of a case of plague in a block or district, one should ascertain if possible the source of infection and attempt to eradicate it by concentrating a sufficient force to carry out the necessary measures in the shortest possible time. All cases of the disease should be removed to an isolation hospital, and when this has been done the house in which the sickness appeared should be immediately disinfected. The most efficient method is as follows: burn four (4) pounds of sulphur to one thousand (1,000) cubic feet of air space after carefully sealing the rooms. Twelve hours exposure should be given. This fumigation destroys vermin, and sulphur is the best agent to use. Formaldehyde does not kill insects. All articles in the house or rooms should be carefully disinfected. Old clothes, bedding, and other articles, infected by excretions from the patient should be burned. Carpets and rugs should receive careful attention and all sweepings should be burned. The floors and walls, especially that portion adjacent to the floors, cracks, and crevices should be washed down with a strong bichloride of mercury or carbolic acid solution.

In my work at La Boca, Panama, in 1905, all houses were first fumigated by burning sulphur and then immediately disinfected by washing all the walls and floors with strong bichloride of mercury solution. I consider this second disinfection even more important than the first.

Especial attention should be given to the block in which the case has occurred and the most energetic measures should be immediately instituted to sanitate the district. At the same time attention

should be directed to contiguous blocks and their sanitary condition should be carefully noted. Inquiry should be made concerning sickness in the district in order to determine whether any suspicious illness exists or has existed during the past few weeks. A careful examination should be carried out of the general sanitary condition of the district and an inspection of premises should be made to determine their cleanliness or otherwise, the presence of stables and old dilapidated outhouses where rats could harbor and breed, the presence of rat runs and these rodents, and whether on account of food, etc., the conditions are favorable for the existence of rats in numbers. It is especially important to ascertain if sick or dead rats have been seen.

Rat holes and runs in the infected and adjoining buildings should receive careful attention and be satisfactorily closed whenever practicable. It is also advisable to flush such places with strong carbolic or bichloride of mercury solution.

Poison, arsenic and phosphorous paste, and traps should be distributed throughout the district to destroy rats, and these measures should be supplemented by a free use of the different rat viruses that produce a transmissible fatal disease in these rodents.

Attention has already been called to the importance of rat destruction and when infection is present this measure is of paramount importance. However this is difficult to execute, and even after thousands of these animals have been destroyed little appreciable difference in their numbers is noticed. In Tokyo, Japan, where the most favorable results have been obtained with this measure, after five million rats had been destroyed, still the daily catch was large. It seems that depletion in the ranks of the rat family lessens the struggle for existence and favors increased reproduction. The morbidity and mortality rate from plague in rats is frequently low, and this renders the work of eradication of the disease more difficult, since if it spread rapidly among rats they would soon be exterminated and the chief source of infection to human beings would cease. In Hong Kong the number of infected rats is about seven per cent. of the total number examined, and in San Francisco it has been less than one per cent. (Blue).

This measure, however, should be pushed with vigor, and coincident with actual destruction of rats by trapping, poison, etc., the general sanitary procedures to destroy their haunts and breeding places by rendering houses rat proof; general cleaning of yards, attention to stables, destruction of old structures and the liming of outhouses and premises, and destruction of rat runs, with attention to the sewers, should be carried out as rapidly and thoroughly as possible. These general sanitary measures affecting the houses and premises will do more toward exterminating rats than anything else, but unfortunately it is slow of execution.

Evacuation.—The second important measure in the control of plague is the depopulation of infected centers and the destruction of badly infected buildings. This has been effective in several instances in the epidemic in San Francisco in stopping the march of the disease, and is recognized in India as the most important measure to carry out.

This applies not only to houses in which human cases have occurred but also to those in which rats have died from plague, and in this connection it may be stated that houses and premises in which rats dead from plague have been found should be subjected to the same careful disinfection and cleaning as if the case had been in man.

When plague has once occurred in a house there is a great tendency in subsequent years for the disease to appear in this or the adjacent houses. This may be accounted for by the lack of protection against the ingress of rats, and when this defect has been remedied the disease will not reappear.

If infection continues in such houses after careful disinfection, and they cannot be made sanitary from a rat standpoint, they should be destroyed, as such are generally old, dilapidated, and of little value.

Inoculation.—This must now be recognized as one of our most potent factors in controlling an epidemic. Recent results show the value of this practice and it is now much more extensively used than a few years ago. If such an inoculation protects for six months or a year, and it can be carried out on a large scale, thereby lessening materially the number of susceptible beings, its use in plague epidemics will be a capable weapon in our hands.

Two methods are practised: One is the use of Yersin's antitoxic serum (10 c.c. dose); this confers only a transient immunity, lasting about fourteen days; the serum is applicable to contacts, as Haffkine's fluid, a toxin, would be dangerous on account of the possibility of the person already suffering from plague in the incubation stage.

In the other, Haffkine's fluid, which is a bouillon culture in which the bacilli of plague have been killed by heat, is used. These antiplague inoculations have been extensively practised and there remains the possibility of immunizing all persons in the infected district against the disease. Numerous observers confirm the value of this inoculation, and Haffkine claims that, even in natives of India who are very susceptible to plague, the liability to attack is lessened to less than one-third, and that when this one-third contract plague the recovery rate is double that in noninoculated natives. The degree of protection afforded Europeans is even higher, and Haffkine says that if one of this class that has been inoculated is subsequently attacked with plague he has generally recovered.

In Guayaquil more than 15,000 persons have been inoculated, some with Haffkine alone and others with a primary inoculation of Yersin's serum followed by Haffkine's. It is too early to secure accurate statistics, but one or two striking instances reported to me by private letter by Lloyd will be mentioned: Of fifty workmen, who were in a badly infected place, forty-nine were inoculated, the fiftieth man refused and died of plague. The disease did not occur among the others. About eighty workmen in a brewery were inoculated with Haffkine, one man who lived under better conditions refused; he contracted plague and died; so far all the others have escaped. These may be coincidences, or rather suggestive facts; I believe the latter.

Dr. Lloyd informs me that he has seen six persons who had plague after inoculations with both Yersin and Haffkine, that while they were very sick all recovered. He also cites a case of plague developing in a child twenty days after inoculation with Haffkine alone—recovered.

The immunity conferred by an inoculation of Haffkine generally last six months or longer.

It has probably been noticed that in considering the methods to be instituted for control of the disease in an infected town quarantine has not been mentioned. This will prove useless except in spe-

cial instances, as no cordon placed around a town or district of any size will prevent people passing through, and certainly will not deter the panic-stricken rats that migrate from their deadly haunts.

Contacts either with human cases or from living in houses in which plague-stricken rats have died should be kept under observation for seven days. Whether they should be isolated and detained in quarantine would depend upon the extent of infection in the town.

In conclusion I will summarize as follows:

1. In towns threatened with plague sanitary measures should be instituted to place them in as good a condition as possible from a rat standpoint. The effective way to repel an invasion is to be prepared to meet it.

2. A careful watch should be maintained in order to detect unusual mortality among rats, and upon the appearance of the disease in these animals the most energetic measures should be instituted to eradicate the infection.

3. Rat plague should receive the same consideration as if the cases were in man.

4. Plague is generally introduced in healthy localities (1) by rats and their fleas, and (2) by infected cargo or food, man and his effects being of secondary importance.

5. Plague is transmitted from rat to rat by fleas, and these insects are also responsible for the transmission of plague to man in the majority of instances.

6. The most effective measures for the control of the disease in infected centers are rat destruction, evacuation, and inoculation.

A SIMPLIFICATION OF THE JAKOBY-SOLMS RICIN METHOD FOR PEPSIN DETERMINATION.

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The ricin test for the determination of pepsin, according to Jakoby and Solms,[1] is made as follows: 1.0 gram of ricin is dissolved in 100 c.c of a 5 per cent. sodium chloride solution, and filtered. Two c.c. of this filtrate is mixed with 0.5 c.c. decinormal HCl solution. One c.c. of the diluted stomach contents is added and allowed to remain at blood temperature for three hours. Ferments clear up the ricin deposit. The quantity of pepsin is determined from the amount of dilution in which the stomach contents will cause a disappearance of the ricin deposit.

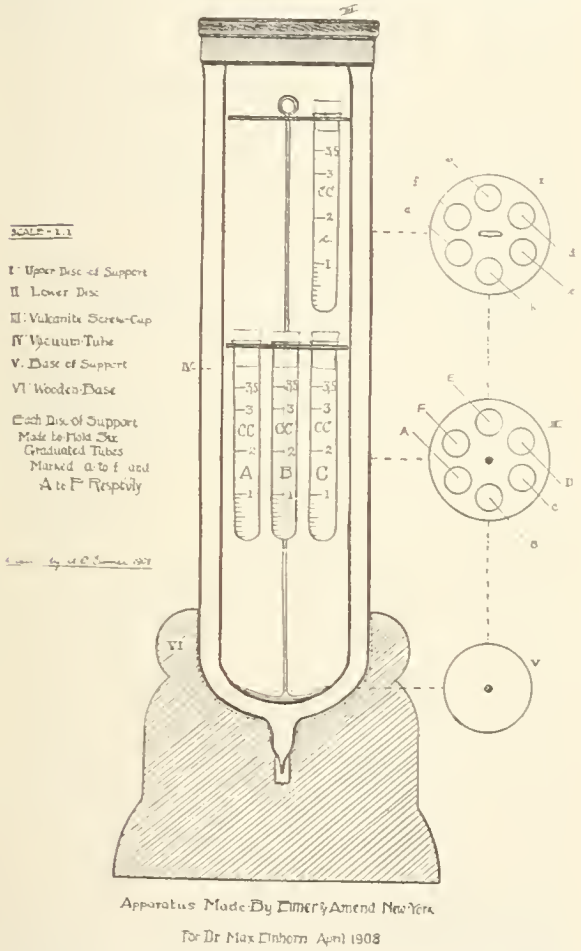
Solms designates that amount of gastric juice which is just sufficient to clear up entirely the 2 c.c. of 1 per cent. ricin solution in three hours when kept at blood temperature, as one pepsin unit. Normally, stomach contents contain about 100 pepsin units to the cubic centimeter. Witte[2] and others made control tests and recommended the method as practical.

Lately two more pepsin tests have been described. Fuld's[3] method consists in employing a solution of edestin instead of ricin. Edestin, however, is at present difficult to obtain and could therefore hardly be recommended in practice.

The other test is by Gross[4] and consists in mixing a 1 per mil solution of casein, containing 16 c.c. of 25 per cent. HCl to the liter with the filtrate or its dilutions and leaving it for one-quarter hour in the thermostat. Then a few drops of a concentrated solution of sodium acetate are added, resulting in a precipitate if the casein has not been digested. If it is digested the solution remains clear. The test is sensitive and practical, but it suffers from the disadvantage that we have to deal frequently with minute precipitates in contradistinction to the ricin test, where there is a strong precipitate the disappearance of which can readily be recognized.

Of all methods for the approximate quantitative determination of pepsin the ricin test is the most practical. For general use, however, Jakoby and Solms' method is still a little too complicated. I have, therefore, attempted to simplify the same. First, I have had constructed a suitable apparatus for the test; secondly, I have reduced the time from three hours to one-half hour.

The apparatus (see figure) consists of a cylindrical glass, surrounded by a vacuum. This glass tube contains a frame holding twelve graduated pepsin tubes. The whole apparatus can be filled with water and corked. Each pepsin tube is marked with a different letter and shows a mark at 2 c.c., 3 c.c., and 3.5 c.c. The lower part is, furthermore, graduated into millimeters. Thus we may dispense with pipettes and measuring glasses.


SCALE - 1:1
I. Upper Disc of Support
II. Lower Disc
III. Vulcanite Screw-Cap
IV. Vacuum-Tube
V. Base of Support
VI. Wooden Base
Each Disc of Support Made to Hold Six Graduated Tubes Marked a to f and A to F Respectly
A
B
C
Apparatus Made By Eimer & Amend New York
For Dr Max Einhorn April 1908

Proceed as follows: Fill each pepsin tube up to 2 c.c. with 1 per cent. ricin solution, then add up to the 3 c.c. mark filtered and diluted stomach contents, and finally add decinormal HCl solution up to 3.5 c.c. The tube is well corked, shaken up thoroughly, and then placed into the frame. The letters on the tubes identify the various dilutions. The vacuum tube is filled with fairly hot water (50° to 60° C.), the frame with the pepsin tubes is placed in it, then the apparatus is corked and allowed to stand for half an hour. Observations are taken of the time at which the deposits in the various tubes disappear and are noted. After thirty minutes the

amount of precipitate left in any of the tubes is recorded.

The advantage of the modification lies in the fact that the test is simpler, that a thermostat is not needed, and that it consumes less time. From numerous observations taken together with Dr. George L. Laporte, and which will shortly be published by us, it appears that this modification of the ricin test is to be recommended.

In making the test, the dilutions of 10, 20, 40, and 100 are most serviceable. Normally, the precipitate disappears in a dilution of 10 or 20. If a precipitate is present at 10 the pepsin is diminished, if it disappears at 40 the pepsin is increased. In achylia or marked subacidity the filtrate is used undiluted or only slightly diluted (2 to 5 times).

I have often tried to determine whether there is a definite constant relation between the rapidity of disappearance of the precipitate or the amount of precipitate left after a certain time, on the one hand, and the amount of pepsin present, on the other hand. We may say that the larger the quantity of pepsin, the more rapidly the deposit will disappear, and the smaller it will be after a certain part of the time necessary to make it disappear entirely. This is plainly to be seen in the following tests, which may serve as examples from a larger number of similar tests:

TABLE OF THE BEHAVIOR OF THE RICIN TEST FOR PEPSIN DETERMINATIONS IN GASTRIC FILTRATES, WITH A STATEMENT OF TIME AND DILUTIONS.

Name	Meal	Time of Removal	HCl	Acid	Dilution	Ricin Deposit Disappeared in	Amount of Deposit After ½ Hour
		Hrs.				*Min.*	*Cc.*
1. Zingari.....	Milk and eggs.	1½	0	110	0	3	
					10	7	
					40	20	
					100	30	0.2
2. Schinper.....	Test Breakfast	1	40	60	10	25	
					20	30	0.1
					50	30	0.3
3. Goldman.....	Test Breakfast.	1	20	60	10	10	
						22	
						30	0.1
4. Carroll.....	Test Breakfast.	1	50	70	10	15	
					40	30	0.2
					100	30	0.3
5. Miss Murphy....	Test Breakfast.	1	+	60	5	27	
					10	30	0.3
					40	30	0.5

It cannot, however, be said that there is a constant relation between the amount of pepsin and the rapidity of the disappearance of the precipitate or the quantity of the remaining deposit. In No. 1 the deposit disappears in the undiluted contents in three minutes; a dilution of 10 ought to have made it disappear in thirty minutes; in reality, it was clear in seven minutes; in No. 4 the remaining precipitate, after thirty minutes, is 0.2 c.c. when diluted 40 times, and 0.3 c.c. when diluted 100 times, whereas, if it were in direct proportion, there should have remained 0.5 c.c. precipitate in the dilution of 100.

In pepsin determinations for clinical purposes, however, we do not have to deal with exact quantitative amounts, but only with approximate determinations. This can be obtained for practical purposes with sufficient accuracy by the ricin test just described.

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TUBERCULOSIS OTHER THAN PULMONARY TREATED WITH TUBERCULIN.—REPORT OF CASES.*

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Owing to the many persons suffering from pulmonary tuberculosis who come to our State seeking health, many of us have given our attention to that form of the disease, and have often overlooked tuberculosis of other organs that may coexist with the pulmonary lesions. I mention this, as most of the cases herein referred to had more or less lung involvement, and consulted me for pulmonary tuberculosis. Only those who had the disease in a moderately mild form were subjected to the specific treatment. It had been early recognized that cases with extensive pulmonary lesions were poor subjects for specific treatment even when no other organs were involved.

When there was any doubt as to the diagnosis, the tuberculin test was used. Only such cases as gave a positive reaction were put on treatment. Koch's old tuberculin in doses of 0.1 to 5 mg. was used for diagnostic purposes.

It is only by the lapse of years that we can be at all positive as to the results in any case of tuberculosis, where there has been an arrest or apparent cure of the disease. This report covers a period of six years, the last patient being off treatment for more than twelve months. While sufficient time may not have elapsed in some of the recent cases, the immediate results were very satisfactory, and, drawing conclusions from past experience with similar cases, it was considered proper to class them as arrested.

It is not my purpose to attempt to discuss the pathology of these different lesions, as tuberculosis is practically the same, no matter what organ or tissue may be involved. The only difference being in the extent of the lesion and the stage of the disease, whether closed or open.

In the past, tuberculosis of other organs than the respiratory has been considered as belonging to the domain of surgery, and probably in no disease has surgical interference so often failed to accomplish the desired end as in tuberculous adenitis. When we consider the impossibility of reaching and removing all the infected glands, the great risk of infecting the field of operation by liberating bacilli from some easily ruptured gland, and the probable chance of a recurrence or spread of the disease to some other organ—often the lungs—we should certainly be ready and willing to investigate any other mode of treatment that promised equally as good or even better results. This is my only excuse for presenting this subject at the present time. Tuberculosis of other tissues and organs that is so often considered surgical comes under the same heading.

In tuberculous adenitis treated specifically, we not only saw healing of discharging sinuses, but the glands were reduced in size, leaving only small hard nodules, which were neither visible nor painful, and

*Read at the first annual meeting of the Boulder County (Colo.) Medical Society, April 2, 1908.

in no case has there been a spread of the disease or a recurrence.

In any form of tuberculosis an early diagnosis is of the greatest importance, if we are to expect the most satisfactory results. Many times we have great difficulty in persuading our patients to accept our diagnosis. This often leads us into waiting too long, with the loss of much valuable time, for structural changes will then have become too great and it is impossible to restore the organ to its normal condition or nearly so. This is especially true in joint tuberculosis, and the best we can look for is an arrest of the process. A stiff joint with a fairly useful limb may be considered a very satisfactory result in many cases.

The same general line of treatment as to diet, rest, and fresh air was carried out in these cases as in pulmonary tuberculosis. In joint tuberculosis, Bier's hyperemia was employed in conjunction with tuberculin. Here also mild "joint exercise" was employed, following the use of the restricting bandage.

The following cases are reported at some length, each being typical of the class they represent. There were ten cases of infection of the cervical glands, all complicating pulmonary tuberculosis. Of these, I shall refer to only two:

Case No. 60.—Male, æt. 25, wt. 143 lbs. Seen first September 20, 1902. Mother died of tuberculosis in 1888. Has had enlarged cervical glands for three years. During the last ten months they became quite large and tender. Operation had been advised several times, but refused. Came to Colorado four months ago. Has gained three pounds. Chest examination showed slight infiltration of right apex. There was morning cough, no tubercle bacilli in the sputum, temperature 36.8° C. Severe reaction to 0.5 mg. Koch's old tuberculin. Temperature, 38.4° C. Under small interspaced doses of tuberculin, glands were gradually reduced in size, and at the end of six months had practically disappeared. September, 1905, no reaction to 2 mg. T. O.

Case No. 146.—Male, æt. 34, wt. 135 lbs. Seen first March, 1904. Has lived in Colorado most of his life, especially for the last twenty years. First noticed enlargement of cervical glands in 1897, since which time they have gradually been growing worse, had drainage operation done in 1901. Have been discharging more or less since. Examination revealed a large open wound above the clavicle on left side. Smaller wounds on right. Apex of left lung involved. Numerous tubercle bacilli and streptococci in sputum, streptococci in discharge from wound, temperature 38° to 39° C., chills and night sweats. Under antistreptococcus serum the associated infection was soon cleared up, temperature became normal, chills and night sweats ceased. He was then placed on specific treatment, and at the end of three months had gained twenty-three pounds, wounds were all healed, cough and expectoration had ceased. Was kept on treatment for three months longer. Disease arrested and no signs of recurrence up to the present time.

There were four cases of tuberculous otitis media. One has not been heard of for two years. The history of the other three is up to date. All are off treatment four years, with no return of the disease. Hearing was restored only in one case to anything near normal. I shall here refer to only one case.

Case No. 9.—Male, æt. 38, wt. 150 lbs. Seen first January, 1900. Had cough, slight expectoration, purulent discharge from right ear, which had existed for some months. The patient refused to accept the diagnosis of tuberculosis at the time. Not seen again until August 10, 1901, when he had a severe pulmonary hemorrhage, following which tubercle bacilli were found in the sputum. Ear had been discharging pus in the interval between January, 1900, and the time of his hemorrhage. September 20, 1901, was put on tuberculin. At the end of three months all discharge from ear had ceased, cough and expectoration greatly reduced. Four months later cough and expectoration had ceased, since which time there has been no return of any signs of the disease. At present his hearing in the right ear is fairly good. Weight, 184 pounds. For the past five years he has done work on his farm, and appears to be in perfect health.

There were three cases of tubercle deposit in the pharynx, but in only one was there ulceration or open tuberculosis. The interesting point about these cases was the opportunity to study the local reaction from the administration of tuberculin in small doses, on visible tubercles. Six to eight hours or more after an injection of tuberculin there was always to be seen a congested zone around the tubercles, and in the ulcerating case around the tuberculous area.

Four cases of tuberculosis of the bladder were under tuberculin treatment. In these cases the microscopic findings were apparently positive. The possibility of mistaking the smegma bacillus for tubercle bacillus was recognized. In the absence of animal experiments for the purpose of differentiation, the patient was given the benefit of the doubt, and the results seem to bear out the diagnosis. Tuberculosis of the bladder is practically always secondary, and generally the result of tuberculosis of some other part of the genital or urinary tract, and treatment directed to the bladder can have but a temporary effect, as it does not reach the real seat of the disease. It was for this reason that tuberculin was depended on in these cases. From the statements of others and my own limited experience in this field, I should recommend a trial of the specific treatment in bladder tuberculosis before attempting surgical interference.

Three cases of joint tuberculosis were treated by Bier's method of hyperemia plus tuberculin. The more rapid results of the combined method would point to the value and necessity of stimulating the tuberculoopsonins when passive hyperemia is employed in the treatment of such cases. I shall refer to only one case of this class:

Case 198.—Male, æt. 29, wt. 138 lbs. Seen first January 10, 1906. Gave history of having lung involvement for about three years. Had been in Colorado two years. Examination showed involvement of upper lobe of right lung, tubercle bacilli in sputum, swelling of right wrist with characteristic flexed position of hand. Owing to the absence of favorable results following the treatment of such cases with tuberculin by others, I decided to try the combined treatment of passive hyperemia and tuberculin in this case. He was given Koch's new tuberculin in doses of 0.0002 to 0.001 mg. every ten days. The restricting bandage was applied from one to two hours twice a day. The first two months' progress, in so far as the joint lesion was concerned, was almost nil, except that the pain was less on attempted motion. At the end of four months, pain and swelling had almost disappeared. At this time the T. R. was discontinued and the patient instructed to keep up the use of the bandage. September, 1906, four months after T. R. had been stopped, he had no cough or expectoration and the joint disease seemed to have been arrested, but joint somewhat stiff. I probably made a mistake here in not giving

more "joint exercise," as recommended by Bier and his followers. Seen last, March, 1907, when he had good use of hand and somewhat better motion in joint.

The other case of tuberculosis of wrist, quit treatment at the end of three months, with some improvement. In a case of open tuberculosis of index finger of left hand, the result was all that could be looked for except a rather stiff joint, a condition that existed when put on treatment.

Tuberculosis of the testicle occurred in two cases. The second one, being the most extensive, is reported in detail:

Case 150.—Male, æt. 26, wt. 134 lbs. Seen first May 28, 1904. Father and one brother died of tuberculosis some years ago. About April 1, 1902, had orchitis (right testicle), which was pronounced tuberculous, and was removed October, 1902. In the spring of 1903, he began to cough, had fever and night sweats. Came to Colorado October, 1903. Had lost ten pounds during the past three months. Examination showed involvement of the upper lobe of the right lung and apex of the left. Left testicle swollen and tender. Temperature 37.7° C., pulse 108. T. B. in sputum numerous. Was on small doses of tuberculin for five months. An abscess formed in testicle, which was drained, and the wound healed in about three weeks. November, 1904, cough much less. No T. B. in sputum, able to do light work, weight 149 pounds. At present no cough, health good, and weight over 180 pounds.

Case 21.—Did not require any operative procedure, and responded more rapidly to treatment. February, 1906, was in good health (about four years after treatment had been discontinued).

When tuberculin was first introduced by Koch, its properties and action were practically unknown. Each man who used it seemed to have his own ideas as to dosage and physiological action. Even to-day we know but little about its physiological action, but there seems to be a more rational idea as to dosage. The work of Wright has given us an explanation of the action of tuberculin, which seems very feasible, especially under certain conditions, *viz.*, when the tubercle bacilli are free in the tissues and can come in contact with the body juices and the phagocyting leucocytes, as in open tuberculosis. In closed tuberculosis, conditions are different.

A diagnosis of tuberculosis can never be made until after tubercle formation has taken place. Not only has tubercle formation taken place, but very probably many generations of tubercles have formed and ruptured before the lesions have become large enough to produce symptoms from which we could make a diagnosis.

Granting that Wright's theory is correct in so far as it goes, we still have in every case the unruptured tubercle to contend with. "If the walling-in process be sufficient, the imprisoned bacilli disintegrate and die under the process of caseation, liquefaction, and absorption, or calcification, and there is no further harm to the economy, but if the encapsulation be insufficient, the bacilli migrate radially and set up new foci of the disease." (Cornet.)

The capsule of the tubercle is a nonvascular fibrous structure, which serves two purposes: It protects the tissues against the growing and multiplying bacilli; it also protects those same bacilli from the bactericidal substances that may be present in the tissues, whether those substances be the product of natural or artificial immunity. Recently we have heard much about producing immunity by the use of certain tubercle bacilli products introduced into the system, but investigation shows that any immune bodies thus produced have no action upon the encapsulated bacilli. We cannot get around the fact that Nature's way of arresting and curing tuberculosis is the only method by which we may hope to win, viz., by encapsulation, and this encapsulation must be complete.

In visible tuberculosis, as of the eye, pharynx, larynx, or mucous membrane, it has long been noticed that some hours after an injection of any of the tubercle bacilli products, in small doses, a congestion is always produced around the tubercles. Such hyperemia aids in the production of new tissue to the capsule, where Nature has already made an attempt to protect the host. This is what might be considered as the second physiological action of tuberculin.

In the stimulation of the production of tuberculo-opsonins, Wright has shown the necessity for the small dose. The same small dose produces the hyperemia around the tubercle. Seven years' experience with tuberculin, used in small doses, has convinced one of its value in properly selected cases. At no time have I found it necessary to increase the dose to anything like that advocated by some writers.

Tubercle bacilli preparations seem to have a double action when introduced into the circulation of a tuberculous individual, especially in the early stages of the disease: (1) The stimulation of the production of tuberculo-opsonins, which opsonins have a certain unknown action on tubercle bacilli that are free in the tissues, so preparing them that they are readily taken up and presumably destroyed by the phogocyting leucocytes. (2) The causing of a hyperemia around the tuberculous area, thus aiding the process of encapsulation. In both cases the small dose is called for.

We have only begun to learn, in a small way, the value of tubercle bacilli products in the treatment of tuberculous lesions. As the physiological and therapeutic action of the drug becomes better understood, its application in suitable cases will become more general. Tuberculin can never be considered a specific in tuberculosis, but at the present time we know it as a most valuable adjuvant to other well-recognized therapeutic agents in the treatment of tuberculous lesions in the early stages of the disease.

EARLY DIAGNOSIS OF CARCINOMA OF THE SIGMOID.*

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Carcinoma of the sigmoid forms less than two per cent. of all cancer.[1] Its relative importance in abdominal diagnosis is, however, somewhat greater than these figures would indicate, as it holds third place in order of frequency of gastrointestinal cancer, the stomach coming first, and the rectum second. It has an especial interest for the surgeon, since it grows slowly, and does not form distant metastases for a long time. It is also accessible, and is situated in a part which can be sacrificed almost with impunity. But to enter this attractive surgical field under favorable circumstances, an early diagnosis is necessary; and the difficulties which surround an early diagnosis of carcinoma of the sigmoid are a challenge to physician and surgeon alike.

The anatomy of this region is simple. The sig-

*A paper read at the annual meeting of the Monroe County Medical Society, held at Rochester, N. Y., May 19, 1908.

moid forms a loop about 18 inches long, with a short mesosigmoid above and below, and a longer one in the middle of the sigmoid. Its arteries are branches of the inferior mesenteric; its lymphatics drain into the lumbar glands. Its own lymphatic glands are less numerous than those of other parts of the intestine. It follows from these facts that a removal of a part of the sigmoid, and the corresponding part of its mesentery, is not a difficult operation, but that such an operation will be a complete removal of the carcinoma only in the early stages of the disease. When the carcinoma has spread to the lumbar glands, its complete removal will be impossible.

Before taking up the symptoms upon which we must rely to make an early diagnosis of carcinoma of the sigmoid, let me give very briefly the histories of three patients upon whom I have operated at different times for this disease.

Case I.—The first was a man aged 53, who for six months had suffered from increasing constipation, with a good deal of pain in the lower left abdominal quadrant. The pain and constipation had at times been much worse than at others, so that on several occasions the patient had been threatened with complete obstruction if one may so express it. He had not observed any blood or mucus in the stools. There had been a gradual but progressive loss of flesh and strength, but up to the occurrence of an acute obstruction for which I was consulted, he was able to attend to business every day. When I first saw him there had been no movement of the bowels for four or five days, and there was gradually increasing vomiting, abdominal distention, and pain. He was still in good general condition. In other words, he had the symptoms of a complete obstruction of the large intestine low down, for the relief of which immediate operation was indicated. I held the hope and expressed it to the family that the cause of obstruction might be purely mechanical, such as a volvulus. In the light of subsequent experience I know such a hope to be absolutely groundless, for the man's history, though less exact in details than we should like it to be, is typical of carcinoma of the sigmoid. Operation revealed that the obstruction was due to such a growth; that the disease had involved the whole wall of the intestine, and had also attached to it two loops of small intestine. An artificial anus enabled the patient to go about in comparative comfort for some months, and postponed the death for more than one year.

Case II.—The second patient was a woman nearly fifty years of age, who was slowly dying from recurrent carcinoma of the breast. She had the same abdominal symptoms as the man just spoken of. There was gradually increasing constipation with occasional acute attacks, going on to almost complete obstruction. As a tumor was palpable there was no difficulty in establishing the diagnosis. She would not consent to operation, however, until complete obstruction occurred. By that time the growth in the sigmoid had already become attached to the bladder, so that complete removal was out of the question, even if she had not had a recurrent carcinoma of the breast. An artificial anus was established which performed its functions well until death, about six months later.

These palliative operations are a physical relief to the patient but they bring little credit to the surgeon, since the attention of the patient and his family is fixed, not on the pain which he has escaped, but on the sad fate which is before him.

Case III.—The third patient presented a more pleasant surgical task. Mrs. L., aged 55, a stout Irish widow, not unfamiliar with beer and whiskey, had always been healthy. For some months previous in her admission to the New York City Hospital she had suffered with constipation, rarely having more than two movements a week, and often only one. The stools were small and hard, otherwise normal as far as she had noticed. Associated with the constipation there was a feeling of itching or burning in the lower left side of the abdomen. One night she awoke with cramps in the abdomen. There had been no movement for two days. This was not unusual, but she did not like the severe cramps, and she took the following day, in order to relieve herself, citrate of magnesia, Seidlitz powders, and salts. They produced vomiting, but no movement of the bowels. The vomiting was a new symptom. In one of the medical wards of the hospital, enemeta and additional cathartics failed to effect a passage, and the question of surgical interference was raised.

When I saw the patient she was still in good condition, with no fever and a good pulse. It was then five days since the last movement of the bowels. The abdomen was uniformly distended to a moderate degree and tympanitic. There was no localized pain, nor tenderness, nor muscular rigidity, and no tumor was palpable. It was evident that the patient was suffering from complete obstruction, very low down in the large intestine. Rectal examination revealed nothing abnormal, but the fact that the patient could hold only a pint of fluid given by rectum, confirmed the theory that the obstruction was low down. Peristaltic motion was still active, as shown by rythmic cramps, as well as by auscultation; but no gas passed the anus. The diagnosis made was stricture of the sigmoid, probably malignant, and operation was performed at once.

An incision was made at the outer border of the left rectus. The moderately distended small intestines filled the field of view. The upper part of the sigmoid was brought into the wound, and was not greatly distended. By following it downward, the finger came upon a hard mass, of scarcely larger caliber than the normal intestine, and not adherent to any surrounding part. It was so low down, however, that it could be brought out of the wound only by dividing a part of its mesocolon. It was a constricting tumor of the sigmoid, and it had already penetrated the serous coat, where it was growing in little red masses characteristic of a carcinoma.

The affected intestine and a considerable portion of healthy intestine both above and below the tumor was freed by division of its mesentery, and brought well out of the wound. The peritoneal cavity was closed around it, and the loop of bowel wrapped in gauze. Owing to the necessary division of blood-vessels, nearly the whole of this displaced bowel became gangrenous. This had no effect on the subsequent steps of the operation, but spoiled the pathological specimen.

A week later the surplus bowel was excised and the ends sutured. Owing to the rigidity of the intestinal wall, it was difficult to approximate the two ends properly, and the suture did not hold. Another plan was then adopted to reestablish the continuity of the gut. The intervening septum, or spur, was cut through by crushing it between the jaws of a large curved clamp. This was done three times, at intervals of a few days, until a deep division of the septum was obtained. Only at the third application of the clamp did the patient feel any pain. The opening in the bowel was then closed once more by suture, and this time the stitches held. A small fistula still remained, which healed spontaneously, as there was an ample lumen at the point of resection and suture. This course of operative treatment

occupied about three months, or nearly six months, if one reckons the time until the fistula was finally healed. Twenty months later the patient was in excellent health and apparently free from recurrence.

Analysis of Early Symptoms.—Carcinoma of the sigmoid occurs in both men and women. The age of the patient is usually between forty and sixty years. Early symptoms naturally fall into three groups. There are the local symptoms of pain, tumor, and abdominal distention; the general symptoms of altered stools, loss of flesh and strength, and cachexia; and a third group of symptoms due to the presence of partial or complete obstruction of the bowel.

Of the local symptoms, pain is the most important and usually the first noted. It is referred to the lower left quadrant of the abdomen. It varies greatly in amount in different cases. It may be slight or severe. If present at all, it is more or less steady until the tumor begins to interfere with the passage of the feces through the sigmoid. Then the pain comes on in rather distinct waves, as the colon by increased peristalsis tries to force its contents through the narrowed sigmoid. Both kinds of pain, the steady kind and the peristaltic kind, are much more marked at times when the fecal masses are hard and accumulate in unusual amount.

The presence of a tumor is not usually observed at an early stage of the disease. Indeed, when it occurs early, it is rather suggestive of nonmalignant disease, as is mentioned in a later paragraph on differential diagnosis.

Abdominal distention in an early stage of the disease is associated with partial obstruction of the bowel. Otherwise it is not of common occurrence, and has little diagnostic value, being found in too many other conditions.

Increasing constipation is an almost constant symptom. Taken with the pain, it forms the most reliable basis for early diagnosis. But the constipation does not increase steadily. On the contrary, there is usually an irregularity in the increase, so that one may well speak of acute attacks of constipation, superimposed upon a chronic constipation. That is to say, the movement of the bowels will become scanty and infrequent, and perhaps cease for three or four days. Then, as the result of cathartics or enemata, there will be three or four movements, the last probably loose. After this the bowels will act satisfactorily for a few days, or possibly for some weeks. Then another attack of constipation comes on. Inquiry will show that these attacks of constipation tend to recur at shorter intervals and that stronger cathartics are required to overcome them.

Alternating constipation and diarrhea are a natural development of this increasing obstruction, but are usually not well marked until an ulcer forms at the site of the tumor or in the damaged intestinal wall above it. Such spontaneous diarrhea following a period of constipation is not to be confused with the loose movements following the administration of strong cathartics to overcome the constipation. Such movements cannot properly be classed as a symptom of the disease, and care should be taken to exclude them before making the statement that alternating constipation and diarrhea exist.

The characters of the stools themselves are seldom of assistance in making an early diagnosis. Blood and mucus are rarely seen at an early stage. It is important to remember this, as blood in the stools is usually mentioned as one of the symptoms of carcinoma of the sigmoid. It is a symptom of the ulceration, and, therefore, a later symptom. We are considering here the early diagnosis. One should never decide that a patient has not a carcinoma of the sigmoid because the stools do not contain blood. Many patients who have such cancer go on to complete obstruction or even death, without visible blood in the stools. The occurrence of blood and mucus in the stools is closely associated in time and origin with the alternating diarrhea and constipation.

Loss of weight is an early symptom, though, like cachexia, it is more noticeable at a later stage of the disease. Those who make a practice of weighing regularly all of their patients know that loss of weight is an early symptom of many obscure diseases.

It seems rather odd to class obstruction as an early symptom, but we are justified in doing so both pathologically and clinically. Carcinoma of the sigmoid is usually annular, and often it gives symptoms of partial or even complete obstruction before it has involved more than an inch or two of bowel. This was so in the third case mentioned at the beginning of this paper. Clinically, it must stand at present as an early symptom, for many of these patients do not consult us until they suffer from some form of obstruction. Yet many of them do come earlier for pain, or constipation, or malaise, and we fail to realize the possibilities that underlie these symptoms.

If obstruction occurs, it is of the mildest type possible. For a time some gas may pass the constriction and serve to postpone the marked abdominal distention, which is a feature of all complete obstruction of the large intestine. If the stricture is situated as low down as the sigmoid, complete obstruction may exist for several days before there is vomiting or serious pain or distress. This is, of course, due to the fact that the patient has nearly the whole of his large intestine as a temporary reservoir for gas and feces, so that if he eats little it may be some days before the small intestine and stomach show signs of the obstructed flow.

Physical Examination.—The conditions found upon examination are quite different when an acute obstruction is present and when it is absent. If the patient is seen between the attacks of acute constipation, when the large intestine is not overfilled, examination of the abdomen will reveal tenderness in the left iliac fossa, especially when rectal and abdominal examination are combined. If the patient is thin and a growth is situated in that portion of the sigmoid which is normally palpable, a tumor should be felt at a very early stage of its development. If the patient is stout, or if the growth is situated in the lower part of the sigmoid, a tumor cannot be felt at an early stage. The tumor, if felt, will be small and movable at an early stage of the disease. When the growth has reached the serous coat of the bowel, adhesions form which limit its mobility. A large or immovable tumor palpable within a few weeks after the first symptoms are noticed by the patient is probably nonmalignant; a point which will be again referred to in connection with differential diagnosis.

The rectum is to be examined with the finger and through a tube. If the tumor can be felt, it is of the rectum and not of the sigmoid. Inspection through the endoscope may reveal merely a constriction, or a tumor, or an ulceration secondary to the cancer, or nothing abnormal. Failure to find even a constriction does not prove its absence, since only a little more than the lower half of the sigmoid can be seen under the most favorable circumstances. The tube used for this inspection should be not less than

twelve inches long, though in many cases not more than eight or ten inches can be passed. A simple tube and obturator with light reflected from a head mirror will suffice, if one has not at hand the more elaborate style of endoscope with pneumatic and electric attachments.

Another method of examination which should not be omitted is the pumping of air or water into the rectum and observing resulting changes in percussion and auscultation. Sometimes a distinct gurgling marks the site of constriction.

If the patient is seen during an attack of acute obstruction, the abdomen is distended with gas at least sufficiently to defeat palpation. There may be visible peristalsis. There may be an area of dullness in the left lower quadrant, due to accumulation of fecal matter above the constriction. Water or air injected into the rectum will probably not pass the constriction. In this case, not more than a pint of water can be injected, as this is about the capacity of the rectum. The sigmoid, it will be remembered, holds about a quart, and when the carcinoma is high up in the sigmoid, some of this capacity is available, even though obstruction is complete.

Differential Diagnosis.—Chronic Constipation—In making a differential diagnosis, we shall have to consider first of all chronic constipation. This often shows a tendency to increase as a patient passes middle life, and on account of injudicious diet, lack of exercise, or for some other reason, it varies in intensity, and may even be interrupted by short periods of diarrhea. It may also be accompanied by a diminished appetite, poorer color, and a loss of weight. The chief points which distinguish chronic constipation from the irregular intestinal action due to malignant disease, are the long duration of symptoms and the absence of abdominal pain, except such colic as may accompany an attack of diarrhea. In the simple nonmalignant cases of constipation the symptoms will have lasted for years. However, it is well to remember that a carcinoma of the sigmoid may develop in a person who has long been constipated from some other cause.

Sigmoiditis.—The occurrence of an acute or subacute inflammation of the sigmoid was formerly denied by some of the most prominent writers. Whether they have all retracted or not it is not necessary to inquire. For our purpose it is enough to know that many cases have recently been reported, in some of which the diagnosis has been confirmed by operation. Without going into the various classifications of such inflammation which some writers have proposed, we may also admit that the various forms of catarrhal, ulcerative and perforative inflammation may occur in this region. Such an inflammation may vary in intensity, a it may be confined to the mucous membrane or penetrate the deeper layers of the intestine, or, extending through the intestinal wall, the inflammation may lead to the development of localized abscesses, sinuses, and fistulæ. It is evident that the symptoms in different cases will vary a good deal; and yet it is possible to speak of the typical set of symptoms. The inflammation is usually chronic with acute exacerbations. In the acute stage there is fever with tenderness and muscular rigidity, colicky pain, and perhaps fetid or purulent stools. In the subacute or chronic stage, the patient may be constipated or there may be diarrhea with blood and mucus in the stools. There is more or less constant pain. The sigmoid is palpably thickened and tender for a distance of several inches. Such a tumor is often movable. It does not disappear promptly after an evacuation of the bowels is obtained. The colon above the sigmoid is often distended. A marked restlessness or nervousness has been observed in some patients. Naturally, in these cases there is often a considerable loss of weight, which may be quickly recovered, upon suitable diet. If under treatment the inflammatory symptoms subside, the patient gains in weight, and the stools become normal, the suspicion of malignancy is lifted. If an ulcer of the sigmoid leads to perforation, usually through one of the diverticula, and the abscess which results is limited either by adhesions or because it forms retroperitoneally, the patient will present some symptoms similar to those of malignant disease, but the picture is so essentially inflammatory that a careful investigator is not likely to be misled.

Tuberculosis and Syphilis.—Tuberculosis and syphilis of the sigmoid are so rare that a brief mention of them must suffice. The former leads to adhesive inflammation and sinuses; the latter has its own history in many cases, and generally other lesions in other parts of the body.

To sum up the chief points in differential diagnosis, we may say: If the disease is located in the left iliac fossa, with symptoms of increasing constipation for six months or less, possibly with occasional diarrhea without blood, with local pain and some impairment of strength, there is strong suspicion of malignancy, especially in a person of middle age or beyond. If a small movable tumor can be felt the diagnosis is almost certain.

If there is a history of diarrhea and constipation, with mucus and blood almost from the beginning of the illness, or if the history includes an acute inflammatory attack, or if there is a large movable tumor, or a continuation of symptoms for a year or two without great impairment of health, the affection is probably not malignant.

Complete Obstruction.—If the patient when seen is suffering from complete obstruction, it will be necessary to consider, in addition to the possibilities mentioned above, mechanical obstruction, such as volvulus of the whole sigmoid, obstruction due to bands, etc. The absence of symptoms previous to the occurrence of the acute obstruction, will usually serve to differentiate the two kinds of obstruction; but should a mistake be make in this direction, it is not serious, as the treatment indicated is in both cases immediate operation.

Treatment.—It is not the purpose of this paper to treat the subject of carcinoma of the sigmoid exhaustively, but rather to suggest the possibilities of an earlier diagnosis than is usually made. The remarks upon treatment will, therefore, be very brief.

It has for many years been recognized that primary resection of the large intestine followed by closure of the abdominal wound is a dangerous procedure, even when the intestine contains only the normal amount of fecal matter. There are several reasons for this, which it is not necessary to mention in detail, but the chief one is undoubtedly the absence of peritoneum from a considerable portion of its circumference. The risk of resection is greatly increased if performed in the presence of partial or complete obstruction.

As long ago as 1879, Baum[2] proposed and carried out a plan to lessen the risk. His idea was to perform colostomy some distance above the tumor in order to relieve the distention, if such existed, and also to divert the fecal stream. Some days later he performed a resection, and the sutured intestine had time to unite before any feces passed through it. This plan of procedure has been followed by many surgeons and is still in use to-day. If the tumor is

situated in the sigmoid, the artificial anus is usually established in the transverse colon.

In 1892, Bloch[3] performed what he called an extraabdominal resection of the sigmoid, dividing the operation into three steps or stages. At the first one, the tumor was brought out of the abdominal wound, and the intestine was opened above the constriction. At the second step, taken some days later, the protruding intestine was resected. The operator then waited four months, to make sure that there was no local recurrence of the tumor, and then performed the third part of the operation, which consisted in freeing and suturing the edges of the intestine.

This method of operating seems to possess certain distinct advantages over Baum's method, especially in cases of carcinoma of the sigmoid. The technique was perfected by Mikulicz,[4] and a description of it was published by him in 1902. His plan is to free the tumor and the adjacent involved lymphatics, dividing so much of the mesocolon as is necessary to bring the affected intestine out of the wound. The edges of the parietal peritoneum are stitched to the upper and lower portions of the intestinal loop with catgut in order to close the peritoneal cavity, and to prevent the intestine from drawing back into it. The wound in the skin is also partially sutured. In his earlier operations, Mikulicz delayed resection for one, two, or three days. In his later operations, he cut off the protruding loop of intestine at once, and tied in its upper opening a large tube, in order to convey the feces away from the wound. This immediate resection is undoubtedly the proper procedure to follow, for the loop often becomes gangrenous in part, owing to the disturbance of its blood supply. Two or three weeks later, Mikulicz crushed the septum or spur between the upper and lower openings in the intestine, and closed the external intestinal wound by suture. This reduces the operation two steps, unless it is necessary to repeat the second one.

Performed in the manner last described, resection of the sigmoid flexure is almost without risk; whereas by Baum's method of operating there is some risk of peritonitis, even when an empty intestine is resected and sutured. Baum's method also requires two abdominal wounds.

The chief objection which may be urged against Bloch's extraabdominal resection is the possibility that it may be followed by hernia. If this occurs a third operation will be required in order to cure it, but as the intestine need not be opened at this operation, it does not add greatly to the risk. All things considered, this is a most satisfactory method of operating for carcinoma of the sigmoid, and deserves a much wider recognition than it enjoys at present.

There is one point in connection with crushing the septum which I have not seen mentioned, and which is worth observing. Before the intestine is sutured to the parietal peritoneum, its upper and lower portions should be slightly rotated upon themselves, so that their peritoneal surfaces will lie in contact. If this is done, the septum will contain no sensitive nerve fibers, and may, therefore, be crushed absolutely without pain.

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THE PAINFUL CUTANEOUS ZONES IN VISCERAL DISEASE.*

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It is surprising that such an important subject as the one indicated by the strain of this paper should have received so little attention. In 1893, Henry Head of England published in Vol. XVI. of *Brain* an article in continuation of his Graduation Thesis on the same subject, appearing in 1892, in which he maintained that pain caused by visceral disease is referred to definite cutaneous areas, which are distinct for each organ affected, and in which tenderness often exists. These areas correspond to the distribution of the pathic fibers contained in one or more posterior spinal roots. By mapping out the tender area, it is possible to ascertain from which portion of the spinal cord the affected viscus receives its sensory fibers. He found that the tenderness from visceral disease extends as a band around the body and over points where pressure cannot affect the diseased organ. Pain from affection of the peritoneum and pleura is local, not referred, and the tenderness is absent from bony points, such as the iliac crest and vertebral spines, where pressure does not affect the serous membrane. The reflexes are always exaggerated over the hyperalgesic zone.

Cedrangalo, Scherrington, and Starr have found, after a long experimentation, these hyperesthetic zones described by Head, the areas being segmental regions of the body corresponding to the various viscera.

Bennett, in the *Lancet* of October 12, 1907, reports three cases in which purely thoracic symptoms led to the diagnosis of acute appendicitis. In two of his cases of gangrenous appendicitis, they exhibited thoracic symptoms. He found those areas of hyperesthesia to correspond roughly to the anatomical divisions of the abdominal wall so far as the point of greatest intensity of the hyperesthesia is concerned. He found the hyperesthesia most intense (*a*) at McBurney's point, (*b*) at the umbilicus, (*c*) at the level of the ninth rib. On the right side the hyperesthetic area over McBurney's point is usually associated with the appendical diseases. The zone corresponding to the umbilicus is frequently associated with inflammation or abscess above the lower surface of the diaphragm. The pleura or peritoneum must always be affected to elicit this phenomenon. In the absence of involvment of these coverings, disease of the viscera cannot very well be interpreted by this sensory phenomenon. However, I have been able to elicit it in gastric ulcer and in aneurysm of the ascending arch of the aorta, where the serous coverings could hardly have been affected.

In chronic disease, with resulting pathological formation of new tissue causing adhesions, it is hard to elicit the zones. However, in many cases of chronic vesceral involvement, I have been able to elicit them. In the acute stages of visceral involvement they are conspicuously observed. Bennett has found that when the hyperesthesia is marked in a disease of acute onset, it most frequently points to surgical complications, usually to abscess, empyema, or gangrene.

Joseph Fränkel of New York, in a paper read before the Neurological Society, April 19, 1906, says that he found the evidence of disturbed sensation in visceral disease a valuable sign. In his experience

*Read at a meeting of the Philadelphia Neurological Society April 24, 1908.

he found it a great aid at the bedside, frequently illuminating many ill-defined and vague symptoms.

The explanations of the phenomena are necessarily theoretical and the views so numerous that I will only briefly mention those most frequently considered: (1) The epicrutic and protopathic sensory pathways. (2) The existence of special areas of specific sensibility. (3) The intercommunication of, or the direct accompaniment of, an afferent to every efferent nerve. (4) Pacinian bodies. (5) Corticospinal, visceral, and cutaneous zones. (6) Special temperature spots, etc.

The physiological laboratory has taught us that the stomach, liver, heart, lungs, and kidneys can be handled without causing any pain; the pleura, pericardium, peritoneum, meninges, the serous membranes, the skin, the fascia of the muscles, tendon sheaths, periosteal layer, and synovial membranes, on the other hand, give pain when handled. However, recent laboratory research has produced contrary evidence, namely, that the viscera are capable of responding to painful stimuli, though not able to localize them correctly. Dana and MacKenzie, in 1890, were the first to draw attention to the cephalic areas by associating the location of a headache with its possible visceral origin, in bladder, stomach, uterus, etc. Starr and McBurney, in experimentation along this line, conducted at Roosevelt Hospital in New York, elicited this phenomenon in about 12 per cent. of their cases. Wm. H. Thompson has had a variable experience, finding this sign present in a great many cases, and absent in many where it was expected to be most prominent. Hunt has found this a valuable diagnostic aid in cases of gastric ulcer and gallstones, especially in neurotic individuals. I have asked several other prominent clinicians what their experience has been with this sign, but, unfortunately, they had never heard of it.

Method of Eliciting the Head's Lines.—The patient, after having had his history carefully recorded, is given a thorough general examination. When ready to test for Head's lines it is best that the patient lie supine and perfectly relaxed. If possible, he should have no distention of the abdomen, due to fecal accumulation, likewise the bladder should be emptied voluntarily. A pin, toothpick, or any pointed instrument, the fine electrode of the faradic current, test tube of hot or cold water, or even picking the skin up between the fingers, is employed to elicit this reaction. The patient, looking away from the examiner with his mind diverted from himself, the physician places the pointed instrument over the various zones of the abdomen. When the suspected area is reached there is a decided change. Here, the reflex is exaggerated, the pain is more intense, localized. In stroking my pin over the suspected zone, I first lightly touch the skin with the point, holding the instrument in the position as if ready for puncture. If the hyperesthesia is uniformly complained of without the objective reflex, it usually means a psychic element. One will find in such case that the touch with the pin over the same spot a few seconds later causes no pain at all.

A good way to outline a satisfactory area is to test the suspected zone by lines, drawn across the zone, say four inches long, forming by intersections several squares within the square. The center of each little square in the typical case exhibits this hyperesthesia and reflex at the slightest touch.

Occasionally hysteria and other functional and organic nervous affections may stimulate these hyperesthetic areas, but the history of the case, the indefiniteness of the area, the absence of objective reaction in the reflex or hyperemia, the failure to respond in the same way when the area is retested, all speak against the true Head's zones.

In the cases I report below the hyperesthetic zone was a most valuable aid. To me it almost seemed the most important symptom. The laboratory analysis was a complete one, but unfortunately, frequently threw little light as to the real condition.

Case I.—S. B., tailor, age 45, Russian, married, has five healthy children, comes from a healthy parentage. Has always had indigestion. For the last five years has been treated by some of our most eminent specialists for chronic constipation. He always complained of a "hard stool," and pain after eating. The character of the pain was variable. At times it would be at the xiphoid cartilage, sharp, and preceding meals, then dull and constant, frequently boring, aggravated by eating. The location would likewise be varied. During the last year he had lost thirty pounds in weight, felt weaker than usual, pain less, appetite better, but skin more yellowish than before. He had always had a yellowish complexion. Physical examination could detect no evidence of any growth.

Laboratory analysis, according to D. M. Kaplan's chart, which I employ: Blood, October 14, 1907. Hemoglobin, 80 per cent.; R. B. C., 4,850,000; W. B. C., 7,000; basophiles, 1 per cent.; neutrophiles, 74 per cent.; large lymphocytes, 12 per cent.; small lymphocytes, 18 per cent.; larger mononuclears, 3 per cent.; eosinophiles, 4 per cent.; nucleated cells, 5 per cent.; microorganisms, none. The blood examination at the German Hospital, to which I had him admitted, in Dr. Deaver's service, showed similar findings.

Uranalysis.—Twenty-four-hour specimen, 1,500 c.c.; S. G., 1,024; reaction, acid; color, amber; odor, urinous; transparency, fair; sediment, some; albumin, none; urea, 30 grams; indican, plus; chlorides, plus; sulphates, plus; blood, none; bile, none; sugar, none; Diazo, 4 times out of 10 positive; calcium oxalate, present; amorphous urate, present; casts, cylindroids; epithelial cells, none.

Feces.—Number of stools, one; ribbon-shaped, hard, dry, small piece; clay color; little odor; hydrobilirubin, slight trace; occult blood, none; parasites, none; food rests, none; mucus, none; blood, none; a few triple phosphate crystals, vegetable cells, and oil.

Stomach outline, normal; vomitus, none; tube of caliber 34 introduced easily twenty-two inches. Last food taken ten hours previously, consisting of cup of tea, two pieces of toast; time of test, 10 A.M.; quantity obtained, 150 c.c.; gross appearance, particle of bread, apple, crackers, tomatoes.

Chemical Analysis.—Lactic acid, twice out of six tests; free HCl present every time; no butyric or acetic acid; occasional traces of blood, no bile.

Ewald's Test Meal.—Quantity, 200 c.c.; time of ingestion, 9 A.M.; time of removal, 10 A.M.; quantity obtained 300 c.c.; degree of subdivision of particles, almost as ingested, with a very sour odor. Absorption power, poor; iodine appeared 1 hour after administering a capsule of 5 grs. of potassium iodide. These examinations did not point to the real nature of the malady. The only point of interest and bearing seemed to be tenderness on palpating the epigastrium, however with no focal intensity of pain. I tried for Head's zones, and found, at about the eighth interspace, on the right side, an area of hyperesthesia, exaggerated reflex, and delayed hyperemia. There was no nervous element to be considered. In considering the fact that the

patient had been suffering so many years from indigestion, losing thirty pounds within one year, showing evidence of beginning emaciation, despite the negative laboratory examination, and from the light in the nature of Head's zones, I made the diagnosis of beginning cancer of the posterior wall of the stomach. The patient was admitted to the German Hospital, where Dr. Deaver and the house staff, who examined him, did not regard the case as one of cancer, but of chronic constipation. I urged the operation. At operation Dr. Deaver, after a few minutes' search, came across a mass about the size of a large walnut, hard, and situated on the posterior wall of the lesser curvature near the pylorus. Microscopic examination showed it to be a scirrhous carcinoma. A gastroenterostomy was done, and now the patient has gained seventy pounds since the operation, and is enjoying excellent health. Dr. Salinger saw the case with me in consultation.

Case II.—Patient 48 years old, express agent, Hungarian. Mother had cancer of uterus. Is married. Has four healthy children. Always enjoyed good health until last fall, when he consulted Dr. W. W. Babcock for "sour stomach." In about a week's time was much improved, but felt a heaviness after eating, a dull ache lasting for a few minutes, mostly confined to the liver area, and a desire to fall asleep immediately after eating. He again consulted Dr. Babcock, who soon relieved his distress, and the patient was free from all annoyance for two months. Three months after he first began to be troubled with his stomach, he felt himself becoming weaker every day. He could not sleep; he was nervous; his right side felt heavier than before, but he had no particular pain. After eating, he felt "all stopped up." Lost ten pounds in four weeks. Came under my observation February 12, 1908.

Physical Examination.—Showed a splendidly developed, well-nourished man, weighing 185 pounds; he was slightly pale and careworn; tongue coated; reflexes increased all over; no organic affection of the nervous system. Over the liver a tender area was outlined on deep pressure. Stomach outline was slightly increased. There was a well-developed Head zone, area of hyperesthesia, and exaggerated reflex, on the right side of the level of the ninth rib, and in the midclavicular region. After combining the evidence of the laboratory, I diagnosed his condition as probably a malignant tumor of the pylorus, developing from a previous gastric ulcer. The patient, like the previous one, had never vomited during his illness. His bowels were regular, though the passages were incomplete, and the feces were hard and foul-smelling. The patient felt better after eating. I made three analyses of his urine, blood, feces, and gastric contents on three different visits, two days apart, and give below the average findings. After his third visit, I advised him to be operated on immediately. He refused, went to New York, where he received Christian Science treatment for two months. He came back last week to see me.

Physical Examination Three Months after First Visit.—Weight, 138 pounds. Yellowish all over. Palpable tumor about 10 cm. long and 5 high, right below xiphoid cartilage. Could hardly walk, was so weak. Patient is now in hospital, with inoperable tumor of the stomach, impatiently awaiting his call.

Blood.—Hemoglobin, 95 per cent.; R. B. C., 5,000,000; W. B. C., 5,000; basophiles, none; neutrophiles, 68 per cent.; small lymphocytes, 60 per cent.; large lymphocytes, 24 per cent.; large mononuclears, 2 per cent.; eosinophiles, 2 per cent.; transitional, 3 per cent.; microorganisms, none.

Uranalysis.—Twenty-four-hour specimen, 1,800 c.c.; S. G., 1,018; reaction, acid; color, pale; odor, urinous; transparency, clear; albumin, sugar; bile, blood, none; Diazo, negative; urea, 2 per cent.; indican, positive; chlorides, diminished; sulphates and phosphates, increased; calcium oxalate, triple phosphate, and amorphous urates present; a few bladder epithelial cells; no casts.

Feces.—Number of stools in the twenty-four hours, three; countless scybala, in a semisolid, foul, acid-smelling stool; hydrobilirubin, present; no occult blood; no food rest; mucus absent; blood present, most probably from bleeding internal hemorrhoids; a few triple phosphates, calcium soaps, crystals, fat, vegetable hairs, Charcot-Leyden crystals.

Stomach Contents.—Stomach outline dilated. Vomitus, none. Aspirated by tube of caliber 34, introduced 28 inches easily. Last food taken twelve hours previously. Cup of tea, two pieces of toast. Time of test, 10 A.M. Quantity obtained, 300 c.c. Gross appearance, particles of toast in water. Chemical analysis showed no lactic acid; diminished free HCl, no acetic or butyric acids, no bile.

Rieger's Test Meal.—Quantity, 350 c.c. Time of ingestion 11 A.M. Removal, 12:15 P.M. Quantity obtained, 400 c.c. Degree of subdivision of particles but little changed; more acid odor.

In this case, as in the preceding, the painful cutaneous area was one of the most prominent symptoms pointing to a visceral disease.

Case III.—Male, 54, laborer, married, no children. Always enjoyed sound health. Twenty-one years ago contracted syphilis, which soon disappeared after specific treatment, and he felt well until one year ago, when he had a pain in the right shoulder; it was sharp and shooting, and radiated toward the right parietal region. When this pain came on he suffered great agony. At times the pain was worse over the right shoulder and arm. There was a fine tremor of his hands. Reflexes increased. Tongue was coated and tremulous. Pupils dilated, otherwise normal. Vision was unaffected. Inspection of painful area showed nothing. Palpation was most tender over the middle of the right clavicle, and especially so on deep pressure. A mass could be felt which was semisolid, immovable, not expansible. Head's zone was present in the form of hyperesthesia and increased reflex along the right carotid. Pain most intense in the supraclavicular region. Heart sounds were slightly accentuated. Lungs apparently normal. I diagnosed the condition as an aneurysm of the ascending arch of the aorta, and showed this patient to Dr. Gordon, who agreed with me. He was admitted to the Jefferson Hospital under Dr. Kulteyer's care; after treatment, he felt so much improved that he left to go home. Several specialists who had seen the patient, diagnosed his condition as hysteria, brachial neuritis, cervical rib. I had an *x*-ray taken, which showed a tumor of about the size of two fists, passing from the aorta toward the sternum. In this case, after I excluded organic nervous disease and hysteria from the exaggerated reflex and hyperesthesia, I was led to suspect some deep-seated tumor, which was causing these pressure symptoms.

Case IV.—G. A. B., 17, epileptic. Parent, alcoholic. Referred from Gynecological Department for report of an examination, which revealed a highly neurotic state. She was extremely emotional, with no symptoms, however, pointing to direct involvement of the brain, outside of her major epileptic seizures. Stigmata of hysteria, spinal and mammary, were present. No symptom of cardiac dis-

ease. Her chief complaint was a pain along the right iliac region, which was very severe during the menstrual period. I carefully examined her abdomen. The right side gave evidence of hyperesthesia, which, however, would be easily suspected to belong to her hysteria. The left iliac region presented a slight prominence, which was tender to all tests for sensibility. Here there was an actual exaggeration of the reflex, an increased hyperemic area, a more localized and well defined area of greatest intensity to the stroke of the pin. I interpreted her condition as a tumor of the left ovary. On speaking to Dr. Bland after our department reported its findings, he told me it was confirmatory of his examination, which had elicited a large mass of the left ovary.

Case V.—J. W., male, 38, watchmaker, married. Was suddenly seized with pain in the right inguinal region; vomited, and had all the symptoms of shock. Up to this time he had always been a healthy man. On October 18, he recovered from this attack, and came to my office, as the pain, though not severe, still existed. When I examined him I found him normal in all respects, until I came to his abdomen. He had a dilated cecum, a tenderness on superficial, and deep palpation along the course of the right ureter. His urine, however, was normal, except for an increased indicanuria. A hyperesthetic zone, with an exaggerated reflex plus a vasomotor disturbance manifested in the hyperemia exhibited on scratching the skin, and a rectal temperature of 100°, led me to suspect a gangrenous appendix. Dr. Deaver operated on the patient, and took out some remains of the gangrenous organ. For many weeks this patient was in a precarious condition, as he developed a thrombosis of the popliteal artery fou. days after the operation.

Case VI.—Physician, aged 40, seen with Dr. Maurer. Patient was a well-built man, of good musculature, though showing evidence of emaciation. He had always been in good health, except for a susceptibility to neurasthenic attacks, referable chiefly to his heart. His family history was a discouraging one, both parents dying from cancer of the stomach, sister from cancer of the uterus. On December 10, 1907, I first examined his urine, without having seen the patient, reporting back to his physician the presence of albumin, indican, a few red blood cells, and casts in his urine. Ten days later I saw the patient personally, and examined him, finding a large tumor above the gall-bladder. Without going into the details of his present illness, I may briefly state that for the last ten months he had been feeling miserably weak, could not eat, everything nauseated him. Was constipated, and suffered day and night from pain over his liver. I did not subject him to gastric lavage. His condition was too evident. Head's line was most conspicuous over the swollen area. We diagnosed this case as an inoperable tumor of the pyloric end of the stomach. He was seen by Dr. Deaver, Dr. Steinbach, and Dr. Cohen, all of whom advised against operation.

Case VII.—A lad, 18 years of age, who had his right testicle removed two years ago in a hospital in Indiana. He was suddenly seized with severe pain at that time, consulted the surgeon of that town, who removed the right testicle a day after. Dr. Steinbach, who now has charge of the case, at the Jewish Hospital, communicated with the hospital in which he was operated on, and received the report that the testicle was the seat of a beginning sarcoma. Two weeks ago the patient came to see me, suffering from a large mass about the size of a hand in the left iliac region. His mother had died from a tumor. His early history had no bearing on his present condition. To be brief, I may state that he presented the picture of one in the last stages of this malady. A hyperesthetic area was present and an exaggerated reflex was elicited over this mass. I did not subject the patient to a long examination, for he was too weak and sick. Dr. Deaver, who saw him, refused to operate, suggesting as a last resort Coley's fluid. I do not believe the patient went to New York for this treatment. He is now spending the remaining few weeks of his life at the Jewish Hospital.

I recently saw a patient who had been under Dr. Eshner's care for a long time, suffering from a chronic parenchymatous nephritis, who presented a marked hyperesthesia, an exaggerated reflex over both lumbar regions.

The following table gives the result of an examination for the Head lines and zones in 93 cases:

	No. Examined.	*Head's Lines. Present.*
Appendicitis:		
Acute	20	20
Chronic	12	10
Gangrenous	5	2
Uteroovarian disease, with inflammation of the adnexa.	24	10
Gastric ulcer	10	10
Gastric carcinoma	8	7
Ureteral calculus	1	1
Gall-bladder disease	13	7

This is a subject which should receive more attention, not only from our specialty, but from the departments of internal medicine and surgery, and as one requires no other equipment but the patient in which to study and investigate along this line, it should be a welcome field of study for the general practitioner.

In closing, I want to express my deep appreciation to Dr. Dercum and the neurological staff at Jefferson for their kind assistance in my work along these lines.

2012 N. Park Avenue.

FOUR CASES OF PERFORATING ULCERS OF THE ALIMENTARY CANAL.*

By H. BEECKMAN DELATOUR, M.D.,
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In this communication I will present simply the histories of these four cases without extended comment.

Case I.—Male, 33 years, patient of Dr. J. W. Malone, admitted to the Methodist Episcopal Hospital November 13, 1906. Was seized with severe abdominal pain which in thirty-six hours was followed by the presence of a large mass in the epigastrium. Pain still continued, had had chills and considerable temperature. Operation: Median incision above the umbilicus. On separating adhesions below the stomach there was an escape of pus; the peritoneum was not soiled by this, a long strip of zinc oxide gauze was packed into this opening, the peritoneum sutured over this, and the abdomen closed without drainage. The patient was then placed on the right side and an incision made along the twelfth rib of the left side and dissection carried up until the abscess cavity was reached from behind. About three pints of fetid thin pus was evacuated. The end of the piece of gauze introduced from in front was then drawn through this

*Read before the Medical Association of the Greater City of New York, April 20, 1908.

wound and a rubber drainage tube inserted alongside it. Subsequently when the patient took milk by mouth it would immediately appear at the drainage tube, indicating an ulcer of the posterior stomach wall. Drainage was profuse for two weeks but then gradually lessened until the wound healed and the patient was discharged January 31, 1907. In April, 1908, he still continues well and has had no further disturbance from the stomach.

Case II.—T. M. Ireland, male 56 years. Admitted to the Methodist Episcopal Hospital May 11, 1906. Family history negative. He has been generally well and strong. Uses both alcohol and tobacco moderately. Denies syphilis. On May 9 was suddenly seized, during the night, with severe abdominal cramps and vomiting. Before retiring the patient had taken a dose of Hunyadi water and attributed the trouble to that. The onset was very sudden accompanied by collapse and severe pain. His physician gave hypodermically three half-grain doses of morphine at half-hour intervals, with very little relief. During the next day the pains continued, but were somewhat quieted by large doses of morphine and local applications of heat. The pain was referred to the upper abdomen. During the day and next night the patient had several chills. Deep inspiration caused very severe pain in the right hypochondrium. I saw him first forty hours after the onset. Examination at that time was somewhat unsatisfactory owing to the morphine the patient had taken; his mind was clear, the face pinched, he was still suffering severe pain at times, the abdomen was not distended but the muscles of the abdominal wall were contracted. The most marked tenderness was just to the right of and a little above the umbilicus. Pain was more general than at first. The bowels had moved during the day as the result of cathartics. Temperature 101°, pulse 96, respiration 28.

Operation May 11, 9:25 P. M. A five-inch incision was made through the middle of the right rectus muscle, beginning at the free border of the ribs. On opening the peritoneum a slight amount of turbid fluid was evacuated. The gall-bladder was moderately distended. On the inferior aspect of the first portion of the duodenum was seen to be an opening about one-quarter of an inch in diameter with necrosis of some of the adjacent bowel wall. The opening was closed by a continuous silk suture, but there was some difficulty in getting the sutures placed in tissue which would not tear out. The surrounding peritoneum was thoroughly cleaned by sponging. A small iodoform gauze drain was inserted and the wound closed. The patient was returned to bed, showing very little shock. During the succeeding three days there was considerable pain and gaseous distention. No food was given by the mouth. The temperature continued at 101° F. and on the second day some of the wound sutures were removed and some serosanguineous fluid evacuated. On the fifth day the drain was removed and more thin reddish secretion escaped. The temperature then became normal. During the next two weeks the patient was very comfortable and the temperature remained normal. The wound had completely closed. During the fourth week the center of the wound broke down and discharged freely for about ten days, and there was some pain about it. On June 12, an attempt was made to close this sinus. On opening the abdomen, the intestine was found everywhere adherent, and on attempting to break down these adhesions the gut was torn completely across, so friable was the tissue. To repair this a resection of some two inches was done and an end-to-end anastomosis by suture was performed. The abdominal wound was then closed. Reaction from the operation was without shock and in every way satisfactory. From this time there was no further trouble with the wound, but, although out of bed, the patient did not regain his strength, and occasionally would have severe attacks of abdominal pain. The bowels were easily moved. During the night of July 5 the patient was seized with severe abdominal pain in the lower abdomen. This continued during the next day, and the patient rapidly lost ground. I was out of town and did not see him until the afternoon of the 6th. At that time his general condition was such that operative interference was out of the question. He rapidly grew worse, and died on the morning of July 7, thirty-six hours after the beginning of the attack. Postmortem examination showed a volvulus of the sigmoid, with several inches of gangrenous intestine. This was far from the original trouble, and had no direct connection with it.

Case III.—Female, 43 years old, patient of Dr. Joseph Merzbach, was admitted to the Jewish Hospital February 14, 1908. Family history negative, except that her mother, who is 68 years old, has had two attacks of vomiting of blood.

Previous history.—A similar attack to the present confined her for three weeks, six months ago. The present illness dates back about three weeks, and began with pain of a burning character, which started on the right side and traveled to the stomach region and then to the back. This pain would last about one-half to one hour, and then disappear; it came two to three hours after eating. The bowels have moved every day, and stools have been normal—no blood or tarry appearance. During the attacks of pain the patient suffered from gaseous distention. No fever, no cough, no dyspnea, appetite always very good. No urinary symptoms; no headache. Has lost about 20 pounds in the six months.

On the morning of February 14, the day of admission, at about 8 A.M., she had another severe attack of pain in the abdomen. With the attack of pain she vomited a clear fluid, but has not vomited since. The onset of the pain was marked by severe shock and collapse. At the time of admission to the hospital the patient was quite recovered from the shock. Examination at 4 P.M. showed a moderate distention of the abdomen, marked tenderness in the epigastric and right hypochondriac regions, but no tumor could be felt. Temperature was 100° F., pulse 90, respiration 26. Blood examination gave leucocytes 23,600 and polymorphonuclears 93 per cent. A diagnosis of probable intestinal perforation was made by Dr. Merzbach.

Operation 5:30 P.M. the same day. A four-inch incision was made through the right rectus muscle, opening the peritoneum. Gall-bladder appeared in the upper angle of wound and was normal. To the inner side of the incision fresh lymph was seen, so a lateral extension was made to the left partially through the rectus muscle. This exposed the layer of lymph, and a small amount of serum and some adhesions between the colon, omentum, and anterior abdominal wall. The lymph was carefully removed, and on the anterior surface of the transverse colon, about four inches from the hepatic flexure, was found a punched opening one-quarter of an inch in diameter entering the lumen of the gut. The intestinal wall for an inch about this was indurated. This indurated area with the opening at its

center was excised and the opening in the colon closed by silk Lembert sutures. The abdominal wall was completely closed, except for a small strip of iodoform gauze carried to the peritoneum at the center of the incision. Recovery from the anesthetic was prompt and without shock. The future progress of the case was without incident, the patient leaving the hospital on the twelfth day, apparently in the best of health.

Case IV.—J. E., male, 15 years. Admitted to the Jewish Hospital March 24, 1908.

Previous History—Pneumonia a number of years ago. Operated upon for suppurative appedicitis six years ago. From the time of the operation for appendicitis he had been perfectly well until about six weeks ago. Then he began to have abdominal pains, which would come on most often after meals, and would not be referred to any particular part of the abdomen. Two days before admission he was seized with intense abdominal pain which produced collapse. This was accompanied by distressing vomiting of greenish fluid. At 10 A.M. the following day the vomiting ceased, but the pain continued. The bowels did not move. On the second day the pains still continued, the vomiting again returned, there were chills and fever, and some abdominal distention. During the day the pains became more severe and localized below the umbilicus just inside the scar of the previous operation. The bowels did not move. A diagnosis of intestinal obstruction by band or adhesions from previous operation was made. At 3 o'clock that afternoon, about thirty-six hours from the onset, the patient was operated upon. Temperature on admission to the hospital 100.8° F., pulse 108, respiration 24. Face anxious, abdomen moderately distended and rigid. Blood examination showed leucocytes 22,600 and a differential of 89 per cent.

Operation.—A four-inch median incision was made between the umbilicus and pubes. On opening the abdomen immediate search was made for trouble beneath the old scar. Here the omentum was found firmly adherent, but no intestine was adherent or involved. Lifting up a coil of small intestine was followed by a gush of foul fluid, evidently containing feces. This was cleaned away and its source was searched for. A coil of small intestine, ileum, was found bound to the lower lumbar vertebra and perforated. From this was escaping liquid feces. As this coil was so bound down and adherent that any attempt at closure of the opening would be sure to cause stricture, and as the general appearance of that section of the bowel was so bad, resection was determined on. Accordingly, six inches of the bowel, including the area of perforation, was removed, and an end-to-end anastomosis by suture accomplished. There was considerable trouble in controlling hemorrhage from the cut mesentery, owing to its contracted and adherent condition. The lower abdomen was thoroughly irrigated with normal saline solution and sponged out. The wound was closed without drainage. The operation occupied thirty-five minutes, but was accompanied by considerable shock. The boy was put to bed in Fowler's position, was ordered to have nothing by mouth, and instillation of saline per rectum, fifty drops per minute for every alternate two hours. The following morning, March 25, the temperature was 103° F.; there had been some vomiting during the night and the abdomen was greatly distended. During that day the temperature came down to the normal and there was no further vomiting.

March 26.—The general condition remained good, distention seemed some less, there was no vomiting, but a constant desire for water. Temperature during the day normal. During the night restlessness became very great, owing to the constant demands for water. This did not seem to be so much due to thirst as to the idea that something should be taken. During the night the temperature rose to 102° and pulse to 110. The local abdominal conditions seemed to have improved.

March 27.—During the morning the bowels moved several times without aid, the abdomen was now flat, and there had been no vomiting for over forty-eight hours. The patient was now allowed some fluids, and during the afternoon peptonized milk. From this on the recovery was uninterrupted, except for a slight point of infection at the lower angle of the wound, probably due to contact with feces during the operation. At the end of three weeks the boy was apparently entirely well.

Pathological Report by Dr. Blatteis.—Resection of small intestine: 9 cm. long, the perforation is situated along the free margin about 3 cm. from one extremity of resected portion. The margin of the perforation is irregularly circular with a diameter from 3 to 4 mm. and the base slightly indurated. The serous surface of the intestine on the same side as the perforation shows areas of congestion and smaller areas of hemorrhagic extravasation; on the surface opposite the perforation are a number of small suppurative areas. Microscopical examination shows the process to be a simple chronic perforative ulcer of the small intestine. The purulent areas show suppurative and necrotic inflammation of the peritoneal coat and fatty and suppurative infiltration of the muscular coat.

These cases are presented to emphasize this variety of accident and to further draw attention to their frequency.

Twelve years ago the writer reported seven consecutive cases as they came under his observation, and in each the operation proved little more than an antemortem examination. It is with pleasure that I can now present these four cases with practically recovery in all (the patient in Case II. having died from an independent condition); and this result is largely due to earlier diagnosis. Improved operative technique, of course, must be recognized as being a decided factor, but this alone is not enough.

The one distinguishing feature in these cases is the sudden sharp onset of pain accompanied by collapse. Following this is a period of apparent improvement, and it is just here that the danger is, for if these patients are allowed to move about the slight protective adhesions nature has provided will give way and a general peritonitus will result and operation then is less likely to be successful.

The Use of the Seton.—E. Pratt uses in conditions in which a seton is indicated a ribbon of smooth, shiny gum elastic material, at least half an inch, preferably three-quarters of an inch broad. Secondly, he uses an old-fashioned seton-knife, to which the seton is attached. A good fold of skin in the nape of the neck is pinched up, quickly pierced with the knife, and the seton carried right through. The whole operation only lasts a couple of seconds; the ends of the ribbon are tied together so that it cannot slip out, and it is moved to and fro daily. An anesthetic is quite unnecessary, as also is any sterilization or antiseptic washing, beyond ordinary cleanliness, as suppuration is the aim and object of the proceeding. This is the old-fashioned and, in his opinion, the best way of doing it.—*British Medical Journal.*

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SELF-REPAIR.

THE therapeutic nihilist loves to point out in support of his faith the innumerable instances of self-repair on the part of the diseased animal organism, thinking thus to discredit artificial therapeutics. But recent scientific work has shown that instances of such repair, far from being destructive of the therapeutic art, really offer an explanation of much of the success attendant upon drug treatment and furnish an incentive to renewed effort looking toward the improvement of our present methods and procedures in fighting disease. This is the view of the matter held by S. J. Meltzer and developed by him in an address before the Association of American Physicians (*American Journal of the Medical Sciences*, July, 1908). According to him the mere existence of self-repair does not exclude the possibility of other means of repair which are not used by nature in her struggle with disease, and the search for these means or their application in fields not naturally provided with them is one of the most important parts of the science and art of therapeutics, which after all is the most important of all the departments of medicine, with the possible exception of hygiene, so far as the welfare of the human race is concerned.

Previous to the modern advance in the study of the phenomena of life in a normal or an abnormal organism, rational therapy consisted for the most part of inactivity, while empiric therapy in many instances degenerated into blind dosing with drugs without any clear notion of their effects upon the organism in health or disease. The study of immunity, however, soon showed innumerable means and methods of self-repair on the part of the body which could be called forth artificially or at other times imitated by the physician and thus answer fully the demands of rational therapy, while attaining the end of empiric therapy as well, which aims at the recovery of the organism from disease without any great concern as to the means employed to this end. The very manifestations which were in the old days looked upon as signs of disease are now employed as therapeutic measures; the artificial hyperemia proposed by Bier in the treatment of inflammation, the example quoted by Meltzer, is enough to prove this point, natural hyperemia, one of the cardinal manifestations of inflammation, being responsible for much of the "tumor, rubor, calor, et dolor" of this pathological condition. Artificial production of leucocytosis is another example of a therapeutic procedure modeled upon a natural process of self-repair; high fever, too, has been produced in animals and in human beings as well, in the hope that this symptom may prove inimical to some pathological process going on in the body.

While it is thus true that rational therapy at present aims more and more to imitate the natural processes of repair, it must not be forgotten that such processes may harm the organism if continued too long or directed only by the blind stimuli of the tissue reactions to injury. This is where artificial rational therapy proves to be superior to the natural self-repair in the organism, and one of the most difficult problems of the newer art of medicine is to decide upon the duration and the amount of self-repair, or imitation of it, that is to be allowed to take place in each case of disease. Meltzer properly says that pain in rheumatism effectively immobilizes the joints, but the joints can be immobilized as well and better by artificial means, while the pain must be relieved to save the patient from its injurious effects upon his organism. Cicatrization of wounds is certainly a reparative process, but when its continuation may diminish the lumina of hollow organs or threaten the functions of an extremity, it is the part of therapeutic wisdom to interfere with nature's effort at self-repair.

Dr. Meltzer's suggestive address sums up the results of the scientific study of pathological processes that has been going on in the last few years. As he says, physiological therapeutics, or the improvement of conditions which the body needs during health, is the only mode of treatment admitted by therapeutic nihilists; the development of medical science, however, has brought forward new methods of treatment, which are modeled along the lines of the processes of self-repair which every organism institutes in response to injury that does not at once destroy its existence. The utilization of these means of treatment constitutes pathological therapeutics, and it is this mode of fighting actual disease that promises to be most efficient in the future.

ACUTE PANCREATITIS.

ACUTE pancreatitis, with hemorrhage into the gland, and often with necrosis of its substance, is followed by a train of symptoms of very violent character, which in the majority of cases quickly lead to the death of the patient. Of late, as the affection has become better known and surgeons are on the lookout for cases of it, the diagnosis of the condition has been made in several instances and immediate operation has saved a good many patients. An exploratory laparotomy is often undertaken in other cases not diagnosed before the operation, and then the striking phenomenon of fat necrosis which accompanies the escape of pancreatic ferments gives the clue to the explanation of the symptoms for which the exploratory incision has been undertaken. From a study of several cases of acute pancreatitis Dr. Bornhaupt, writing in the *Deutsche medizinische Wochenschrift* for July 23, 1908, concludes that more frequent diagnoses ought to be made if certain characteristic signs of the disease be kept in mind in the presence of any acute abdominal symptoms. Pancreatitis of this type is a noninfectious condition and, therefore, there

is usually no fever accompanying it; indeed, the temperature is frequently subnormal. The absence of peristaltic movements and of any marked meteorism speaks against acute intestinal obstruction which simulates most often the picture of acute pancreatitis. Palpation usually gives no distinct signs and so puts one on guard against suspecting any condition with a well-expressed anatomical basis. The pain of pancreatitis is usually epigastric in location, is of extreme intensity, and is further characterized by its persistence in undiminished violence for longer periods of time than is usual in peritoneal inflammations. The presence of sugar in the urine is a sign of great corroborative significance, while the general collapse of the patient from the unbearable suffering is so extreme that operation is usually consented to very quickly and should be in no case long deferred in presence of suggestive symptoms. Prognosis in such cases is favorable only if the gland is but partially diseased and not enough time has elapsed to allow the absorption of a deadly dose of the toxic products of the gland.

The pathology of the affection gives good indications for the procedures to be undertaken in operating. First of all, the toxic secretions must be allowed to escape without further destroying the surrounding tissues; secondly, the infiltration about the gland and consequent pressure upon the celiac plexus must be relieved by properly instituted drainage. With early diagnosis and, therefore, early operative treatment of the affection the chances of the patient to overcome the effects of the acute hemorrhage or necrosis of the pancreas are greatly bettered.

INDICATIONS FOR TEMPORARY GASTROSTOMY.

The object of a gastric fistula as a rule is to permit an individual to be fed through it, either temporarily or permanently. More recently temporary gastrostomy has been advised in cases of acute dilatation of the stomach in which lavage has been of no avail, and in cases of intestinal paresis in which the duodenum is involved. The indications for this operation have been amplified by Lennander (*Deutsche Zeitschrift für Chirurgie,* Vol. 92, No. 4-6), who especially advises it in cases of perforated gastric or duodenal ulcer with stenosis. During the first ten days after operation he gives the patients only 300 to 500 c.c. of bicarbonate of sodium solution by mouth, thus neutralizing the acid gastric secretion. After the tenth day he gives fluid nourishment by mouth and opens the fistula only when the patient experiences a sensation of fullness. At the end of three weeks the tube is permanently clamped, though it is not removed for another four weeks, acting as a sort of safety valve in case distressing symptoms arise. Seven weeks after operation the tube is removed and the fistula is permitted to close, a gastroenterostomy being performed later if symptoms of stenosis set in. In case a general peritonitis is present he also does a typhlostomy, which is of use both to relieve distention and to permit of the administration of nourishment. He believes a temporary gastrostomy should also be performed when, on account of the position or character of the ulcer, one is not sure of his sutures holding properly or when a second ulcer is found which looks as if it might rupture. Lennander prefers Witzel's method of procedure (near the pyloric end of the stomach), since a fistula running obliquely through the gastric wall closes readily after removal of the tube.

Nearly all surgeons are agreed that in cases in which there exists a stenosis and in which a gastric or duodenal ulcer has perforated, not only the wound and peritonitis should be treated, but a gastroenterostomy should be performed at the same time. Lennander's suggestion to perform a gastrostomy and to defer the gastroenterostomy seems advisable, as it is productive of less shock. In cases without stenosis, when one is not sure of the sutures holding when closing the perforation, gastrostomy is advisable, since it aids in healing by preventing gastric contractions, and by permitting lavage, the patient swallowing the water which in turn runs out of the fistula. The operation keeps the stomach at rest.

AMBULANCE SERVICE IN NEW YORK CITY.

No one who has even the most superficial knowledge of the ambulance work of New York City hospitals has any doubt that there is a crying need for reform. This is not said in disparagement of the work of any given institution, for most of them do remarkably well considering their limitations; but it is said in reference to a faulty system and a lack of organization for which no one seems to be directly responsible. The defects of the present situation have been well brought out in an excellent report by the special agent of the Standing Committee on Hospitals of the State Charities Aid Association. In Manhattan and the Bronx there are fourteen ambulance districts apportioned to fourteen of the thirty-one general hospitals by the Police Department. The assignment of these districts has been mainly for the accommodation of hospitals and not for the needs of district population. Consequently few of the hospitals are even reasonably near the center of their districts, and some are on the extreme boundaries. For instance the New York Hospital is at the extreme southern boundary of its district, and St. Vincent's on nearly the extreme northern boundary of its district, thus bringing two large hospitals within four blocks of each other. However, it seems impossible to change this unfortunate arrangement.

At present too much time and effort are consumed in summoning an ambulance. If a policeman finds or is called to attend an injured person, he must ring up his station house, or precinct headquarters; from there the call is sent to Police Headquarters, and thence to the hospital in which district the call is. If all the ambulances are out headquarters is so informed, and the hospital is then directed to send the ambulance that first returns, or the call may be sent to another hospital. Again, it takes time to hitch horse and ambulance together. A few hospitals have the quick hitch arrangements similar to that in use by the fire department, and some have automobile ambulances, but the majority have not.

The Committee recommends that there be established in each borough a central station under mu-

nicipal authority to be directed by a physician appointed under civil service rules; that Manhattan and the Bronx be under control of the Trustees of Bellevue and Allied Hospitals, and Brooklyn under the Commissioner of Public Charities. All ambulance calls would thus be immediately assigned by this central station to the proper district, or, if that district hospital were busy, to the nearest hospital having an available ambulance and a vacant bed. Under this arrangement the Police Department would not have power to assign districts nor in any way to control the operation of the service. This seems an unwise procedure; for the police, owing to their knowledge of general "first aid" principles, are less likely to send in unnecessary summons, and do not make the mistake of well-meaning but over-zealous citizens in sending two or more calls to the same or to several hospitals. The delay caused by finding an officer to telephone a call to the central station would scarcely be commensurate with the chaos created in the service by allowing private citizens to send the summons. Again, if the Bureau of Ambulances should be authorized, as is now planned, to decline to respond to calls which appear from the circumstances to be trivial or mischievous, numerous errors in judgment are sure to be made, and the Bureau might get into serious difficulty amounting even to action in the courts.

To sum up, the conditions for which the Committee seeks relief are: Badly apportioned districts; poorly distributed ambulance service; lack of a central system; the mixture in the system of public and private units; and the cost of this ineffectual service, which is for Manhattan and the Bronx $59,000 annually.

Climatic Treatment of Tuberculous Glands at the Seaside.

For many years the treatment of tuberculosis by means of change of climate and outdoor air included a sojourn in the mountains or at a higher altitude and in a dryer climate than are to be found at the seashore. The reaction, however, against a treatment which carried the patient so far from his business and separated him so completely from his family and all the comforts of his home began some time since, and it has been found that sea air is not so inimical to tuberculosis, especially surgical tuberculosis, as was formerly believed. In France the treatment of tuberculous cases at the seaside has been carried out with a success that has warranted the high expectations of the efficacy of cool, fresh air wherever it can be found. Tuberculous bone and gland diseases, in particular, have been treated on the French coast at sanatoria for children for many years. Henri Richardière in the *Annales de Médecine et Chirurgie Infantiles*, for June 15, 1908, lauds the good effects of sea air combined with sea bathing and local applications of sea water to the enlarged glands in children of all ages. In children under three years the shock and fright induced by forcible bathing in the sea may be unfavorable to a cure, and there are also other patients for whom they cannot be used, such as persons who have pulmonary as well as glandular tuberculosis. Persons in whom the bronchial and mediastinal glands alone, and not the pulmonary tissues, are affected may take the baths with benefit. But an affection of the lungs themselves contraindicates them. For these cases the author believes that it is most beneficial to make use of baths and local applications by compresses of spring water containing chloride of sodium, such as is to be found at Biarritz and Salies-de-Béarn. A combination of sea air with mineral waters, this writer holds, is much more effective in gland cases than a mere sojourn by the seaside. The organic exchanges in the body and the general nutrition are greatly increased by these measures. The formation of urea is increased and the demineralization by uric acid production is decreased. In cases of general atony shown by anemia, anorexia, and general feebleness this combination of treatments is of the greatest value. With compresses saturated with the mineral waters the localization of the applications can be adapted to the position of the involved glands. Warm local douches may also be used. It seems desirable that the efficiency of sea air combined with local saline applications should be still further tested in the vicinity of the extensive seacoast of the United States, that the great opportunities that are presented for treatment of tuberculous gland and bone diseases near our large cities may not be wasted. Treatment of surgical tuberculosis in children has been going on for several years at Sea Breeze, Coney Island, reports of which have already appeared in the Medical Record, and the results obtained are such as to warrant a much wider utilization of the climatic advantages afforded by our very large extent of seacoast on the eastern, southern, and western boundaries of our country.

Tubercle Bacilli on the Clothing of Tuberculous Patients.

It is an interesting fact that such excretions as sputum, urine, and feces are never as objectionable to the individual by whom they are excreted as to other persons. This finds an important illustration in the way in which the tuberculous patients carelessly allow their hands and clothing to be soiled with sputum which produces in another person a feeling of disgust and makes him very careful not to soil his person or belongings with it. Such carelessness of the patients has an important bearing on the spread of tuberculosis in the environment of persons afflicted with the disease, adding to the less avoidable distribution of the bacilli by coughing, sneezing, laughing, etc. Frieberger has endeavored to get experimental evidence of the infectivity of the clothing worn by the tuberculous, obtaining the dust from such clothing by the use of a small vacuum cleaning apparatus, and reports his results in the *Zeitschrift für Tuberculose*, Volume 13, Number 1. These results were not completely in accordance with the popular view of the matter, for very few patients had virulent organisms on their clothing. The important finding consists, however, in the very fact of the absence of such soiling of the clothing, for careful examination of the patients' habits proved that the infectivity or the absence of infectivity of their clothing depended very much upon their habits of cleanliness. Patients in the most advanced stages of tuberculosis, with abundant sputum, had their clothing free of all contamination if their habits were cleanly; even those in the incipient stages had bacilli on their clothes if they were careless in disposing of their sputum. The bedding of patients dying of tuberculosis was found to contain virulent germs. The result of the examination once more calls attention to the necessity of instructing every tuberculous patient, however light his disease may

be, in the care of his person and belongings so as to protect those that come in contact with him. Hospitals, whether caring for tuberculous patients or not, should insist upon the routine disinfection of all clothing of patients on their admission, and a repetition of the process at regular intervals thereafter.

The Pathology of Hemorrhoids.

Few diseases are so general as hemorrhoids, and yet the question of their development and their histological structure has not been finally decided. All the older investigators claimed they were varices, but more recently some have held that they are not mere dilatations of veins, but benign new growths—true angiomata. These differences of opinion led Ruediger-Rydygier, Jr. (*Deutsche Zeitschrift für Chirurgie*, Vol. 91, Nos. 5 and 6) to study the lower portion of the rectum at 200 consecutive autopsies, irrespective of whether symptoms referable to hemorrhoids had been present during life. In the fetus, in the newly born, and in children from five days to eight years of age, he always found the vessels in the submucosa, especially at the lower edge of the internal sphincter and at the mucocutaneous junction, where hemorrhoids usually develop, more numerous than in other parts of the rectal wall. The older the individual, the thicker was the submucosa and the larger and more numerous were the vessels in it. Never was there any sign of new growth. Older individuals showed similar pictures, but when the submucosa was three or four times as thick as the normal, and the vessels were about ten times as wide as normal, he considered the condition a beginning hemorrhoid. He found that many persons had hemorrhoids from a microscopic point of view, although they may never have had any symptoms referable to them. The more marked the hemorrhoid the thicker the submucosa, and the thinner the mucosa over it. When the hemorrhoids were large, he frequently found a round-cell infiltration in the mucosa and skin. As a result of these investigations, Ruediger-Rydygier concludes that hemorrhoids are not new growths, but merely dilated veins—varices.

The Treatment of External Anthrax.

In the treatment of external anthrax most writers advise radical surgical removal of the primary focus, followed by cauterization with heat or chemicals. On the other hand the majority of the cases with favorable termination reported in medical journals during the past few years have been treated conservatively. In the *Deutsche Zeitschrift für Chirurgie*, Volume 92, Nos. 4, 5, and 6, Schwarz reports twelve cases, with only one death, treated conservatively at the university clinic in Halle. He reminds us that the prognosis of anthrax depends upon the development of a general infection; we must therefore judge the various methods of treatment by whether or not they prevent a general infection. He believes that radical measures possess more disadvantages than advantages. Animal experiments have shown that when a general infection sets in, it does so early; thus amputation three hours after injection of the bacilli into a limb does not prevent general infection. This demonstrates that surgical extirpation of the primary focus cannot very well prevent a general infection, for we do not see the patient much before twenty-four or forty-eight hours after infection. In fact, Schwarz believes that the mechanical irritation of the tissues laden with anthrax might easily bring about a fatal general infection, especially when very virulent germs are being dealt with. This danger is present no matter how the primary focus is destroyed, but especially if glands are also removed, a practice resorted to by some. Schwarz believes there is least danger of a general infection when external anthrax is treated by conservative measures, the tissues being left to combat the local infection. Absolute rest, substantial nourishment, stimulants, and protection of the site of infection from external influences by a dressing he considers the best treatment. The correctness of such therapy is proven, he believes, by his successful results.

News of the Week.

The International Congress on Tuberculosis.—The preliminary program of this Congress, to be held in Washington, D. C., September 21-October 12, 1908, is now in press. The section meetings will take place the week beginning September 28, but the exhibition will continue for the entire three weeks, from September 21 to October 12. The program for the week includes two plenary sessions, one on Monday, September 28, at which it is hoped that President Roosevelt will preside; and the other (probably) on Saturday, October 3. Each of the seven sections into which the Congress is divided will hold two sessions daily, except on the days on which the plenary sessions take place.

In connection with the Congress a series of special lectures will be delivered in Washington and elsewhere by eminent foreigners. The names of the speakers and the cities in which they will lecture follow: Bernard Bang of Copenhagen, Washington, October 3, "Studies in Tuberculosis in Domestic Animals and What We May Learn Regarding Human Tuberculosis." A. Calmette of Lille, France, Philadelphia, September 26, "Les nouveaux procédés de diagnostic précoce de la Tuberculosis." Emil Coni of Buenos Ayres, Washington, October 2, "La Lucha contra Tuberculosis en la Republica Argentina." Arthur Newsholme of Brighton, Washington, September 29, "The Causes Which Have Led to the Past Decline in the Death Rate from Tuberculosis and the Light Thrown by This History on Preventive Action for the Future." Gotthold Pannwitz of Berlin, Philadelphia, September 24, "Social Life and Tuberculosis." R. W. Philip, Edinburgh, Boston, October 6, "The Anti-Tuberculosis Program — Coordination of Preventive Measures." C. H. Spronck of Utrecht, Boston, October 7. Andres Martinez Vargas of Barcelona, New York, October 9, "Tuberculosis of the Heart, Blood- and Lymph-Vessels." Theodore Williams of London, Philadelphia, September 25, "The Evolution of the Treatment of Pulmonary Tuberculosis." Maurice Letulle and M. Augustin Rey (joint lecture), Washington, September 30, "La Lutte contre la Tuberculose dans les grandes Villes par l'Habitation; methodes scientifiques modernes pour sa construction." L. Landouzy of Paris, Baltimore, October 5. A. A. Wladimiroff of St. Petersburg, Washington, September 28, "Biology of the Bacillus." N. Ph. Tendeloo of Leiden, "Collateral Tuberculous Inflammation."

The Koch Foundation for Combating Tuberculosis.—The German Emperor has given $24,000 to the Robert Koch Foundation for resisting the spread of tuberculosis. This donation completes the

$100,000 that Andrew Carnegie stipulated should be subscribed before his gift of a like amount, made last winter, should become available. The sum of $76,000 was raised shortly after Mr. Carnegie made his announcement, but there the subscriptions stopped until the Emperor decided to make up the balance.

Disease Among the Aborigines of Alaska.—Reports come from Alaska through a special charge to the Grand Jury sitting at Juneau that tuberculosis, trachoma, and other diseases are spreading to such an extent among the Indians that their very existence is threatened. From the data furnished it would appear that within a few decades, if the mortality of the race continues as in the recent past, there will be no longer any native inhabitants to perform the needed labor which the progress and development of the country demand. The statistics taken from a typical settlement of the natives, show a greater mortality than that of any other primitive race which has come in contact with Anglo-Saxon civilization. An appended report by Army Surgeon Paul Churchill Hutton states that he doubts if any country in the world can show such a percentage of tuberculous natives, and the mortality from this disease is really terrible. He proposes that Alaska be divided into sanitary districts and that sixteen sanitary officers be appointed. He also suggests that an intelligent Indian inspector be appointed for each town having 200 or more inhabitants, and that each Indian inspector study under the regular inspector and disseminate his knowledge among his own people.—*Charities.*

Cholera in Russia.—The center of virulence in the cholera epidemic in Russia has been transferred to Rostov-on-the-Don, where thirty-one new cases and ten deaths were reported on August 17. From the Province of Astrakhan sixty-one new cases and twenty-one deaths were reported on the same day. The cholera is now working its way down the Black Sea along the Caucasus coast. Its appearance at Gelenjik, south of Novorossysk, has been announced.

Care of the Feeble-Minded.—The British Royal Commission on the care and control of feeble-minded persons has issued a report, in which the American system of dealing with these unfortunates and the management of the institutions where they are assembled are highly spoken of. "In most of the States visited by us," the report says, "the practical measures adopted for the solution of this problem were more advanced and more successful in character than anything attempted in Great Britain." With regard to lunatic asylums, the impression of the commission is that in America these institutions are better designed, more cheaply constructed, and more successfully managed than the majority in Great Britain.

A Test of the Iowa Contagious Disease Act.—The Hamilton County, Iowa, Board of Supervisors has been served with notice by a physician of Stratford, that he will bring suit at the October term of court, claiming $165 for services rendered in contagious disease cases. The board allowed him $60 for these services, and he refused it. The case will be a test of the new Iowa law passed last winter, which, it is held, makes the county liable for physicians' fees in every case of contagious disease they attend.

Medical Fees.—According to a new fee-table adopted by the Everett, Mass., Medical Society, the charge for ordinary visits in the daytime will be $2, but night visits will be $3. Visits in cases of contagious diseases will be $2.50; visits in consultation, $5; vaccination at home $2, at office $1; each additional member of family for vaccination, $1; administering anesthetics, $3 to $5.

A New Medical Office Building in Denver.—Plans have been filed in Denver for the construction of a steel and concrete fireproof six-story building at the corner of Sixteenth street and Court place, for the exclusive use of physicians. Special features of the building will be a fully equipped operating room, a medical library of 15,000 volumes, and an assembly room for meetings. About 100 physicians can be accommodated.

Meeting at Craig Colony.—Dr. W. P. Spratling, Medical Superintendent of Craig Colony, has invited representatives from all the N. Y. State Hospitals for the insane and from the Charitable Institutions generally to meet at Sonyea, on Thursday, September 3. A medical program has been arranged for the day, while the evening will be given up to entertainment. Dr. Spratling will lecture on the types of epilepsy and show living pictures of epileptic manifestations.

More Brain Storms.—A captain in the United States army recently shot and killed a man, putting all the bullets from his revolver into his victim's body, while his brother held the crowd at bay by threatening to shoot any man who attempted to interfere with the captain's sport. These two men are to be tried in Long Island City, and the defense of "insanity" is already announced by the counsel. Of course there will be medical experts on hand at the trial to coach the lawyers on both sides and to testify for and against the accused. There may not be as many as at the Thaw trials, and those that are there will probably not be so well paid—in promises and expectations—for there is less wealth in the family of the prisoners: but the need of reform in medical expert testimony will no doubt be again exemplified.

Medical Automobilists Permitted to Speed.—The physicians of Orange, N. J., will, it is said, be immune from arrest while breaking the speed laws on condition of voluntary appearance at court and explanation of the occurrence. The cars will bear a flag having the insignia of the Physicians' Automobile Club, and the police have been notified not to arrest the driver of any such car, but simply to take the number for future action in case the owner does not appear later without a summons.

Inspection of Kitchens.—The Health Department of St. Louis has decided to undertake a systematic inspection of the kitchens of hotels and restaurants, and of groceries, butcher shops, and bakeries, special attention being paid to screening, ventilation, plumbing, and the condition of the floor.

Disinfection of School Books.—Following an inspection of the libraries of the public schools the Orange, N. J., Board of Health has decided to disinfect every book in the schools between now and the time the schools open on September 8. There were more than the usual number of cases of scarlet fever in the schools last year.

Books for the Blind in Esparanto.—The fourth international Esperanto Congress, which met last week in Dresden, passed a resolution to print a number of Esperanto instruction books and translations in raised characters for the use of the blind.

Dr. Manton M. Cornish of Dallas, Texas, has been appointed assistant quarantine inspector of the port of Galveston.

Dr. Rufus I. Cole, of Johns Hopkins University, has declined an invitation to succeed Dr. George

Dock in the Chair of Medicine at the University of Michigan. It is said that Dr. Cole will become Director of the new Rockefeller Research Hospital in New York City.

A New Medical College in Atlanta.—The Hospital Medical College is the name of a new medical school which, it is announced, will be opened in Atlanta in October. At a meeting for reorganization, held August 8, Dr. J. H. Powell was elected president of the new school and Dr. Gates Hathcock, vice-president; Dr. Charles Field was chosen dean. The faculty consists of seventeen members.

Contagious Diseases in Chicago.—According to the weekly bulletin of the Chicago Health Department, during the week ended August 14, 181 cases of contagious diseases were reported. There were 41 cases of diphtheria, 35 of scarlet fever, 19 of measles, 25 of whooping cough, and 37 of tuberculosis. With the exception of measles and tuberculosis there were fewer cases than in the preceding week. The Isolation Hospital is now empty.

Southern Minnesota Medical Association.—At the annual meeting of this Association, held at Owatonna during the first week in August, the following officers were elected: *President*, Dr. O. F. Way of Claremont; *Vice-Presidents*, Drs. W. S. Wood of Blooming Prairie, and Hugh McGaughey of Winona; *Secretary and Treasurer*, Dr. Adams of Elgin. The next annual meeting will be held at Winona.

Obituary Notes.—Dr. Peter Evans Hine of Raleigh, N. C., died August 13. He was born July 28, 1828. He was graduated at the N. C. State University in 1849, and with his medical degree at the University of Pennsylvania in 1852. He served as surgeon in the Confederate service throughout the Civil War, and at its close retired to his farm in Craven County. In 1872 he resumed practice in Raleigh. He was president of the Medical Society of North Carolina in 1890, and was Surgeon-General of the State from 1878 to 1883.

Dr. Frederick R. Cummings of Concord, N. H., died August 9, from pyemia, at the age of 35 years. He was born in Nashua and was a graduate of the Harvard Medical School in the class of 1898.

Dr. John T. Irion of Paris, Tenn., died August 10, at the age of 71 years. He was a graduate in medicine of the University of Nashville, and practised for many years in Paris, being for a number of years president of the city board of health. He retired from practice fifteen years ago to become editor of a daily newspaper.

Dr. O. T. Pratt, of Los Angeles, died on August 5 while listening to a political address by Judge Alton B. Parker. He had practised in Southern California for many years, having moved from Compton to Los Angeles about ten years ago to form a partnership with his brother.

Dr. Rufus B. Whitehead of Elizabeth, N. J., died suddenly on August 20, at the age of 36 years. He was a graduate of the College of Physicians and Surgeons in this city in the class of 1893. He was surgeon to the General Hospital of Elizabeth, and for a time served as police commissioner of the city.

Dr. Ira B. Cushing of Brookline, Mass, died August 15, at the age of 62 years. He was born in Providence, Ill., and was graduated from the Hahnemann Medical College, Philadelphia.

Dr. S. G. Dillan of St. John's, Mich., died suddenly on August 12, at the age of 60 years.

Dr. William H. Webster of Dayton, Ohio, died suddenly on August 10. He was born in 1870 and was graduated from the Pulte Medical College, Cincinnati, in 1874.

Dr. George H. Smith of Brooklyn, New York, died of septicemia following an operation wound, on August 20. He was born in Milton, N. Y., in 1843, and was graduated from the Homeopathic Medical College in this city in 1869.

Correspondence.

THE CARDIAC ATMOSPHERE OF BAD NAUHEIM.

Bad Nauheim, July 29, 1908.

To the Editor of the Medical Record:

Sir:—I have been spending a month here, observing the treatment of cardiovascular disease by the methods here employed, and have found many things to interest me in regard to this subject.

I find a great number of Americans who come here year after year for the adjustment of their heart and blood-vessel disorders, and who are inclined to believe that their welfare depends upon their annual pilgrimage. Thirty thousand persons come to Nauheim every year, and a great proportion of these come for heart troubles. The result is that Nauheim represents in the aggregate greater experience in the physical treatment of heart trouble than any other place in the world. Here the attention of everybody is on this subject, and not the least part of one's impression is gained from the patients themselves. Unlike many other European cures, there is almost a total absence of any kind of gayety. So many of the guests are seriously ill that the expression of an impending attack of angina can be seen wherever a number are gathered together.

The plan of treatment has been but little changed since the time of August Schott, and one is impressed with the extreme care with which the baths and exercises are prescribed. This is founded not upon the idea of making much of the treatment, but because ever-occurring experience is constantly showing that satisfactory results can be obtained only in this manner.

The question that is so often asked as to whether like results cannot be obtained in America, must be answered in the affirmative, but at the same time the greater difficulty must be acknowledged. It is the difference between a government providing an institution for many persons and an individual providing an institution for himself. The physician here prescribes the baths and exercises and the government provides the bathhouse and attendants, the parks and music, and the 30,000 guests trained by long years of instruction in the hygiene of heart trouble provide just the right mental atmosphere. It is the same difference as between learning a foreign language at home and learning it where everyone speaks the language.

I have seen in New York City results in similar cases just as good as those attained at Nauheim, but they were paid for by much greater expenditure of labor on the part of the physician and self-denial on the part of the patient. It is much easier to get up at half-past six in the morning for a bath or exercise when one knows that at seven o'clock a band will play and one will meet plenty of people that one knows, than it is in New York when the streets are deserted and everybody one knows is in bed.

When we once begin in America to establish cures, there is no doubt the same conditions will finally develop, and I believe the time will come when we shall draw patients from Europe. The vitality of American medicine is such that in the next fifty years it ought to reach a point that will leave other countries far behind.

Louis F. Bishop, M.D.

54 West Fifty-fifth Street, New York.

OUR LONDON LETTER.

(From Our Special Correspondent.)

ECHOES FROM SHEFFIELD—ROYAL COMMISSION ON THE FEEBLE-MINDED—CHILDREN'S HOSPITAL, OUT-PATIENT DEPARTMENT.

London, August 7, 1908.

The British medical meeting is over and a number of members have returned. Many more made Sheffield the starting place for their autumn holiday. Those who are here give a glowing account of the meeting, especially from the viewpoint of amusements and entertainments provided, for it must be admitted most of them look upon the excursion as a prolonged picnic rather than an opportunity for serious work. The gen-

eral meetings only interest members, except the addresses, which were well attended. The university contributed largely to the success, inasmuch as its fine buildings were able to accommodate all the sections. This was a "great comfort" to many, who were glad to look in at more than one discussion. On former occasions the sectional meetings have been scattered over the town where the association met. In such conditions the enthusiast in one branch was perhaps satisfied, but even the most devoted specialist may be glad to put in an appearance or meet friends in sections which have less claim on him. So, too, he may rejoice in the opportunity of seeing and hearing celebrities in various departments of science.

The new out-patient department of the Children's Hospital was opened on Tuesday and is quite a model. It has been built by means of a fund amounting to £50,000 placed in the hands of trustees by Mr. W. W. Astor. Patients enter from the street level. In front of them is a lift to take perambulators to the basement. On the left, in a long, separate room, are five cabins, into which pass cases suspected to be infectious, one being for the doctor in attendance. Close by are two halls, with smooth, polished floors, walls tiled to a considerable height and painted above, flooded with light and air from skylights and open roofs. The latter is for new patients. There are also four consultation rooms and an inquiry office. The dispensary is in the basement, but there are no steps. An inclined plane takes the patients down in their perambulators and up to another street when supplied. Between 400 and 500 is the daily attendance. As the hospital is still in debt, one may be excused for asking whether too much has not been spent on this elaborate building for the out-patient department.

The report of the Royal Commission on the Feeble Minded has just appeared as a blue book of over 500 pages. As the evidence taken extends to seven similar volumes and as ninety-six recommendations are made in regard to England and Wales, only the most diligent student of the subject will have food for his mental digestion for some time to come, and those who regard themselves as authorities must seriously consider the conclusions and proposals put forth. The number of the mentally defective persons is not certain. Estimating it from certain parts of the country, the commissioners think it may be 150,000, of which 66,000 are in need of care in their own interests or for the public safety. The first problem, therefore, was to devise the machinery for bringing them under supervision. They recommend that there shall be one central authority, to be called the board of control, consisting of medical experts and barristers; also that special local authorities shall be appointed to deal with their defectives under the supervision of the central board, all institutions for the care of these defectives to be licensed by the central board and to be visited at least twice a year.

The annual exhibition was held in a separate building at some little distance from the university, but was, I am told, very well attended; in fact, one informant says he was inconvenienced by the crowd at one point. Surgical appliances were the favorite section of this gentleman, who found a number of novelties, especially in the wealth of *x*-ray and electrical apparatus, displayed. Pharmaceutical products were, as usual, abundant and most of the leading manufacturers represented. I suppose these exhibitions contribute to their sales and so are commercially successful. The exhibitors seem to have been well satisfied with the arrangements, for they presented the general manager with a clock, the acting manager with a gold ring, and his assistant with a case of silver spoons.

A much more interesting exhibition was the pathological, though it was not so well attended; but those who went say it was an example to be followed if the association is to retain a reputation for serious study as well as business aptitude. It was held in the pathological department of the university and there was a good catalogue of the specimens, more than 500 in number. The committee which collected this little museum is to be congratulated. It seems a pity the collection should be so soon distributed.

The hospitality of the North is proverbial, and Sheffield has equaled, if it has not surpassed, its reputation. The visitors all testify to this, and Sheffield itself seems well satisfied, though one curious little grumble appears in the local press. The citizens are said to think that some of their energetic practitioners and professors should have been put on the committees newly appointed. Only one, Dr. Sinclair White, has been thus recognized, although so many worked hard for the success of the meeting. I doubt if the editorial wisdom has in this matter penetrated the thoughts of the local profession. Service on the committees can be no pleasure, and most of them know that the ruling clique desires to retain full control in every detail.

The popular lecture by Mr. Edmund Owen was an excellent lesson for the Sheffield workmen if they would have listened to it, but, as was freely said, something is wrong with them, for they stayed away and instead of an audience of artisans there was one—and that not a large one—of ladies and gentlemen in evening dress. The local workman's enemy is dust, and Mr. Owen's subject was "Dust and Disease." It was illustrated by lantern slides, given in simple language, and ought to have attracted those most interested. He ventured on a prediction that when the association next meets in Sheffield the deadly dry grinding will be as much out of date as rush lights or tinder boxes. Smoke, he said, was a form of dust, and Sheffield still accustomed itself to a large share. It was not fit that furnaces should foul the air with poisonous fumes. Many deaths were caused thereby and the time would come when it would be as serious an offense to foul the air as it is to pollute a river.

The president's reception was an event of which Sheffield is proud. About 1,500 guests assembled, among them the association being well represented. The rooms of the Cutlers were all decorated in lavish style. The banqueting hall was transformed into a drawing room, where two concerts were given, and the lower hall was used for a dramatic and musical recital.

About 200 members accepted an invitation to visit Buxton—so renowned a spa for rheumatism. The railway facilities gave them three hours to become practically acquainted with its waters and therapeutical appliances. But above half the time was consumed otherwise, for the local reception committee conducted them first to a hotel, where they had provided luncheon, and by the time the speeches were concluded and a stroll through the lovely gardens taken the time for the return train was fast approaching.

OUR VIENNA LETTER.

(From Our Special Correspondent.)

IMMUNIZATION OF CATTLE AGAINST TUBERCULOSIS—REMOVAL OF A BULLET FROM TEMPORAL LOBE—TORSION OF SEMINAL CORD—EFFECT OF NICOTIN UPON ADRENAL GLANDS—LARGE NEVUS OF THE AURICLE—A NEW INTESTINAL ANASTOMOSIS BUTTON.

VIENNA, July 30, 1908.

A FEW days ago Professor Heymans of Ghent was the guest of the Royal Society of Physicians and spoke before that body on the various methods of immunization against tuberculosis. He uses the following immunizing method in cattle: One milligram of the tubercle bacilli of the human type are enclosed in a small sac dipped into collodion and put into a gelatine capsule. The little sac is introduced under the skin of the animal, a small incision being made for the purpose. The gelatine is rapidly dissolved after the wound has been closed and the sac forms a very good diffusion membrane enclosing the bacilli; the latter obtain all the foodstuff necessary for their growth, the tube allowing the passage of such material, and the products of their growth act as immunizing bodies in the organism of the animal. Within forty-eight hours an exudate consisting of polynuclear leucocytes forms about the membrane, and somewhat later there is formed about it a capsule of connective tissue. In the course of ten to eighteen months the bacilli die in such a capsule and become completely disorganized. This procedure was originated after many experiments with the behavior of the little bag in the animal organism. If 0.5 cm. of tuberculin is placed into such a bag and the latter is then dipped into salt solution the tuberculin diffuses into the fluid surrounding the sac, which fact may easily be shown by inoculating animals with that fluid. A bag filled with tuberculin and introduced under the skin of an animal likewise produces the specific reaction in that animal. If glycerin bouillon inoculated with the tubercle bacilli is placed into the bag and the latter is then submerged in some culture medium and kept in the incubator the bacilli develop in the usual fashion. After four or six weeks, when no more bacilli can be demonstrated in the bag, the contents may be injected into a tuberculous animal and the latter reacts to this injection just as it would to the use of tuberculin in the same fashion. Healthy animals in whom the little bag has been placed and allowed to heal over, tubercle bacilli being part of the contents, begin to react to tuberculin injections three to

six weeks later; the sensitiveness to such injections continues for four to six months and then disappears. If animals that have been immunized in this fashion are given one large dose of tubercle bacilli by mouth or are fed daily during three weeks on small quantities of bacilli they do not become infected with tuberculosis although this is the usual event in the control animals treated in exactly the same way except for the immunization with the bag. Accordingly, the immunized animals show a certain resistance to infection with tuberculosis. To the tuberculin test about ten per cent. of the healthy inoculated animals give a positive reaction and the autopsy shows six to ten per cent. of them as tuberculous. If the little bag is placed under the skin of tuberculous animals there takes place a slow tuberculization of them, many of the cattle showing diminution or even total disappearance of the tuberculin reaction; the autopsy often shows regressive changes in the tuberculous processes, so that a certain curative effect must be supposed to be produced by the above described immunizing method.

Professor Schnitzler has succeeded in removing a bullet from the right temporal lobe of a young patient. The girl was one and a half years old when she was wounded in the left temporal region by a revolver bullet. A few months ago intense headache localized to the right temporal region appeared and the *x*-ray examination showed the presence of a foreign body in the right temporal lobe of the cerebrum. The position of the bullet was then studied more exactly by repeated examinations with the *x*-rays, lead plates and tapes being placed on the skull to find out the relations of the bullet to the surface landmarks. Schnitzler then bared the right temporal lobe by an osteoplastic operation, but at first was unable to locate the bullet. He then availed himself of a procedure which he used with success some eight years ago in operating for a foreign body in the cerebellum. He introduced a silver wire into the lower corner of the wound, passing it as nearly as possible in the direction of the projectile, closed the wound, and then made several additional examinations with the *x*-rays, which, of course, gave the relations of the silver wire to the bullet. After six days the skin and periosteum flap was again turned down and an attempt was made to find the bullet by means of its relations to the silver wire. But this attempt was likewise unsuccessful, for large incisions had to be avoided in order to spare the brain as much as possible. Schnitzler then introduced a piece of silver wire bent into a bow into the right temporal lobe and this time the *x*-ray picture showed the projectile surrounded by the curved end of the wire. At the third operation the bullet was finally located and removed. The flap healed in very nicely, and the patient, who showed some paralytic phenomena confined to one side directly after the operation, recovered completely and is now in perfect health.

Dr. Borszeky of Budapest operated upon a patient suffering from a spontaneous torsion of the seminal cord. The patient was 29 years old and was attacked with an intense, stabbing pain in the left half of the scrotum after having jumped from a high ladder; he was also very dizzy and became nauseated. On examination in the hospital, the scrotum was found to be the size of two fists, while the patient was extremely pale and appeared very much prostrated. Operation was quickly decided upon and when the tunica vaginalis was divided about half a liter of dark-colored serum was evacuated. The cord was found to have been twisted over 180°, the testicle was discolored and appeared bluish, while several veins of the cord were the thickness of the finger. The thickest veins had to be resected. The testicle completely recovered from the injury and at present, seven months after the operation, the man is in perfect health. The speaker confessed that the mode in which this very rare condition arose in the case which he had reported could not be surely established, and the real causation of the torsion still remains an open question of pathology.

Mansfeld, also of Budapest, had studied the effect of nicotin upon the adrenal glands. He experimented with cats and has shown that the increase in blood pressure which follows the administration of nicotin is caused by the stimulating action of the drug upon the secretion of the gland; the content of the blood in the active principle of the gland is thus increased with the well-known effect of a rise in the blood pressure. A portion of blood taken a few minutes before the administration of nicotin shows no adrenalin present, while at the time of the greatest rise in the blood pressure the blood may be shown to contain the pressure raising principle of the gland. After the extirpation of both adrenal glands the administration of nicotin had no pressure raising effect and the blood of such animals did not show the presence of adrenal principle after the administration of the drug, the Ehrmann reaction being negative. The author concludes that the adrenal glands are innervated not by the sympathetic but by some autonomous nerve. Although Goldzieher of Budapest thinks that the narcosis itself has some effect upon the adrenalin content of the blood, yet the results obtained by Mansfeld throw some light upon the pathological significance of nicotin in producing arteriosclerosis; they are certainly of sufficient interest to prove stimulating to the workers in this field of research, which is especially devoted to the physiology and the pathology of those important organs—the adrenal glands.

Professor Ladislaus Fleischmann of Budapest had occasion to operate on a case of elephantiasis of the auricle. This patient was a sixteen-year-old boy who had a tumor of congenital origin which occupied the left auricle and was quite unusual in shape as well. Microscopic examination proved it to be a nonpigmented nevus. As the tumor was benign in character, Dr. Fleischmann did not consider it necessary to remove the whole auricle and selected the following procedure: The portion of the tumor which was situated behind the auricle and which presented the appearance similar to the surface of the brain because of the numerous folds and convolutions, he removed almost *in toto*, thus leveling the tissues until the normal contour of the auricle was obtained. The deep infoldings of the epithelium which lined the convolutions and the fissures of the tumor were not removed and they were thus able to provide for the new epithelial covering that was necessary to make up for the defect produced by the operation. All the tissues which rose beyond the cartilage of the auricle were likewise removed and the skin edges sutured together. A few defects were covered over by skin grafts which were obtained from the patient's leg.

Professor Ferdinand Klug tried to explain the old problem of the immunity which the stomach and the intestines enjoy from being digested by their own juices. His experiments showed that the worm Ascaris is protected from being digested by the juices of the intestines by the fine cuticle which covers its surface as well as its intestinal tract. The inner portion of the gastric mucosa as well as the mucous membrane of the small intestine prevent the digestive action of the gastric juice and of trypsin. The extract obtained from the intestinal mucosa of pigs according to the method of Weinland consists almost wholly of mucin. This extract is capable of interfering with the digestive action of both gastric juice and of trypsin, the raw extract being much more powerful in this inhibitive action than the same extract after being boiled. The cause of this difference must be sought in the fact that after the boiling the extract becomes much less soluble than the raw preparation. The small intestine and the stomach are thus protected from self-digestion by the mucin which is present in their secretions, this explanation having already been offered and supported by Schiff. The experiments could not show the presence of any special antiferments. The mucin is not digested by pepsin-hydrochloric acid nor by a solution of trypsin; it is furthermore not a readily diffusible substance, and because of this fact it holds the active secretions away from the mucous membranes of the stomach and of the intestines, and this action suffices to preserve the organs from self-digestion.

Dr. Lieblein of Prague has constructed a new absorbable intestinal anastomosis button. It is made out of paracasein which is hardened by formalin and is called in that condition "galalith"; it has all the advantages claimed for the Murphy button and is in many respects superior to the latter. The galalith button is quite similar to the Murphy button in form and in the mechanism of its action with the exception of minor changes, such as the omission of the spiral spring. The two lateral springs in the male portion of the button which fit into and firmly clasp the female half are constructed out of "new silver." This button weighs much less than the Murphy button and in addition is absorbable. This new galalith button has been used in nineteen gastroenterostomies performed for carcinoma of the stomach, for ulcer with acute hemorrhage from the stomach, twenty-six buttons having been used altogether. One of the patients operated upon for acute gastric hemorrhage died of anemia; the anastomosis was not accompanied by any untoward reaction. All the other cases recovered from the operations very satisfactorily. Three resections of gangrenous intestine in strangulated herniæ were performed, the new button being used; one of the patients died quite independently of the results of the anastomosis, while another showed a small perforation in the afferent part of the intestine, which may have caused his death, but could not be completely traced to the button. The new button is especially recommended in place of the Murphy button in the anastomosis required in the performance of gastroenterostomy.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 13, 1908.

The Immediate Treatment Demanded in Certain of the More Serious Ocular Lesions That Are Frequently First Seen by the General Practitioner.—Frederick E. Cheney says that it not infrequently happens that the family physician, from one cause or another, is obliged temporarily to assume the responsibility of a case that is of undoubted gravity, and the question of the immediate and proper treatment required under such circumstances is naturally an important one. A case in point is acute glaucoma, the only curative treatment of which is operative. This is essentially a disease of middle life and old age. Given a congested, reddened eye, and enlarged inactive pupil, rapidly failing vision, pain and nausea, there is little chance of error in making a diagnosis. The immediate treatment demanded is the use of the myotic until arrangements can be made for an iridectomy. It is well to begin with a 2 per cent. solution of pilocarpine nitrate, instilling two or three drops into the eye every half-hour. A stronger myotic, such as eserine sulphate, may be used if necessary. With the improvement in vision it is well to reduce the frequency of the myotic. Hot fomentations are sometimes of value in adding to the comfort of the patient. Iridectomy should not be delayed for more than three or four days. Iritis is an extremely grave condition when treatment has been delayed. The symptoms of iritis most constant and to be depended upon are the pinkish zone of injection surrounding the cornea in connection with a contracted pupil that reacts sluggishly or not at all to light. Added to these one will probably find a discoloration of the iris and a greater or less degree of supraorbital pain. The essential treatment is the use of a mydriatic of sufficient strength and frequency to dilate the pupil as widely as it is possible to dilate it. Under this treatment many, if not all, of the existing adhesions will usually give way and there is little danger of fresh adhesions taking place if the pupil is kept dilated by a weaker solution of the agent used. In using the stronger solutions of atropine it is important to have the patient keep the end of the finger firmly pressed upon the inner angle of the eye for three or four minutes after each instillation. This will prevent in a great degree the escape of atropine by way of the tear passage into the nose, and the consequent dry throat and other symptoms of poisoning. A 1 per cent. solution is none too strong, and should be instilled three or four times a day. The application of leeches to the temple is at times of great value. Blindness from ophthalmia neonatorum in a very large proportion of the cases means blindness from neglect. The Credé method is undoubtedly of great value, but causes considerable temporary irritation. A 25 per cent. solution of argyrol is practically nonirritating, and to drop four or five drops into the conjunctival sac of every newborn babe would be a simple and a very efficient means of prevention. This treatment, together with the frequent cleansing of the eyes, if it can be thoroughly and systematically carried out, will, with rare exceptions, insure a perfect recovery. The following suggestions regarding perforating wounds of the eyeball are in the nature of early emergency treatment: First, to lessen the chances of infection, the lids and their immediate neighborhood should be thoroughly cleansed and the conjunctival sac irrigated with a boric acid or some other mild solution. Second, a 1 per cent. solution of atropine should be instilled three or four times at five-minute intervals for the reason that iritis will develop in at least 80 per cent. of these perforating injuries. If the anterior chamber is evacuated, the pupil will not dilate until it is reestablished. Third, some simple nonirritating ointment should be placed on the inner surface of the lower lid and the eye then bandaged. Fourth, Epsom salts, calomel or other active cathartic should be given. Fifth, a leech to the temple is good routine practice, and at times of the greatest value.

General Therapeutics of Gastric Affections.—Maurice Vejux Tyrode says that diseases of the stomach are treated along the lines of general therapeutics which are applied to other organs. Two opposite principles lie at the bottom of symptomatic therapy, *i. e.*, rest and exercise, or decrease and increase of functions. The agents at command include four general classes: First, the physical, as exercise, massage, electricity, baths, etc.; second, the psychical, as suggestions in the hypnotic or hypnoidal states and under waking conditions; third, the dietetic, including both qualitative and quantitative changes in the diet; and fourth, the medicinal. In order that these agents may be judiciously and effectively employed, an accurate diagnosis must be made. He then reviews briefly the physiology of the stomach and takes up the treatment of the different gastric functions when at fault. Great care should be exercised in not confounding grave troubles as ulcer and cancer, with hyperacidity, as cases have come to his observation with carcinoma when the diagnosis of the attending physician was nervous dyspepsia.

New York Medical Journal, August 15, 1908.

Vaccine Treatment of Atrophic Rhinitis (Ozena).—Ross Skillern and E. Burvill-Holmes report two cases treated with a vaccine from the combined culture of a serum from a pure culture of the bacillus of Abel. Injections were given in the arm at first twice weekly, no inflammatory reaction following. After two weeks there was, in the first case, a marked diminution in the size of the crusts and the nasal secretions appeared to be much thinner and more miscible with water. A gradual diminution of the fetor occurred. At this stage the child developed a disease resembling scarlet fever, which brought the treatment to a sudden close. About two months later they learned that the child was as bad as ever. The mother of the child asked that treatment be again instituted as soon as possible. The promising results in this case prompted them to test the method in a case which had proven hopeless to other forms of treatment. The patient was a woman, thirty years old, who was given fourteen injections with improvement; then a sudden change for the worse set in, and the disease gradually began to assume the old condition; the crusts became larger, the fetor reappeared, and the patient became nauseated. About three months after the cessation of the treatment she reappeared, requesting treatment, saying she never felt so well as when under the vaccine treatment. If pure cultures of the *Bacillus mucosus capsulatus* could be obtained they believe that the successful treatment of atrophic rhinitis would, indeed, be a thing of reality.

Pneumonia; One Method of Treatment.—E. P. Tompkins reports the case of a young man, a fine specimen of manhood physically, hale, hearty, robust, of good habits, about twenty years old, and who had never been sick before. This was a case of pneumonia. His temperature was 103° F. and he was semi-delirious when the physician was called, and this condition rapidly advanced to active delirium. The pulse was full and bounding, face flushed, slight, hacking, suppressed cough, with frothy expectoration which soon became streaked or rather mixed with blood. The physical examination showed only slight dullness over the seat of pain. Half a dozen bricks were placed on the fire and a kettle of water was put on to heat. When the water was boiling and the bricks about red hot, they were placed in the water and allowed to remain until ebullition ceased; each brick was then wrapped in a cloth, and placed in the bed alongside the patient's body, and over him a number of blankets. Over the region of pain was put a flannel cloth saturated with oil of turpentine, and over this a folded newspaper. Internally was administered a tablet of calomel and sodium hydroxide, half a grain each, one every two hours till four doses were taken. Alternating with this, hour by hour, a tablet containing aconite, two minims; tartar emetic, one-fortieth of a grain; ipecac, one-eighth grain; morphine sulphate, one-twentieth of a grain, to be given till further notice. In ten minutes the patient was trying to throw the covers off, and it took the combined efforts of four men to hold the delirious patient in bed. The next day the patient was resting quietly, free from pain, the temperature was reduced to 101° F. The pulse was slower, the purgative had acted, and his general condition was satisfactory. In a well-heated room his clothing was changed, the bed also, and he ate a little milk toast and soft cooked egg. Twenty-four hours later his pulse showing decided softening and lessened size, the aconite and tartar emetic tablet was discontinued and one containing digitalis, nitroglycerin, and strychnine substituted. In seventy-two hours from the time he was taken sick his pulse and temperature were normal, his appetite good, sleep was natural, and he proceeded to an uninterrupted recovery. He was advised to remain indoors a few days longer, and in a week was back at work. The most noteworthy point in the case was the tremendous rapidity with which severe symptoms developed from a condition of perfect health, emphasizing the fact that treatment if effectual in cutting short an attack—and he was convinced that in the great majority of cases pneumonia can be aborted—must begin early.

Journal of the American Medical Association, Aug. 15, 1908.

Diverticulitis of the Sigmoid.—G. E. Brewer reports diagnosis was made and operation performed before the occurrence of rupture, and the only one recorded in which the patient survived two operations for this condition. In the first attack there was a localized abscess, but the a case of diverticulitis of the sigmoid, the first in which

patient recovered and remained well over five years. In such cases Brewer would lay down no general rules of technique, but if the diverticulum is large, attached by a broad base or covered with a plexus of enlarged vessels, the safest method, he thinks, would be extraperitoneal drainage, as chosen in the case reported. If, from the situation, this is impracticable, he suggests packing with gauze and leaving it in place for from 48 to 72 hours or until firm adhesions have formed, then removal of the gauze and free opening of the abscess, allowing it to drain through the channel thus formed.

Gastric Ulcer and Cancer.—F. B. Lund remarks on the difficulties that are often met with in the differential diagnosis of benign gastric and malignant growths: "In certain cases of indurated ulcer of the stomach the diagnosis between benign and malignant disease may be impossible, even with the abdomen opened. These are the early cases, in which the diagnosis of early cancer is important, as enabling thorough removal. These cases, broadly speaking, fall into two classes: 1. Indurated ulcers (usually of the lesser curvature), which are movable and free and may be benign or malignant. Here, even if the tumor is benign, gastroenterostomy is often unavailing and partial. 2. Indurated ulcers of the pylorus often extending from the duodenum and adherent to the pancreas or left lobe of the liver. These are usually benign; excision is difficult and gastroenterostomy is safe and should usually be performed rather than excisions. In Class 1 excision should be done regardless of laboratory findings. In Class 2 the laboratory findings are important and usually reliable. The responsibility of leaving a tumor which may be malignant is so great, however, that all diagnostic aids should be invoked, and in case of doubt excision, though at some risk, may be performed. The surgeon must decide in each case whether the risk lies in performing excision or leaving a tumor which may be malignant."

Therapeutic Immunization in Mixed Infection.—A. P. Ohlmacher discusses the problems which confront the physician who would apply in practice Wright's method of therapeutic bacterial immunization. He enumerates the organisms usually found in mixed infections and states that in dealing with them it is necessary to follow the events in the more chronic suppurations by bacteriological analyses from time to time and to modify the inoculations to correspond with the changes in the bacterial flora of the pus in case the therapeutic response is not satisfactory. In dealing with tuberculous diseases in which a mixed infection is demonstrable by the culture test it is proper, he asserts, to combine the inoculations of tuberculin with vaccines of one or more of the complicating bacterial species. This procedure is conducive to good results in treating the suppurations following tuberculous urinary infection, adenitis, synovitis, or osteitis. Syphilis and a concurrent or a secondary infection with pyogenic bacteria is another condition in which, according to Ohlmacher, therapeutic bacterial immunization finds useful application.

Intestinal Anastomosis.—F. B. Walker points out the defects of the present methods of intestinal anastomosis; all except the McGraw elastic ligature are done on a wide-open gut and are essentially septic operations. The ligature method—the simplest and cleanest of all—does not complete the anastomosis for three or more days, and is therefore unsuited in cases in which other communication does not exist. The method he describes and illustrates can be carried out, he says, by one pair of hands and combines the advantages of other methods without their defects. It is based on the closure of the gut during the operation by means of a removable purse-string suture, on serous apposition by a continuous through mattress suture inserted from the outside of the gut, and on the withdrawal of the purse-string suture after the suturing is completed, leaving an open lumen. The technique for both end-to-end and lateral anastomosis is described and illustrated.

Ulcer of the Duodenum.—William J. Mayo considers the differential diagnosis between duodenal and gastric ulcer and states that in duodenal ulcer the pain and tenderness, as a rule, extend from the mid-line to the right; aggravation induced by food comes on several hours after a meal, and the patients suffer from a peculiar "hunger pain" when fasting. Unlike gastric ulcer, duodenal ulcer rarely undergoes carcinomatous degeneration. The surgical treatment of chronic duodenal ulcer will usually consist of gastrojejunostomy, preferably by the "no loop" method. The small esteem in which surgery of the stomach and duodenum is held by many professional men, and the bad results reported, have been largely due to mistakes in diagnosis and unnecessary operations performed where no ulcer existed. So far as possible, he has traced patients with duodenal ulcers operated on in 1906-7. One hundred and nineteen patients were operated on in 1906-7, and 106 were traced. Of these 87, or 82 per cent., were cured; 10, or 9.5 per cent., improved; and 6, or 5.7 per cent., unimproved, making cured and improved 91.5 per cent. The operative mortality in the whole number of cases was 2.8 per cent.

The Lancet, August 8, 1908.

Human Tuberculosis and Cattle Tuberculosis; Investigations as Regards Ninety-seven Norwegian Farms.—Birger Overland recapitulates some of the best known facts of what has been ascertained as to the relation between tuberculosis in man and in cattle. He determined to ascertain if possible whether it is a rare or frequent occurrence on their Norwegian farms for cattle and man to infect each other. During his examination he used the following scheme of questions: When was the live stock tested? How many animals had you then? How many of these reacted to tuberculin? Have any instances of disease occurred among the occupants which may have been tuberculosis? If tuberculosis has been made out in the cattle the following questions are put: Has the animal been bred on the farm, or has it been purchased; if so, how long ago? How old is the reacting animal? Have any of the milkmaids been tuberculous? Have children drunk unboiled milk? Has any child shown suspicious symptoms? In cases of tuberculosis in the occupants the following are the questions asked: Has the patient had anything to do with the cowhouse; when and for how long? If he may have been infected through milk, were other sources of infection possible? He makes up the results in four groups. 1. Farms where no positive tuberculin test in the live stock has occurred, and where he has not been able to find cases of tuberculosis among the occupants. 2. Farms with no positive tuberculin test in the live stock, but with cases of tuberculosis among the occupants. 3. Farms with positive tuberculin test in the live stock, but with no cases of tuberculosis among the occupants. 4. Farms with positive tuberculin test in the live stock and with cases of tuberculosis among the occupants. His material was procured from 97 farms with 1,157 total head of cattle. His contention was that *tuberculosis in man and tuberculosis in cattle have a certain relation to each other*, as reaction in cattle on farms where human tuberculosis has been traceable occurs nearly three times as frequently as on farms where this disease was not found.

The Treatment of Abscess of the Appendix.—Archibald W. Cuff believes that they should always endeavor to remove the appendix at the same time that they open and drain the abscess if there are no grave contraindications. Among the disadvantages of leaving the appendix even for a short time is the unpleasant way in which in many of these cases a sinus, or even a fistula, is left. Again, these wounds heal less kindly. It should be borne in mind, too, that a second operation is no slight ordeal to a patient who has been through a painful and perhaps an exhausting sickness. In view of these considerations he urges the advisability of always removing the appendix at the first operation whenever feasible, and this will rarely not be the case.

Use of Selected Lactic Acid Bacilli and Soured Milk in the Treatment of Some Forms of Chronic Ill-Health.—George Herschell says milk curdled with the lactic acid bacillus is a most wholesome food, and can be used with benefit in such diseases as anorexia nervosa, phthisis, hyperchlorhydria and achylia gastrica; chronic duodenal catarrh, chronic gastritis and malignant disease of the stomach. Among other conditions in which this bacillus, either as a pure culture or as curdled milk, may be given to patients is abnormal fermentation in the intestine, causing ill-health either by local irritation or by autointoxication. It may also be given to render the gastrointestinal tract aseptic previous to an operation upon it. It may be used in some forms of constipation, especially the atonic form, which is due to defective peristalsis dependent upon muscular weakness or upon deficient innervation. Anything up to a pint of curdled milk may be given during the day. From a dietetic point of view all cases are divided into three groups, the acute, subacute, and the chronic. In the acute cases it is a good plan to commence by suppressing all food except solution of sugar of milk in water, solution of malt extract in water, and the culture of the bacillus which they were giving. In the subacute cases he advised eliminating meat from the diet, which should consist of yolks of eggs, butter, bread, potatoes, milk puddings, fruit, and vegetables. In the ordinary chronic cases he quotes the rules taken from Combe. Avoid all substances which can act as culture media for proteolytic baccili. Avoid all meat fat. Limit the patient to fresh butter and yolks of eggs. Avoid all high meat and game.

British Medical Journal, August 8, 1908.

Treatment of Some of the Severer Forms of Headache.—Wilfred Harris says that clinical grouping according to the situation of the pain or its character is altogether unsatisfactory and misleading, and he has arrived at an anatomical classification of his own after careful consideration. Of the causes within the cranial cavity, the true neuralgic headaches, such as the neurasthenic, or that produced by dazzling of the eyes, various emotions, a thunderstorm, etc., are best relieved by rest and antineuralgic remedies, such as phenacetin, pyramidon, and this class of drugs. The toxemic headaches are often caused by constipation and sluggish livers; unless a regular daily habit of the bowel is established by means of daily saline laxatives, the headaches will recur. To relieve the pain of migraine, remedies which will lower the intracranial pressure must be applied. The available remedies may be divided into two classes: 1. Local, trephining and opening the dura; lumbar puncture; leeches to the scalp; fomentations, hot bottles, or icebag to the scalp and neck. 2. Indirect, by lowering of the general blood pressure, nitroglycerine, and the nitrites; cardiac depressants; purgation, diaphoresis, hot baths. He believes the operation of trephining for the relief of migraine is justified in those severe cases which frequently recur and in which the patient is prostrated for one or more days every week. But before this is seriously thought of leeches to the scalp should be applied, and ten grains of Dover's powder given, with a hot drink containing one-sixth of a grain of pilocarpine. The patient should be kept lying down, warmly wrapped up, so as to promote perspiration. Under this treatment he has seen great and speedy relief.

The Dangers of Calmette's Ophthalmo-Reaction.—Three cases are reported by T. Harrison Butler to show that the dangers of Calmette's reaction are very real, and that, as the reaction is by no means conclusive, it is hardly a justifiable method of diagnosis. Personally he has abandoned the method, and is now employing injections of old tuberculin to help to decide the question as to whether a disease is or is not tuberculous in character.

Berliner klinische Wochenschrift, August 3, 1908.

Fulguration.—Arndt has studied the effect of fulguration, the method introduced by Keating-Hart for the treatment of malignant disease. He concludes that deep narcosis is not needed in using fulguration, if care is taken not to expose the skin to the effects of the sparks or to protect exposed skin by dry compresses. The fulguration of the skin, of the muscles, and of the bones produces hardly any effect upon the action of the heart or of respiration. Fulguration of the dura and of the brain is followed by no immediate harmful results, while small irritation may be avoided by the use of short sparks. Fulguration of the organs in the thoracic cavity may be used only after certain protective measures have been taken, the heart reacting with arrhythmia and the blood pressure falling immediately after the beginning of the application. Especially marked were the symptoms of irritation when carbonic acid gas was used for cooling purposes. The direct application of the sparks to the digestive organs and to the bladder cause marked peristalsis, but the abdominal walls or dry compresses efficiently protect these organs from any indirect influence. Pieces of normal or tumor tissue examined immediately after fulguration showed no change except a little superficial necrosis.

Relations of the Adrenals to the Kidneys.—Reicher says that it has been shown that the adrenal substances are increased in the blood and the adrenal organs are hypertrophied in marked cases of nephritis; in animals, total or partial nephrectomy or the ligature of the renal arteries causes increased secretion on the part of the adrenal glands. Siegel has shown that actual nephritis may be produced in animals by exposing the bared kidneys to the effects of cold, bilateral disease being usually produced. Reicher's experiments have shown that the partial submersion of an animal in icewater leads to an increased content of the blood in adrenal substances immediately after the experiments, and a few days later albumin and casts make their appearance in the urine. The exposure to cold seems to act as a very potent stimulus to the adrenal glands, and the increased secretion of the latter causes active contraction of the kidney vessels; the active principle of this secretion has a selective effect upon the kidney, the oncometer showing diminution in its volume and therefore contraction of its vessels long before the general blood pressure is raised. The increased content of the blood in adrenal substances may explain the origin of some kidney affections leading, as it does, to long-continued ischemia accompanied by poor nutrition of the kidney substance. Three cases of arterial sclerosis with beginning nephritis have shown the presence of an increased amount of adrenal substances in the blood. Neither these few cases nor the animal experiments justify any final conclusions as to the etiology of nephritis, the fact, however, that there exists an interrelation between the activity of the adrenal glands and the kidneys seems to be proven by the above results.

Deutsche medizinische Wochenschrift, July 30, 1908.

The Advantages of Pfannenstiel Incision.—Zimmermann says that all chronic inflammations of the pelvic organs ought to be dealt with by the abdominal route in order that any complications from the appendix may be treated. Such operations may now be much more readily advised since the introduction of the Pfannenstiel incision, which saves the patient from the dangers of the classical laparotomy, the chief of which is the postoperative appearance of hernia. The main points of the Pfannenstiel incision consist in a transverse incision at the upper limit of the pubic hair dividing the skin and subcutaneous tissues in a curved line; the fasciæ are incised in the same manner and the two free borders dissected upward and downward; the recti are separated longitudinally and the transversalis fascia and the peritoneum are divided in the same manner. The introduction of a speculum or retractors into the wound made in this fashion gives a very good view of the gynecological field for operation, while the region of the cecum and the appendix is likewise within easy reach. The advantages of the incision are: the scar falls in the hair line or in the natural fold of the skin above the symphysis; contractions of abdominal muscles lead to diminution and not to increase in the size of the wound, and coughing or vomiting are not as apt to produce hernia; there is direct access to the organs to be treated and the absence of much retraction and of pulling on the peritoneum diminishes the operative shock; herniæ are extremely rare occurrences in the postoperative history. The one disadvantage of the incision, the danger of subfascial suppuration in the event of wound infection, simply calls for perfect asepsis in operating. The incision, however, is not adapted to dealing with large solid tumors or any other conditions that occupy the large pelvis. Affections confined to the small pelvis are the ones best handled by the Pfannenstiel incision.

Pyelitis.—Scheidemandel says that pyelitis appears much more frequently as a primary affection than is usually thought. It is more frequent in women than in men. It is marked by a sudden rise in temperature, and by attacks of pain affecting the right side more often than the left; objective examination shows the presence of pus and bacteria in the urine, which findings may appear only intermittently. The fever continues for five or six days and is followed by a lytic or a critical fall, thus simulating lobar pneumonia. A second attack usually follows after a few days' intermission, this time involving the side which has previously been unaffected. The disease is probably due to the colon bacilli by ascending infection from the anus. Recovery follows after two or three attacks, the chronic form of the disease being a rare sequel. Of especial interest is the premenstrual form of pyelitis appearing three days before that function takes place. The therapy consists in rest in bed, the administration in abundance of slightly diuretic decoctions, warm compresses, light diet and the use of narcotics when called for by intense pain. The prolonged use of hexamethyleneamin, salol, etc., is to be condemned. The disease deserves to be better known among physicians, many cases being diagnosed as appendicitis ovaritis, etc.

Treatment of Cardiac Diseases by Thermal and Massage Applications.—Angelo Velpe has for twenty years studied the treatment of cardiac disease in connection with the administration of the Baths at Naples. He concludes from his experience that we cannot hope for a cure in organic cardiac affections, but that marked relief may be obtained in many conditions. The cardiac functions may be temporarily or permanently modified. Thermomineral alkaline baths and massage together present advantages over any other form of treatment, in that the heart does not become accustomed to them. The application should be most carefully controlled by the physician. It increases the systole of the heart, lowers blood pressure, lessens the obstacles to the heart action, and improves the circulation. In well compensated lesions with hypertrophy it will do harm by increasing the energy of the systole. The pulse is differently affected in different affections, being slowed or increased in rapidity according to the heart condition. The treatment has little influence on arrythmia.—*Annali di Elettricità Medica e Terapia Fisica.*

Book Reviews.

State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic; Assistant Visiting Physician to the Philadelphia General Hospital. Philadelphia and London. W. B. Saunders Co., 1908.

This large volume contains a selection of the questions asked at some of the State Board Examinations, with answers to the same. With regard to the questions, while doubtless they are well chosen, a selection is not of much use to any candidate; he would like to see the omitted questions, or at any rate to know what proportion the selected ones bear to the whole. Perhaps the omitted questions are those most difficult to answer, or even to understand; for examination questions are not always as lucid as the answers are expected to be. Many of the answers are satisfactory, some being taken bodily from other sources (*e.g.* from the Medical Record). But some of the questions are only partially answered, some of the answers are inadequate, and some, we fear, would not be accepted even by a State Board Examiner. For example, a poison is defined as "any substance producing deleterious effects upon the animal organism"; this would include a brick-bat or an automobile. "Expired air contains no oxygen or only a very little." Na_2CO_3 is given as the formula for sodium bicarbonate. Several of the chemical equations do not balance. The rate of the blood current in the capillaries is given as two inches a second. "Boron is one of the constituent elements of the human body." The pneumogastric nerve is said to be "exclusively motor." "The foramen ovale of the heart carries the blood which enters the left auricle from the inferior vena cava, to the right auricle." Those who might use this compilation with safety (that is, with discrimination) are the ones who do not require it; while those who need such assistance as the volume affords are liable to be misled, perhaps fatally.

Manual of Surgery. By Alexis Thomson, F.R.C.S. Ed., Assistant Surgeon Edinburgh Royal Infirmary; Surgeon to the Deaconess Hospital, Edinburgh; and Alexander Miles, F.R.C.S. Ed., Assistant Surgeon Edinburgh Royal Infirmary; Surgeon to Leith Hospital. Vol. I, General Surgery; Vol. II, Regional Surgery. Second Edition. Revised and enlarged; with 203 illustrations. Philadelphia and London: J. B. Lippincott Company, 1908.

To write a serviceable manual of surgery in two small volumes, properly culling the important parts from the vast material of the theory and practice of this specialty, is no easy task. It is, therefore, a pleasure to see it so successfully accomplished as is shown in the "Manual of Surgery" of Drs. Thomson and Miles. The first volume shows original distribution of material; repair, conditions interfering with repair, surgical bacteriology, the temperature in surgical diseases, and the methods of wound treatment preceding the discussion of inflammation. Suppuration, ulceration, gangrene, chronic infections and tumors are then considered. The rest of the first volume treats of the diseases of blood and lymph vessels, of nerves, of bones and joints and the structures in relation to these. A special chapter on the deformities of extremities closes the volume. Volume II is devoted to regional surgery, about one-third of the book being given up to surgery of the abdomen and of the pelvis. The rest of the volume treats of the surgical diseases of the head, neck and chest. Most of the chapters are introduced by short, but ample, sketches of the surgical anatomy of the parts considered; the clinical pictures of the affections are clearly defined; treatment is given a great deal of space, specific instructions and suggestions prevailing under this heading. The work shows careful attempt to bring it up to date, the etiology of syphilis, the diseases of the pancreas, the nature of shock, Bier's hyperemic method of treatment, etc., being discussed in the light of recent advances in our knowledge. On the whole, these volumes form as useful and as compact a manual of surgery as we have seen.

Climate. By Robert De Courcy Ward, Assistant Professor of Climatology in Harvard University. New York and London: G. P. Putnam's Sons, 1908.

Works on climatology have always been disappointing so far as therapeutics is concerned, and this one is no exception. Professor Ward has compiled a mass of data of extreme value to those who are interested in climate by itself, but curiously little of it has a practical medical bearing, and that little is stated in such general terms as to be of no value to apply to particular invalids, and some of it is incorrect. As a textbook on classifications of climates it is excellent, and the chapters devoted to the characteristics of the zones give the facts with accuracy, but when the author describes the life of man he is on debatable ground. It is clearly stated that the plants and animals adjusted to the conditions of one locality cannot thrive or even survive elsewhere, and he gives some of the details whereby survival is possible in certain adversities. Yet in only one place is it casually intimated that the same law applies to the various types of man, each of which is also adjusted to its climate. That is, every climate is perfect for all living forms which have become moulded to it by a long process of selection. Elsewhere and throughout the work the impression is given that climates must be studied in relation to mankind in general, and that some are better than others. No greater mistake is possible, though it is the old view of climatologists. There is little in the book as to the recent anthropological studies which prove that the characteristics of races are evolved by climate killing the unfit and selecting the fit, and that, for instance, the apparent laziness of tropical natives and energy of those in colder places is a necessary character thus indirectly evolved—not as a direct effect of climate on the individual. Indeed it is known that a tropical climate at first has a stimulating effect upon northern types, which later become lethargic from exhaustion, while the native race is lethargic from normal functioning.

The discussion of hygiene of the zones does not completely accord with what is known of the infections which have been so fatal in the past, nor with the recently discovered facts as to the physiological effects of light and heat. The author speaks of the blood becoming "more dilute" in the tropics, whereas it is known that some of the most deplorable results are due to increased specific gravity. He speaks of beriberi being a tropical disease, though some of its worst ravages have been in Manchuria. In the discussion of tropical diseases, opinions are expressed which also are not in accordance with the results of tropical studies. It is said that "the best preventives of plague are pure air and modern sanitation," yet it is known that fleas are the sole carriers, and that if they are prevented from biting plague is never contracted. The advice that "many elderly persons and those who are overworked may find rest from nervous tension in the enervating climate of the tropics" is dangerous in view of the high mortality rate among elderly and exhausted persons who go to the tropics.

The Reduction of Cancer. By the Hon. Rollo Russell. Longmans, Green & Co., 1907.

This essay is written with the intention of proving that cancer is due to the excessive use of tea, coffee, alcohol, and "probably of potted and chemicalized meats, pork, and other flesh." The following are the chief arguments advanced, stripped of verbiage and repetitions: (1) Wild animals are free from cancer; domestic ones occasionally subject to cancer as the result of overfeeding and improper diet. (2) Natives of wild and primitive countries living on simple diet are free from cancer; those of highly civilized countries are most affected in proportion to their consumption of tea and coffee; (3) the rich, who drink more alcohol (*sic?*) tea, coffee, and eat more meat, are subject to cancer more frequently than the poor in the same localities. (4) Cancer is becoming more frequent with the increasing abuse of tea, etc.

The few quotations above cited give a fair idea of the fabric of the argument. The conclusion is: Cancer can be reduced by excluding tea, coffee, etc. As well might one argue that tuberculosis is due to coffee, etc., for it occurs in the same or nearly the same geographical distribution as cancer. Domestic animals are affected; wild ones free; civilized races affected, wild ones free, etc., etc. The book cannot be taken seriously by a scientific reader, but it preaches a good doctrine—moderation in diet—and therefore cannot do harm.

Nouveau Traité de Médecine et de Thérapeutique, Publié sous la Direction de MM. P. Brouardel et A. Gilbert. Maladies des Artères et de l'Aorta, par H. Roger, Professeur à la Faculté de Médecine de Paris. Médecin de l'Hôpital de la Charité; A. Gouget, Professeur agrégé à la Faculté de Médecine de Paris, Médecin des Hôpitaux; et E. Boinet, Professeur de Clinique Médecale de l'École de Médecine de Marseille, Médecin des Hôpitaux. Paris: J. B. Baillière et Fils, 1907.

The present volume forms the twenty-tourth of Brouardel and Gilbert's systematic treatise on medicine and therapeutics. In it are considered at great length, with full bibliographical references, etc., the diseases of the arteries and the aorta, from the viewpoint of the physician. Two-thirds of the book, which comprises 472 octavo pages, are devoted to the aorta. Of this space one-half or more is occupied by the subject of aneurysm of the aorta; the rest by aortitis, acute and chronic. Much attention is paid to the pathological and experimental sides of the subject, but the clinical aspect is not neglected. The sections on treatment are very brief, however, as may be expected when dealing with such subjects as arteritis and aortitis. The volume forms a fit companion to the others already issued in this series of monographs.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

68th Annual Meeting, Held in Sheffield, July 24-31, 1908.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page* 343.)

SECTION OF MEDICINE.

Thursday, July 30—Second Day.

Etiology of Degenerative Changes of the Aorta.—Dr. G. NEWTON PITT of London, in opening this discussion, alluded to the circumstance that advanced degeneration might be present in a small part of the aorta while the rest was healthy; this was probably owing to a local infection; also to the fact that with the aorta healthy the peripheral vessels might be atheromatous or *vice versâ*. Atheroma and arteriosclerosis were quite distinct diseases and much confusion had resulted from not observing this distinction. Atheroma of the aorta was not a single process but the result of a number of different causes and processes. The changes might result from infection from within, but it was unusual to have aortic changes from the acute infectious diseases, the protection of the system was so good. Pyrexia was often associated with the development of atheromatous changes in the aorta. High blood tension and strain were possible causes, but at least half the cases of aortic degeneration were not associated with hypertrophy of the heart. In cases, however, with other primary causes these might be secondary causes. Atheroma in the pulmonary artery was practically limited to cases such as those of mitral stenosis, in which the pulmonary arterial blood pressure was increased. Reference was made to the tendency of atheromatous patches to increase. It was a question whether the changes in the intima were primary or secondary. In any case they were probably protective. The intimal nutrition might be disordered by changes occurring in the middle coat and adventitia, especially those affecting the vasa vasorum. In regard to the influence of old age, atheroma occurred occasionally in the young, therefore, this could not be the only cause; many of the most aged had perfectly healthy vessels; it seemed to be a question of greater frequency of exposure to infection with longer life. Inoculation with organisms failed to produce arterial changes in animals below a certain weight, thus system changes seemed to be a necessary antecedent. It was not at present possible to classify the causes of atheroma of the aorta. Taking the quite early cases, occurring in the early years of life, most were due to syphilis and usually to congenital syphilis. Of other degenerative changes of the aorta in addition to atheroma fatty changes were of importance, but these were not more frequent in the aged than in the young. It was as yet a moot point whether they developed into atheroma. Changes due to the administration of adrenalin and to increased pressure in the aorta experimentally produced, were quite distinct from atheroma; they were of the nature of acute calcareous degeneration of the media. Little was known definitely as to the influence of sex and race in developing atheroma. Occupation seemed to have influence either from strenuousness or sedentary habits. Diet and defective metabolism was one of the causes in the development of atheroma—the toxic effect was probably the main factor.

In regard to aneurysm of the aorta, syphilis rather than atheroma was probably its most important cause, syphilis being traceable in 70 or 80 per cent. of the cases. The process of aneurysm formation was the yielding of a scar tissue following on a gummatous deposit. Many cases of aneurysm showed no evidence of high arterial pressure, but the fact that aneurysm occurred in the lower animals showed that syphilis was not an absolutely essential factor. Reference was made to the experimental production of degeneration of the middle coat of the thoracic aorta by pressure on the aorta in the abdomen. As life increased the lumen of the vessel increased due to a degeneration (not atheromatous) of the middle coat. Acute aortitis might occur from infections which might lead later to atheromatous changes. The significance of pyrexia in such cases was great. As to the experiments with adrenalin the change was not purely the result of high pressure, as the necrosis of the muscle fibers and even the formation of aneurysmal patches occurred if a nitrite were given at the same time. True atheroma had not yet quite clearly been set up by experiments although the inflammatory changes produced simulated it. By using nonvirulent organisms and giving a long time for the experiments, however, changes resembling those of atheroma had been found in the media. Atheroma did not occur with the specific fevers, but in some slowly infective process as by *Staphylococcus albus* or the *Bacillus coli* was a more likely cause, plus the changes of senescence.

Professor C. J. BOUCHARD of Paris gave figures obtained from his researches on 4,000 cases of chest disease examined for the purpose of ascertaining the relations of angina pectoris. Among these 83 had angina, and among them he expected to find that the majority were syphilitic but in 12 only was it definite. There were 12 cases of angina in 261 syphilitics, more than 4.5 per cent., and 71 cases in 3,739 nonsyphilitics, being less than 2 per cent. Syphilitic lesions of the large arteries might be influenced by treatment; he had observed in 7 cases the disappearance of an aortic murmur during treatment. The method he adopted was the injection of mercurial solutions preferably in the neighborhood of the affected artery.

Sir LAUDER BRUNTON of London referred to the influence of a general predisposition and a local cause in arterial degeneration. In the absence of any scientific basis for our treatment of the state of defective metabolism, gouty and other, it was necessary to fall back on the observed effects of medicaments in treating arterial degeneration and its results. Atheroma of the larger arteries was a distinct condition and was apparently producible by experiment. Not only adrenalin but also barium, digitalis, and tobacco might give origin both to rise in blood pressure and also directly to aortic changes. It was important, therefore, to keep the blood tension low. In India the blood pressure had seemed to him to be lower than in this country; and in Canada, according to his observation, higher. The way to keep the blood pressure down was by giving a mixture of a nitrate and a nitrite. In elderly people high arterial tension often manifested itself by epistaxis which could itself be prevented by such treatment. He gave the medicines in doses of one-half to 5 grs. of nitrite of sodium to 20 grs. of nitrate thrice a day. If it were desired to reduce the pressure quickly nitroglycerine was preferable. Potassium iodide with saline and mercurial purgatives were also to be given, and by these and cognate measures the changes of old age might, he believed, be warded off, and life prolonged for five or ten years.

Sir JAMES BARR of Liverpool gave an account of his views of the pathology of aortic degeneration. While recognizing the other causes that had been alluded to he attached very special importance to the influence of intermittent strain in producing aortic degeneration. There should be but little difference between the systolic and diastolic blood pressure to ensure or promote the preservation of the arteries. The influence of heredity was also of great importance.

Dr. W. RUSSELL of Edinburgh thought it was not necessary to have degenerative changes in the aorta even when there was great difference between the systolic and diastolic pressures as in aortic incompetence. He adhered to the infective origin of atheroma. He was extremely glad that the term arteriosclerosis had been taken exception to.

Professor W. OSLER of Oxford repudiated the implication of Sir Lauder Brunton on his country. He would himself say that the British blood pressure was higher than the Canadian, but it was not an opinion based on

definite statistics. The influence of acute infections in the production of aortic lesions was the chief point in the discussion. It was probable that too much importance was attached to small aortic lesions in typhoid, scarlet fever, measles, and pneumonia. In rheumatic fever the matter was different, for the endoaortitis produced was serious. The only infection that was of much moment in producing aortic lesions was syphilis. Its importance was in three directions: in producing aortic insufficiency in young men, in being the frequent cause of angina pectoris in young men; and in the production of aneurysm in young men. This was due to a split in the intima over a small area as a result of sudden strain. The other types of aneurysm occurred in older people and were atheromatous in origin. The importance of the subject was wrapped up in the early and thorough treatment of cases of syphilis.

Sir JOHN BROADBENT of London referred to the relation of atheroma and aneurysm and to the effect of syphilis, but considered that intermittent strain was responsible for a certain number of cases apart from syphilis. The rarity of degenerative changes in the aorta in chronic interstitial nephritis was very significant. The changes in the peripheral vessels in Bright's disease were not degenerative but hypertrophic. The vessels mainly affected were those in the brain. The experimentally induced strain was hardly comparable, he thought, with the prolonged strain as seen for example in chronic Bright's disease. The vasa vasorum were of great importance in this relation: in syphilis endoarteritis obliterans affected these vessels, and the intima became diseased because it was furthest from the blood supply. In the toxic cases the toxins were probably directly destructive of the tissues they had affinity for. The primary change was degenerative and manifested by a large amount of cellular infiltration. In some cases vessels might be found penetrating the media, an abnormal phenomenon which was probably the result of the attempt at repair of a degenerative process following an infective process.

Dr. NEWTON PITT, in reply, thought the important point was that when once a spot of aortic damage occurred from any cause that that became vulnerable to infections. It was to be remembered that aneurysm was much more common in herbivorous animals than in carnivora; this had significance on the question of the influence of nitrogenous diet. The chief cause of aneurysm on herbivora was the presence of parasites.

Dr. WILLIAM RUSSELL of Edinburgh then read a paper on "The influence of the arterial wall in the clinical hemomanometric estimation of blood pressure," emphasizing the influence of a thickened ventricle in giving high manometric readings.

Prevention of Pleural Adhesions.—Dr. OTTO GRÜNBAUM and Dr. W. O. PITT of London read this paper, entitled "An Attempt to Prevent the Adhesion of the Pleura after Inflammation." The method adopted, the use of air failing to prevent adhesions, was to inject a harmless and slowly absorbed fluid into the pleural cavity. Such a fluid was found in the liquid paraffin of the British Pharmacopœia. Staphylococci and aluron were injected into the pleural sacs of guinea pigs, producing purulent inflammation, and after that the paraffin seemed to diminish the formation of adhesions.

Sir JAMES BARR of Liverpool said he had used the method for several years and, as he believed, with good results. He would, however, inject air at the same time.

Dr. W. RUSSELL asked if recovery of the pleural surface without adhesion could occur in the presence of the destruction of the serosa.

Dr. NEWTON PITT said he had seen absolute recovery of the pleural surface—becoming smooth and without adhesion—after empyema.

Dr. O. GRÜNBAUM said that his experience had been that complete recovery occurred in joints after pneumococcic inflammation.

Friday, July 31—Third Day.

Treatment of Gastric and Duodenal Ulcer by the Internal Administration of Antilytic Serum.—Dr. E. C. HORT of Torquay read this paper. A fair if rather rough estimation of the activity of any particular sample of antilytic serum could be arrived at by observing the effect of its application to any open wound. A summary was given of twenty-five cases of gastric and duodenal ulcer treated with the serum together with strict avoidance of a slop diet and rectal feeding.

Pneumothorax.—Dr. M. PARRY JONES of Derby read a paper on some cases of pneumothorax, arguing that the prognosis even in association with tubercle was not so grave as was frequently considered.

Human and Bovine Tuberculosis.—Dr. NATHAN RAW of Liverpool read a paper on human and bovine tuberculosis with special reference to tuberculin, maintaining that from 10 to 20 per cent. of the tuberculous lesions in the human subject were set up by the bacilli of bovine tubercle. His views were based on a study of 4,000 cases of pulmonary tuberculosis and 1,600 cases of so-called surgical tuberculosis. His previously expressed views as to the different seats of invasion by the human and bovine types of the tubercle bacillus were developed. He argued for the treatment of different forms of tubercle by different varieties of tuberculin, particularly of human tubercle of the lungs with bovine tuberculin and of human surgical tubercle (really, he maintained, a bovine tubercle), with human tuberculin.

The Class System in the Home Treatment of Tuberculosis.—Dr. J. H. PRATT of Baltimore, Md., communicated a paper containing the results obtained by treating pulmonary tuberculosis in the home by the "class" system. The chief rule of the "class" was that the patient should spend the entire day in rest in the open air and in many cases sleep in the open air. The essential feature of the "class" system was a weekly meeting, when the patients were seen and examined by the medical man and the record books kept by the nurse in the intervals were examined.

A Misleading Cardiac Murmur.—Dr. J. E. SQUIRE of London read a paper on an exocardial murmur often misinterpreted, a cardio-respiratory murmur of no importance in regard to the health of the subject, but of especial interest in relation to life insurance.

Treatment of Sciatica.—Dr. J. BRINDLEY JAMES of London read a paper on the treatment of sciatica by the injection of sulphuric ether combined with either cocaine or morphine into the sciatic nerve, beginning with doses of 5 minims of ether and 2 minims of a 5 per cent. solution of cocaine or 3 minims of solution of morphine and gradually increasing the dose. A needle 2½ inches long was used after marking out the position of the nerve by measurement and touch. It was important to notice that unless the patient shot out his leg at the time of the injection the nerve had not been touched.

Dr. RUPERT WATERHOUSE of Bath read a paper on syphilitic arthritis.

Constipation.—Dr. A. F. HERTZ of London read this paper, on giving a lantern demonstration of radiographs of the passage of bismuth-meals through the different parts of the bowel.

Dr. WILFRED HARRIS of London gave a cinematograph demonstration illustrating typical gaits, tremors, elicitation of various reflexes, etc., in cases of nervous disease.

Dr. GODFREY CARTER of Sheffield described a case of apyrexial typhoid fever.

SECTION OF SURGERY.

Friday, July 31—Third Day.

The Technique of Cancer Operations, with Reference to the Danger of Cancer Infection—Mr. CHARLES RYALL in this paper said that cancer was a spreading infective

process, the cells containing the elements of infection. From the primary growth the disease invaded surrounding tissues, and also disseminated to distant parts. The cancer cells in their behavior resembled infective bacteria. Secondary malignant foci might result from contact infection, or from distant implantation, and these processes could be set in motion by operation, as exemplified by suture-scar infection, nodular infection within the area of the wound, and diffuse or brawny infection. Hence the need of special technique in cancer surgery. When exploratory incision proved a growth to be malignant, and excision was forthwith carried out, fresh instruments, towels, bowls, etc., were then employed, and the surgeon's hand sterilized *de novo*. The ideal method of removing a cancerous growth was to excise a shell of healthy tissue enclosing the cancer and the nearest lymphatic glands. Gentleness of manipulation was to be seduously cultivated, in order to avoid squeezing cells into uninfected tissues; and the curette, if used for scraping away necrotic cancerous material, should never be applied beyond the region of the growth.

Painful Displacement of Ribs.—Prof. Depage of Brussels read this paper. The patients were women in whom the eleventh or the tenth rib pressed on the iliac crest, or one overrode the other, and thus gave rise to iliac pain, usually on the right side. The symptom might be mistakenly ascribed to nephroptosis, appendicitis, or salpingitis, and unsuitable operations might consequently be performed. The pain was probably due in different cases to compression of nerves, to periostitis, or to peri chondritis. The best early treatment was by selected gymnastics continued for a year, and corsets were to be forbidden. In four patients whose suffering was intolerable resection of the anterior ends of the ribs was performed—of the eleventh rib alone in three cases, and of the tenth and eleventh ribs in the other case, a perfect cure resulting in all.

Some Cases of Hematuria.—Mr. Andrew Fullerton presented a report of a group of cases having hematuria as their common symptom. The series included urethral papilloma, enlarged prostate, vesical calculus, new growths, ulceration, varices, and traumatic lesions of the bladder; bilharzia hæmatobia; renal calculus; nephritis; malignant tumor, cystic disease, and tuberculosis of the kidneys; nephroptosis; and injury to the kidney.

Treatment of Fractures by Mobilization and Massage.—Dr. Just Lucas-Championnière of Paris, in this paper, maintained the following thesis, viz.: "Absolute fixation of the fragments is not the most favorable condition for the phenomena necessary to repair at the site of fracture. A certain amount of movement is the necessary condition." Painless massage, followed by passive movements, and as soon as possible by active movements, should be the routine practice. Very rarely deviation of the axis would require correction under chloroform, and the infrequent use of fixed apparatus for a short time. The value of early mobilization was most marked in articular fractures, especially at the shoulders, elbow, and wrist. Fractures of the leg needed discrimination as to treatment—some must be immobilized, and an exceptional case might demand suture.

Spasmodic Torticollis.—Mr. Robert Kennedy presented this communication. The treatment advocated for the severe form of this affection was section of the posterior primary divisions of the upper cervical nerves, which were best reached through an incision along the outer edge of the complexus muscle. Drawings illustrating the anatomy of the region concerned were exhibited.

Technique of Tarsectomy for Talipes Equinovarus.—By Dr. Charles Willens of Ghent. An operation, called "anatomical" tarsectomy, in distinction from "cuneiform" tarsectomy, was described. It consisted of four steps: (1) Excision of a piece of skin over the extensor brevis digitorum; (2) entire removal of the astragalus; (3) resection of the anterior third or more of the calcaneum, and (4) rotation of the foot so as to approximate the cuboid to the tibiofibular surface of the ankle joint. It was claimed that excellent functional results followed, and that tarsectomy was superior to bloodless orthopedic treatment, and to Phelps' operation. In the discussion Dr. Starr of Toronto objected to Dr. Willens' excision for juvenile clubfoot. He preferred removal of the head of the astragalus, combined with a wedge of bone from the calcaneum.

Mr. Cuthbert and Dr. Lucas-Championnière supported Dr. Willens' opinion in favor of tarsectomy as against manipulations.

Some Points About Puncture of the Brain.—Prof. Tillmanns of Leipzig read this paper. The technique of the operation was described. When drainage is indicated for the relief of hydrocephalus, the author would resect the lateral ventricle from above, rather than from the front or side of the skull.

Selection of the Method of Operating for Cancer of the Rectum.—By Mr. Douglas Drew. The combined abdominoperineal method was recommended on the ground that hemorrhage could thereby be more readily controlled, and the growth more thoroughly examined and satisfactorily dealt with.

Prostatectomy by the Combined Routes.—By Mr. Lynn Thomas. The prostate having been separated by the finger through a suprapubic cystectomy wound, a pair of forceps was passed from the prostatic bag to the perineum, and the latter opened to allow passage of the forceps. A rubber tube, five-eighths of an inch in diameter, was then passed through the perineal wound from above and left in for eight days.

Mr. Sinclair White said that he formerly practised this procedure, but now saw no necessity for a perineal opening.

Surgical Statistics.—By Mr. Ernest H. Groves. The discrepancy observed in statistical tables from various sources was remarked upon, and it was suggested that the surgical registrars of hospitals should cooperate in drafting a scheme to insure more uniform and reliable figures, especially in regard to the percentage mortality of hazardous operations.

Gastrostomy.—Mr. Wilmott Evans, in this paper, urged that the operation, when performed for the relief of esophageal cancer, should not be deferred until the patient was asthenic owing to malnutrition. He advocated Senn's method of inverting a cone of the gastric wall, one and one-half to three inches in length, omitting the detail of making a cuff of omentum. The procedure could be done in fifteen minutes, and leakage never occurred.

The Indirect Treatment of Diseases of the Testis Causing Hydrocele.—Mr. Edred Corner read this paper. It was submitted that in certain forms of testicular disease benefit would accrue from resection of the spermatic vessels, or of the vas deferens.

SECTION OF TROPICAL DISEASES.

Thursday, July 30—Second Day.

Sanitation in Reference to Ankylostomiasis in the Tropics.—Sir Patrick Manson, K.C.M.G., opened this discussion. He said the epidemiologist, the clinician, the pathologist, and the helminthologist had together completed the picture of ankylostomiasis, they had indicated its vast geographical range, the gravity and amount of injury, personal and economic, which it inflicted, had demonstrated its cause and the precise way in which this cause entered and affected the human body, and yet with all that knowledge at his disposal the sanitarian had hardly attempted in tropical countries at all events to seriously grapple with the subject or to avail himself of the splendid opportunity

of conferring an immense boon on tropical humanity. One would have thought that, considering the vast extent and importance of her possessions there, Great Britain would have been the first to grapple with the ankylostomiasis problem as it presented itself in the tropics. Not so, and it was indeed little to her credit that the youngest of colonizing powers, the United States of America, had been first in the field and by her efforts in Porto Rico, Havana, and Panama, had set them an example and shown what could be done by intelligent and energetic tropical sanitation. Ankylostomiasis occurred in all tropical and most subtropical countries; in some rural districts 50 to 90 per cent. of the inhabitants were infected. It was one of the deadliest scourges, and some writers regarded it in the aggregate a more serious disease than even cholera or yellow fever. Surely it was a matter of primary importance that if at all feasible the problem of a special and appropriate sanitation be faced, and this all the more seeing that they had complete assurance that if adequate sanitary measures were applied intelligently and with vigor complete success would follow. The life-history of the cause, namely of the worm, was adequate basis on which to found such sanitary measures, and that life-history they now know. They might attain success by expelling the mature worm or by preventing the hatching out of the egg, or by killing the larvæ, or by preventing contact by the larva with the skin, or they might succeed by combination of two or more of these methods. Could the entire population of an infected area be thoroughly dosed with beta naphthol or with thymol he had no doubt the local ankylostomiasis would be effectually dealt with for the time being; but any such attempt to eradicate anxylostomiasis was bound to fail. It would be vastly beneficial as regards the individuals treated, but not radical as regards the community, because the drugging could not be efficiently carried out and fresh infection would constantly be introduced from without. The compulsory use of shoes or the tarring of the feet to avoid contact with contaminated soil were relatively expensive measures, and certainly would never be employed in the case of native children. In common with many others he regarded fecal disposal as the crux of the ankylostomiasis problems. It was quite feasible, in his opinion, to get the coolie or native to drop his excrements into a hole in the ground and without contaminating the surrounding soil. The eggs, in absence of oxygen, would not hatch, or, if hatched out, the larvæ would have no opportunity of getting at the human skin. That method would cost nothing, and if uniformly and properly and permanently carried out would be absolutely effective. In tropical countries treatment of feces by chemicals or desiccation was out of the question if only on the score of expense. Under ordinary conditions of native life the only practicable method of effectively dealing with ankylostomiasis as an endemic disease must be based on the disposal of the feces. He thought other measures had better not be pressed, so that all available funds and energy should be directed to carrying out the least expensive, least irritating, and most efficient, viz., fecal disposal. Simple though that measure might appear to be, its application was by no means easy. In European-owned or large native plantations or factories the matter should be easy enough. In that case government had merely to decree that latrines of a particular type must be used, and to enforce their use by fine if necessary. But it was otherwise with native villages and scattered communities. To get at these he would suggest that the responsibility for the observance of a latrine ordinance be fixed on some local notable or head man selected by each village, community, or district; that he be made responsible to the medical officer of the district, who in turn would be responsible to the surgeon general of the colony, and that an inspector general be appointed for each group of colonies and be responsible to the Secretary of State for the effective carrying out of ankylostomiasis prophylaxis. As a subsidiary measure he would suggest making use of local post offices for the sale at cost price of anthelmintics just as had been done so successfully in India in connection with quinine. The scattering broadcast of leaflets or posters explaining in simple language the symptoms, nature, treatment, and prophylaxis of ankylostomiasis, and, above all, the teaching in schools would be of much value. Should these measures prove successful, more attention might thus be given to prevention of the introduction of ankylostomiasis by coolie ships and otherwise. The matter of ankylostomiasis was a serious one for the tropics and should be faced.

Ankylostomiasis in British Guiana.—Dr. W. F. Law of British Guiana read this paper. He said ankylostomiasis was a serious disease in British Guiana. The great bulk of their labor supply, especially on sugar estates, consisted of East Indians brought to the country under indenture. The infection was being regularly conveyed from India by newly arrived immigrants. Roughly speaking, some 45 per cent. of them were infected. There was no definite proof that the disease existed in the colony prior to immigration. Now it was widely distributed and affected to a very serious degree the health of the laboring population. Early recognition of the disease was of the highest importance, because unless the patient were treated early he would pass gradually into a state of chronic invalidism and ultimately die from the direct or indirect effects of the disease. With regard to treatment, beta-naphthol was now used more than thymol. It was quite as efficacious, was not followed by any unpleasant effects, and the patients took it much more readily. The eucalyptus and chloroform treatment had been tried but had on several occasions been followed by unpleasant effects, whilst its anthelmintic properties had not appeared to be equal to those of thymol or beta-naphthol. The question of prevention might be summed up in one word, "latrines." It mattered not whether they held that infection took place through the mouth or through the skin, once they had the soil polluted by infected stools the spread of the disease was certain. It had been a struggle of years to get employers of labor to recognize the need for latrine accommodation; when he first advocated it he was met by the objection that the coolie would never use them, but experiment had proved that that was not the case.

Ankylostomiasis in South Africa.—Dr. G. A. Turner of the Transvaal read this paper. He gave a detailed and interesting account of the geographical distribution of ankylostomiasis amongst the natives of South Africa based on microscopical examination of feces and on post mortems. The disease was absent from all the temperate parts; that is to say, Cape Colony (excepting of course De Beers mine), Orange River Colony, Basutoland, Bechuanaland, and most of the Transvaal. Gold miners on the Rand, both European and colored, were not being infected there or at any rate only to a very trivial extent, notwithstanding that infection was pouring down the mines daily and hourly. Probably this was due to several factors: (1) acid (sulphuric acid) reaction of mine waters; (2) iron salts (sulphates) contained in mine waters; (3) low temperature of some mines; (4) dryness of some workings. One mine was an exception to the general rule. In this mine every European employed who went below ground contracted the characteristic cutaneous eruption (bunches) and was found afterwards to harbor the parasite. This mine was a deep one, the temperature below ground high, the mine wet, and samples of mine water gave alkaline reaction. The disease had every opportunity of developing.

Dr. A. May, Government Bacteriologist of the Transvaal, continued the discussion with a "Preliminary report on the inhibitory action of dilute solution of acid on the development of the ova of the *Ankylostoma duodenale*." His experiments showed that dilution of sulphuric acid up to the strength of 0.07 per cent. did not prevent the development of the ova into larvæ, but prevented further growth. Dilutions of 0.25 to 1 per cent. of acid seemed to prevent the development of the ova.

Dr. L. Nattan-Larrier of Paris made some remarks on the treatment of ankylostomiasis by thymol and filices.

Dr. Louis W. Sambon said ankylostomiasis, like malaria, beriberi, and pellagra, was principally a disease of the laboring masses. Its wide range and extreme prevalence, its great potency as a cause of disablement, degeneration, and death, placed it among the most formidable disease scourges of mankind. Yet it is a preventable disease, and to all appearances an easily preventable disease. Its unabated continuance was therefore a crying shame to science, government, and humanity. Sir Patrick Manson had told them how the people of the American Union were now grappling with the disease. Great Britain ought to have been in the field long ago. Now, the least they could do was to cooperate with the Americans by cleansing their own colonies, lest inaction on their part be a serious obstacle to others. The prompt, thorough and successful measures adopted by the Americans against yellow fever and against many other tropical diseases both of man and cattle had proved them to be eminently practical and in the exploitation of knowledge far in advance of any other nation. To cite an example of their own supineness, he need but mention the discovery made thirty years ago that mosquitos foster and convey *Filaria bancrofti*. What had been done in all those years to diminish the incidence of filariasis and its attendant horror, elephantiasis? Nothing —absolutely nothing. The disease would eventually disappear not for any measure taken against it, but because mosquitos were now being exterminated as agents in the spread of malaria and yellow fever. Instead of bestirring themselves to put into act and fact the knowledge that had been acquired more at the cost of professional devotion and life than public money, they found their salaried scientists and officials spending all their energy in a negative direction. The former endeavoring to disprove the best established facts, the latter raising every possible opposition against the most useful measures. With regard to ankylostomiasis modern science had only recently apprehended its cause and was only just beginning to consider what steps might be taken for its eradication, but so long ago as 1550 years B.C. the ancient Egyptians appeared to have had a correct knowledge of its etiology and to have adopted measures for its treatment and prophylaxis. According to Schenthaner and Joachim, the famous Papyrus Ebers rightly ascribed the *aaa* disease or endemic anemia to an intestinal parasite, the *Heltu* worm, for which a remedy was prescribed, and von Oefele had pointed out that the ancient Egyptians associated the disease with the carrying and handling of sand. Might not their extraordinary veneration for the dung-beetle, the *Ateuchus sacer* of modern entomologists, be connected with the prophylaxis of ankylostomiasis and other infections spread by the means of contaminated feces? He made the suggestion merely as a matter of archæological curiosity. They all knew what an important part the scarab played in the theogony of the banks of the Nile. This remarkable beetle was represented on all the monuments of the Pharaohs from the great Delta to the very heart of Nubia; it was carved of all dimensions and in every possible material more frequently than any other figure and from the remotest period. Evidently the ancient Egyptians, perfectly cognizant of the benefit derived from this wonderful scavenger, looked upon it as a tutelary god. This suggestion seemed to him more plausible than any of the fanciful reasons hitherto advanced to explain why they considered the dung-beetle as sacred. In support was the fact that other animals likewise had been consecrated by the Egyptians in order to protect and preserve them on account of the beneficial actions they exercised in keeping down vermin. He need but mention the cat, the kestrel, the viper, natural enemies of the plague-conveying rat. In 1900, in the Roman Campagna, he had had the opportunity of studying the habits of the sacred dung-beetle, and he had been struck by the rapidity with which excreta scarcely dropped were cut up, formed into pellets, and buried deeply in the soil. It would be impossible to find a more perfect method of fecal disposal. With Stiles and Manson he was thoroughly convinced that the proper disposal of the feces was by far the most important measure for the prevention of ankylostomiasis. All other measures would be useless if the infective excrements continued to be scattered over the soil, and they would be unnecessary if the same were properly disposed of. He must say at once, however, that that statement was based on the belief that the endemic anemia of man was caused by a worm incapable of affecting any other host, and that this knowledge of the life-history of that parasite was now correct and complete. Unfortunately, those premises were disputable. In the first place, the endemic anemia of man was not everywhere due to one and the same parasite. They already knew that besides the *Ankylostoma duodenale* discovered by Dubini in Italy in 1838, they had to consider *Nicator americanus*, discovered by Stiles in the United States, in 1902; and *Triodontophorus diminutus*, described by Raillet and Henry in 1905 from specimens in the Paris Natural History Museum, collected forty years previously by Dr. Monestier of the French imperial Navy at the *post mortem* of a negro who had died of endemic anemia in Mayotte. Possibly other forms would be found. Those already known belonged to different genera and two of them were known to have a world-wide distribution. Secondly, it was not definitely proved that those parasites belonged to man exclusively and that allied forms in the lower animals were specifically distinct. Indeed, the forms found in certain ages appeared to be identical with those of man, and Schaudin's experiments had proved that *Ankylostoma duodenale* can develop perfectly well in monkeys. Moreover, other species, such as *A. caninum*, might be found in a number of different hosts. Thirdly, there were many points in the life-history of these parasites which were still obscure. They did not know the relative importance of mouth and skin infection. When introduced by the mouth, did the larvæ invariably pass straight down to the intestine? Might they not penetrate the walls of the esophagus? They were rarely found in the stomach and duodenum. When found in the stomach they were lodged beneath the epithelium. They had been formed in the walls of the esophagus. When large quantities were experimentally fed to dogs they were instantly vomited. We know that they might appear in the jejunum and upper part of the ileum as soon as 42 hours after penetrating the skin, but we did not know how long they might tarry over their migrations. They had been found in the lymph glands and other organs at a stage of growth which, as a rule, they only attained after reaching the intestine. According to Looss, the parasites after penetrating the skin usually through the hair follicles, forced themselves into the lymph vessels, then into the cutaneous veins and, carried by the blood stream, reached the right heart, then the lung. Here they passed from the vessels to the air cells, and finally, creeping up the bronchial tubes and the trachea, they crossed over the larynx and slid down the esophagus to the stomach and then to the small intestine. Of course Looss had thoroughly demonstrated in the case of ankylostomiasis the truth of the old popular belief that certain parasitic worms might enter the economy by way of the skin and his experiments with *Ankylostoma duodenale* and *A. caninum* had been confirmed by numerous and able investigators not only with these worms, but also with *Nicator americanus* and *Strongyloides stercoralis*. He was also perfectly aware that, as pointed out by Looss, the larvæ of *Ankylostoma duodenale* reached the lungs and might be found in considerable numbers either in the walls of the air passages or within their lumen. But Rainey had proved it half a century before, although mistaking the parasite for a filaria which he had proposed to call *Filaria trachealis*. But as he (Sambon) had stated elsewhere, he doubted the correctness of the last part of

the journey from trachea to jejunum as traced by Looss *via* larynx-esophagus-stomach-duodenum, or at any rate he did not believe it could be the usual route. He (Sambon) believed that the majority of larvæ penetrated the lumen of the jejunum and upper part of the ileum through the wall of the bowel. In evidence he would point to the absence of parasites in the duodenum, to the intense hemorrhagic inflammation of the jejunum at the beginning of the infection which entirely subsided later on notwithstanding the presence of enormous numbers of parasites in the intestine, and to the actual presence of miniature worms in blood-filled spaces beneath the intestinal mucosa, observed again and again by Bilharz, Griesinger, Sonsino, Grassi, and others. Finally he thought analogy with the life-history of other intestinal parasites supported this mode of entrance. Then, again, they did not know how long the adult worm might live within the intestine. Some said weeks, others months, others years. They knew for certain that the females matured and began to oviposit about four weeks after penetrating the skin. The process of egg laying might continue for a considerable time, but it was unlikely that the longevity of the parasite might explain infections of eight, fifteen, or twenty years' duration. It would be important to ascertain the exact rôle played by reinfection in such cases. With regard to the anemia, we were still uncertain whether to ascribe it to blood abstraction, to venom secreted by the head glands of the parasite, or to secondary infection. The blood-abstraction theory had been considerably shaken of late, since it had been practically demonstrated that the parasite was not a true blood-sucker. The toxin theory had more partisans than facts in its favor, the microbic theory seemed more in accordance with recent investigations. Certainly many individuals harbored the worm without showing any signs of obvious illness, and perfect health did not appear to be inconsistent with the presence of hundreds of parasites. Boycott stated that in the Cornish mines, after examination of about a quarter of the underground hands taken at random, he had failed to obtain satisfactory evidence that a single man was without the worm. Yet at the worst, not more than 10 per cent. of the men were actually ill, and the great majority expressed themselves to be in perfect health. These and many other questions in the life-history of the parasite were of the highest importance with regard to the prophylaxis and treatment of the infection and should be thoroughly worked out, because the more complete their knowledge of the bionomics of the parasite the better their chances of efficient prophylaxis and treatment. In the present state of their knowledge, which was no doubt perfectly correct in the main lines, they could safely state that the prophylaxis of ankylostomiasis lay entirely in the proper disposal of the infected excreta. Besides, any measure taken against fecal contamination of the soil would be amply repaid because it would not only tend to stamp out ankylostomiasis, but also many other diseases due to bacteria, to protozoa, or to metazoan parasites which left the body by way of the intestine. And he would again point out, as he had done at a previous meeting of that section, in 1903, that whatever be the method employed, human feces should never be used for agricultural purposes because they were far too dangerous, especially when used for the manuring of salads and vegetables that were eaten raw. It would be a great mistake to rely on fermentative processes or even chemical disinfection to render contaminated feces innocuous. The powers of resistance shown by the spores of certain bacteria, the marked stages of certain protozoa, and the ova of certain worms were almost incredible. If they could not be destroyed in the laboratory how could we expect to destroy them in nature? He believed it would not be a matter of impossibility, by persuasion, education, example, and judicious coercion, to teach the natives of their colonies more hygienic habits with regard to the disposal of their excreta. The cat invariably buried its excrements with the greatest care, this habit had been ascribed to the necessity for the animal of concealing his whereabouts, but that explanation seemed absurd when they considered that the cat had no predatory enemies. Besides, in many other animals we found the habit of depositing their excreta at a distance from their burrows and nests for no other purpose than strict hygiene. Surely it should not be impossible to evolve such an instinct in man. In conclusion he hoped that Sir Patrick Manson's warning and suggestions would reach the appropriate quarters, strengthened by their unanimous approval.

Dr. C. W. Daniels of London stated that he did not think sufficient importance had been attached to the destructive action of certain dipterous larvæ, particularly those of the sarcophagidæ which lived in the feces till nearly mature and destroyed all thin-shelled entozoal eggs. He was not in favor of compulsion by government, and thought that more could be done by quiet action on the part of the medical authorities than by active government action which might defeat its own ends.

Dr. F. M. Sandwith of London said he used to be an ardent exponent of the virtues of thymol, but the severe effects produced in some patients had caused him now for some years to prefer beta-naphthol or the combination of eucalyptol, chloroform, and castor oil. The important question of prophylaxis could be most easily and most cheaply met by preaching the doctrine of early burial of feces in dry earth or sand. The eggs could not develop without moisture. Ankylostomiasis as an endemic disease should be treated as regards fecal disposal as they had learned to treat epidemics of cholera and enteric fever.

Sir R. Havelock Charles said Dr. Sambon had referred to the sanitary work of the ancient Egyptians; he might also have referred to the better-known sanitary laws of Moses. What did the Hebrew do when going to the field in the early morning? He had a "paddle upon his weapon" and making a hole he buried and covered up his deposit therein. Thus were destroyed myriads of ankylostomes. The crux of the whole question, as Sir Patrick Manson had said, was fecal disposal. He believed in education. Get at the children, and in a generation you will have the adults.

Sir Patrick Manson, in reply, said he was glad to gather from what had been said that the section was quite in sympathy with his remarks on the desirability for an effort being made to mitigate the plague of ankylostomiasis in the tropics, and further, that the method of attack should be directed towards fecal sanitation. He was disappointed with the pessimistic attitude assumed by Dr. Daniels towards the suggestion that government should move in the matter. If government did not move, nothing would be done. One might say truly that it was everybody's duty to move in the matter, but it was well known that everybody's duty was no one's work. Government interference should be wise interference; it need not be irksome, but government certainly should set the ball a rolling. In the West Indies which were ravaged by ankylostomiasis no one was moving except the United States Government.

The Diagnosis of Latent Malaria.—Dr. A. Plehn of Berlin read this paper. He said three phases might be distinguished in latent malaria. A first phase, which might be termed "primary period of latency," lasting from the moment of infection to the first paroxysm of fever. A second phase, covering the successive periods intervening between the single fever of paroxysms, which he proposed to call "intermediate period of latency," and a third phase, the "final period of latency," which followed the last recurrence of fever and did not usually last over six months. The first phase was characterized by nervous excitability, dyspepsia, and more or less severe anemia. The erythrocytes showed basophilic granules. At one time these symptoms were looked upon as evidence of acclimatization, but they were unknown in the healthy parts of the tropics. In the second phase, during the periods intervening between the pyrexial attacks there might be no

clinical symptoms or only slight anemia, but sometimes the approaching paroxysm might be preceded by symptoms similar to those of the first phase. Immediately before the fever attack, malarial parasites might be found in the blood; after it, particles of pigment in the leucocytes, especially in the large mononuclears, and later gametes until about three weeks after the attack, seldom as long as six weeks. Basophilic granules in the erythrocytes were always present during all periods of latency, but soon disappeared in patients who returned to Europe even before the extinction of the malarial infection, as proved by subsequent pyrexial attacks. The continuance of latent infection was also evidenced by the relative increase of the large mononuclears which might reach a percentage of 15 to 20 or more of the entire number of leucocytes. But the leucocyte rate was not a reliable sign since it returned to normal, notwithstanding the continuance of the infection, and was also found in other protozoal diseases (trypanomiasis spirochætiasis). The last phase seldom lasted over six months; its symptoms were identical with those of the preceding one. The recognition of this last phase was of importance because the cessation or continuance of quinine treatment depended entirely on it. He would therefore like to draw their attention to a symptom easily recognizable which might indicate the presence of latent malaria when all other signs were wanting. That symptom was urobilinuria. Of course urobilinuria was not a specific sign of malaria like the presence of gametes in the blood. It was merely a symptom of liver disturbance from which, however, the continuance of malarial infection might be concluded with great certainty in the absence of any other cause which might explain the liver affection. On the other hand, urobilinuria might not be found in every case of malarial fever, because in exceptional cases malaria might spare the liver. But the presence of marked urobilinuria after malarial fever certainly proved that the infection was not entirely spent. In conclusion, he hoped that his remarks might promote further investigations. The question of the recognition of latent malaria in its different stages was one of great importance and, considering the uncertain nature of its symptoms, any new sign would be of value.

Dysenteric Amebæ and Liver Disease.—Dr. E. Marchoux of Paris read this paper. He said that in 1899, in Senegal, he had made some investigations on amebic dysentery and shown that, as previously discovered by Kartulis, it was easy to transmit the disease to cats by means of amebæ-containing stools. He had infected 82 cats by means of serial passages; 52 of these cats died of liver abscess. The abscesses varied in number from 1 to 7 and in size from the dimensions of a pea to those of an egg. All developed in from 12 to 18 or more days and contained living amebæ. They also contained some bacteria: 23 times staphylococci, 17 times various anaërobes, 6 times bacilli of the coli group, 4 times streptococci, twice proteus vulgaris. At the same time he had had the opportunity of examining the pus of 27 abscesses in human livers, and only twice he had found the pus sterile by the cultural method. Thirteen times he had found staphylococci, 6 times undetermined anaërobes, 4 times bacilli of the coli group, twice streptococci. In 17 of these cases there were amebæ. In three cases in which no amebæ were found in the liver, they were discovered in the stools. The 25 cases of abscess which had given bacterial cultures were of relatively recent origin. No less than 24 had been operated in the country in which dysentery had been contracted. All the patients had presented a high temperature. Of the two abscesses infected with streptococci, one had been discovered at the autopsy, the other in a patient with very high temperature who died from streptococcic septicemia on the day following operation. One of the two abscesses with sterile pus had been operated one year after the appearance of signs of acute hepatitis, the other two years after recovering from dysentery. These facts led to conclusions identical with those given by Kartulis in his report of 1903: (1) The liver abscess always contained some bacteria at the outset. (2) Later it became aseptic in the same way as old abscesses after the death of the microorganisms which gave rise to them. The dysenteric amebæ were always hematophagic, but this was in all probability an acquired character, and not one sanctioning the placing of all such as exhibited it in one single species. An ordinary ameba after having lived in the intestine as a commensal might some day for one reason or another begin to feed on red blood corpuscles. From that moment it became pathogenic—attracted by the new food, it would penetrate the walls of the bowel and go in search of it. But it did not follow that it would adopt it exclusively. Even those best adapted to a parasitic mode of life continued to engulf bacteria. Those he had studied in Senegal, and which so rapidly produced abscess of the liver both in man and cats, engulfed not only erythocytes and bacteria, but even took up carmin granules which he had purposely added to the preparation. Considering that they came from the intestine, it was no matter of surprise that they should carry bacterial infection wherever they went. Dophr had pointed out that amebæ had the power of producing necrosis at a distance, and in further proof of the bacterial infection of liver abscesses he would remind them of the leucocytic formula of the blood in such cases. Rogers and Lézer had shown that it was characterized by an abundance of polymorphonuclears. Rogers had seen at times the proportion of polymorphonuclears rise to 90 per cent. of leucocytes. Protozoal diseases always brought about a mononuclear increase, they must therefore admit that the larger proportion of polymorphonuclears in patients suffering from liver abscess was due, not to the amebæ, but to the associated bacteria. When the bacterium which reached the liver abscess was highly pathogenic it conferred to that affection a character of extreme gravity. The two cases already mentioned in which streptococci were found proved it conclusively. Finally, one more fact deserved attention. Almost invariably in liver abscess they found a pure culture of a single species of bacterium. In only three cases infested with anäerobes he had found simultaneously several species of bacteria. Such purity was surprising at first sight. No doubt it was the outcome of struggle, one species surviving out of the several probably present at the start.

Sir Patrick Manson said it was a matter of gratification to the section of tropical diseases that men of the high standing of Dr. Plehn and Dr. Marchoux thought it worth their while to be present there and to take part in their work. Both of them had served a long apprenticeship in tropical pathology and had attained positions of special distinction in that department of medicine. The importance of recognizing latent malaria was especially great in regard to Great Britain and her tropical possessions. Any method that would enable them to recognize when a man was the subject of latent malaria or when he was free from infection would be a welcome addition to practical medicine. The presence of basophilic granules in the erythocytes was an unreliable test, for they occurred in many other infections, notably trypanosomiasis. The possible duration of a malarial infection had not been definitely ascertained. Personally, he had never seen a case of malaria, that is, a malaria diagnosed by the microscope, last longer than three years. With regard to the administration of quinine his own practice was to advise those who had been in the habit of taking prophylactic quinine in malarial countries to continue the use of the drug for at least three months after their return to England, and intermittingly for a further period of one to two years. He had seen disregard of this practice culminate in fatal attacks of blackwater fever.

Dr. Malcolm Watson read a few remarks on rare nervous symptoms seen in malarial patients.

Blackwater Fever.—Dr. Louis W. Sambon said blackwater fever had been mentioned both by Dr. Plehn and Sir Patrick Manson in conjunction with malaria, and he seized the opportunity to again state most emphatically that blackwater fever was a disease entirely distinct from any of the known forms of malaria. Many years had passed since he first pointed out that blackwater fever was a specific disease more closely allied to the bacterial infections of the lower animals and to yellow fever than to malaria. Now he was more than ever convinced of the correctness of his hypothesis because, although he had had no opportunity of examining patients or making post mortems, he had been able to gather some interesting information tending to show that the disease was a tick-borne disease.

Forms of Ankylostoma in Australia.—Dr. Robert T. Leiper, helminthologist to the London School of Tropical Medicine, stated that a private letter addressed to Dr. Sandwith from Dr. T. L. Bancroft of North Queensland had been handed in that morning to the section of tropical diseases. It said that quite recently in some notes on tropical diseases B. A. O'Brien, M.D., had advanced the opinion that the parasite which caused endemic anemia in Queensland was not the *Ankylostoma duodenale*. Dr. Bancroft had forwarded a supply of worms from an anemic boy for diagnosis. Dr. Sandwitth and himself had just examined them and they had found them both *Ankylostoma duodenale* and *Nicator americanus*. None of the specimens appeared atypical. This record of the presence of both known forms in Australia was highly interesting. It rounded off their information of the geographical distinction of the "American" form, the presence of which he had personally determined (1) throughout tropical Africa in Gold Coast, Congo, Uganda, Mombasa, Mozambique, Nyassaland, British Central Africa; (2) India, from Ceylon, Mysore, Assam, and (3) in China. Its occurrence in Australia demonstrated finally its worldwide distribution. Dr. O'Brien's paper was the second published within the current year hinting at the occurrence of a distinct Australian species, but no facts had been advanced in support of that contention.

Friday, July 31—Third Day.

Lymphatic Diseases in the Tropics.—Dr. C. W. Daniels, director of the London School of Tropical Medicine, opened this discussion. He said that in practically all tropical diseases some implication of the lymphatic system did or might occur whether the disease were due to bacteria, protozoa, or metazoan parasites. In many the lymphatic condition was only of diagnostic value, as it led to little or no direct ill effect. In many of the protozoal diseases enlargement of the glands might be met with. In malaria it was exceptional, but did occur. In other protozoal diseases, and especially in those caused by flagellates, including Leishman-Donovan bodies, enlargement of the glands was constant, and the parasites were found in large numbers in the lymphatic glands. In trypanosomiasis they were of great diagnostic value as superficial glands, especially those of the neck, were early involved, and not only could the enlarged glands be readily felt, but trypanosomes were more readily found on gland puncture than in the peripheral blood. Cutaneous breaches of continuity from biting arthropoda, ticks, flies, mosquitos, and the like, and in some places from leeches, were so frequent that naturally lymphangitis and adenitis were more common than in England, and were reported more often. It was therefore of interest to notice that these frequent recurring attacks of lymphangitis were not ordinarily attended by any general lymphatic obstruction. The same might be said of the more chronic ulceration, with the exception of that due to the granuloma of the pudenda. In the latter disease the glands were not obviously enlarged, no secondary deposit took place, and yet chronic lymphatic obstruction, resulting in swelling resembling the ordinary tropical elephantiasis, occurred in penis, scrotum, and vulva. These rarely attained any great size, but were quite noticeable. The lymphatic bacterial disease most definitely associated with the tropics was the plague bubo. In that disease lymphangitis was little marked, the whole stress leading to absolute destruction of the glands was the marked feature. Closely resembling in clinical aspects the rare ambulant cases of bubonic plague were the so-called climatic buboes. In these also there was no evidence of lymphangitis, but the glands were enlarged and tender, with some febrile disturbance. They did not contain any plague bacilli. In the cases he had seen there had been definite suppuration. The lymphatic diseases which were more especially associated with tropical conditions were those due to metozoan parasites. In many of them the eggs were deposited amongst other places in the glands, and might, as in *Schistosomum japonicum*, be very numerous. In such cases the glands were enlarged and fibrotic, but there again no obstructive symptoms occurred. In most tropical countries elephantiasis was common, and other evidences of lymphatic obstruction, such as chyluria, were also fairly common. Much speculation as to the causation of this condition had taken place. Lymphatic obstruction was not confined to the tropics. Rare cases occurred in England, and were indistinguishable from tropical elephantiasis. Personally he had seen two cases. The problem, therefore, was why lymphatic obstruction sufficient to cause chronic edema, a rare disease in England, in the tropics might affect 5, 10, 15 per cent. of the population. They knew it might occur from several causes, but why should it be so common in the tropics unless a special cause existed? The discovery of *Filaria bancrofti* in the lymphatics naturally suggested a plausible hypothesis to account for this difference in frequency. Filariæ were common in the tropics and unknown in temperate climates, as elephantiasis was or nearly so. In most cases of elephantiasis no filaria embryos were to be found. Indeed, it was the people who gave no direct evidence of filariasis who had lymphatic obstruction. This seemed at first sight contrary to any relationship between filariasis and elephantiasis, but the connection was indicated by identity of geographical, topographical, racial, and sex distribution, as well as by the distribution of known intermediate hosts. Thornil in Ceylon had shown that in natives of Colombo filariasis and elephantiasis were rare, compared with certain places a few miles out. Low in the West Indies had shown that a definite ratio held good. In British Central Africa the relationship was very definite; in large tracts of the country there was no elephantiasis and no filariasis. In the Shire Highlands filariæ were only found in immigrants. The same applied to elephantiasis. On the lower Shire river filariasis was more common and elephantiasis occurred higher up the river. Higher up the river neither were found. At the southern end of Lake Nyassa he had found no elephantiasis, only one person with filaria, and scanty mosquitos capable of transmitting the infection, whilst at the northern end he had observed fairly numerous cases of filaria, several cases of elephantiasis, and an abundance of suitable mosquitos. Observations of that kind could be multiplied indefinitely. In every case careful examination had confirmed the relationship. The old objection that cases of lymphatic obstruction were the cases in which fewer people harbored filarial embryos than the average population need not detain them. All it meant was that in lymphatic obstruction the embryos were not able to enter the circulation. How did the filaria lead to lymphatic obstruction? In the first place, it caused thickening, dilatation, and other changes in the wall of the channel. Occasionally it gave rise to hemorrhage. He had himself seen dilated masses of lymphatics containing living filariæ distended with recently coagulated blood. Again, suppuration with abscess formation occurred, either as a result of the death of the worm or in some way connected with its presence, and in the contents of such abscesses remains of the worms

had been found. Elephantiasis might occur as a direct sequence of a single attack of acute inflammation, or after repeated attacks of a similar nature, or gradually, without pain or any erysipelatoid attack. He did not think it necessary that all cases of elephantiasis need be assumed to be produced in the same manner by the filaria. In some it might be hemorrhage; in others, perhaps more common, it was merely that the lymphatics distended and altered by the filariæ were more liable to inflammation. The acute lymphangitis was probably due to the introduction of bacteria. Manson believed that the adult worms under certain conditions aborting were the real cause of some cases of obstruction. The aborted embryos, instead of being fully obstructed as when normally discharged, were still coiled up in their egg capsules, which, according to the stage of development, might be round or elliptical. Their shorter diameter being larger than the smallest lymphatic channels, the ova were stopped in the glands and blocked up all the anastomosing branches till there was complete obstruction. Manson's hypothesis had not received the full consideration it required. It seemed to have been tacitly condemned as too complicated and involving a whole series of suppositions. On analysis, however, every point in the hypothesis rested on actual observations. It was more than possible, it was a logical sequence that must almost necessarily follow, and gave a complete explanation of the phenomena observed.

Dr. W. Prout, C.M.G., of Liverpool said that in Europeans one occasionally found a bubo which was called "malarial" or "climatic." As to the former, he had seen no evidence. As to the latter, there was undoubtedly a form of suppurative lymphadenitis for which there appeared to be no appreciable cause. The name given to this disease was only an expression of ignorance. He contended that facts of geographical distribution were opposed to the theory of relationship between elephantiasis and filariasis. In his opinion elephantiasis was a streptococcal disease.

Sir Patrick Manson was glad Dr. Daniels had given an accurate outline of his views, which were generally misunderstood. He did not say that the hypothesis had been proved. He recognized the propriety of an attitude of doubt towards it, but not of denial. To his way of thinking it was a most probable explanation of the facts.

Dr. Louis W. Sambon said Dr. Daniels had very ably shown that there was much evidence in favor of a relationship between tropical elephantiasis and filariasis. In Europe cases indistinguishable from tropical elephantiasis were occasionally met with. They were looked upon by some as disproving any connection between filariasis and elephantiasis in tropical countries. He was not going to discuss the various causes which might bring about lymphatic obstructions in Europe, but he wished to point out that a filarial predisposing cause was by no means excluded in European cases of elephantiasis. *Filaria bancrofti* had a very wide distribution, and was certainly found on the African and Asiatic coasts of the Mediterranean. Possibly it occurred also on the European side. At any rate its occasional appearance there was more than probable. Indeed, a well authenticated case had been described in 1894 by Dr. M. Font y Torné, in a Spaniard from Canet de Mar (Barcelona) who had never left his country. This man suffered from chyluria and enlargement of the scrotum. His blood contained filaria larvæ. There was no reason why *Filaria bancrofti* should not prosper in certain parts of Europe. They knew that innumerable species of filariæ lived in the mammals, birds, and reptiles of Europe; some also in man, as, for instance, *Filaria labialis, f. conjunctivæ* and other ill-determined species. All these filariæ were fostered and transmitted by arthropod intermediary hosts which might be flies, mosquitos, or ticks, according to the species. *Filaria mimitis*, the "cruel filaria" of dogs, had a very wide distribution in tropical and subtropical countries, but it was found also in northern Europe (France, Germany, Denmark, England). Like *F. bancrofti*, it was propagated by mosquitos.

Dr. J. Maxwell of Formosa pointed out that the island of Formosa was in practically the same latitude as Amoy on the mainland. The inhabitants were for the most part Chinese immigrants from the Amoy region. The customs, habits, and diseases were with one exception exactly the same, that exception being the presence of filariasis and elephantiasis, as a very common disease in the Amoy region, and the almost complete absence in Formosa of both diseases.

Captain J. W. D. Megan, I.M.S., stated the facts he had observed in two districts in Bengal. In Puri, where elephantiasis was common in 100 prisoners whose blood was taken at night and examined, filarial embryos were found in 15. (Three of the prisoners suffered from elephantiasis; in none of these were filarial embryos found.) In Dinajpur, where elephantiasis was rare, in 50 prisoners taken at random the blood taken at night showed *no* filarial embryos. (None of the prisoners in Stin jail (300 in number) suffered from elephantiasis.)

Dr. A. Powell of Bombay said in many Indian birds, owls, kites, etc., filariæ were common in the lymphatic and subcutaneous tissues like *F. bancrofti* in man, but they did not find any elephantiasis, as far as he was aware. He might add a few figures bearing on the relative incidence of filariasis and elephantiasis. In Cachar, where elephantiasis was rare, except when imported, of 256 indigenous persons whose blood he had examined only one showed filariæ. In Bombay, where elephantiasis was not uncommon, of 363 night bloods examined 18, about 5 per cent., showed filariæ. On the other hand, the families of seven cases of elephantiasis, 43 persons, showed no case of filariasis. That filariæ produced inflammation was undoubted. The phenomena of inflammation had been often studied in the cornea of the rabbit. In the swampy districts of India Nature often gave them a beautiful demonstration in the case of filaria in the eye of the horse. He had often watched the course of the disease. A white worm about 1½ inches long was suddenly seen in the anterior chamber of the horse's eye, darting about like a miniature eel in an aquarium. Usually the aqueous and cornea remained clear for about 48 hours, then both became steamy, iritis set in, and in four days' time the cornea was dead white and opaque unless the worm had been removed.

Professor A. Pastellani of Ceylon described a palliative treatment of elephantiasis by means of thiosinamin or fibrolysin injections and methodical bandaging, followed by removal of portions of the redundant skin when most of the fibrous tissue had been absorbed.

Sir R. Havelock Charles disputed Manson's theory of elephantiasis. The anatomical arrangement of the lymphatics as to distribution and valvular mechanism prevented the one from passing from one side of the body to the other and the theory demanded the presence of an aborting female in many and various parts to account for the clinical facts that the disease in the scrotum was usually symmetrical. After complete removal of a scrotal tumor there was no return of the trouble, although the so-called "obstruction" remained. But a recurrence would surely follow if the least amount of unhealthy tissue remained in the penis or perineum. This showed that the disease was in the parts removed, and not in those that were left. He spoke at length of treatment.

Dr. L. Nattan Larrier of Paris described some interesting cases of sleeping sickness with nervous mental symptoms.

Dr. Daniels then replied. With regard to the symmetrical condition of the scrotal affection he said that was common to all conditions where the loose cellular subcutaneous tissues of the scrotum were involved. As to noninfection of other members of families he had observed a similar condition in British Guiana with regard to filariasis. Frequently one member only of a family

was infected. A person with elephantiasis having no embryos in his peripheral blood was not so likely to infect other members of the family as a person with filariæ and without lymphatic obstruction.

Bilharziasis.—Mrs. Bouté Sheldon Elgood, M.B., London, read a paper on bilharziasis among women and girls in Egypt. It showed that the disease was common in young girls, even in those who did not bathe, and who used filtered water only. Town children were frequently affected. Bilharziasis was rare in adult women, who might, however, have suffered from it in youth. European women and girls were not known to suffer from it, though in the towns they drank and washed in water from the same source as natives used. Water, however, was not stored in European households. Infection was probably not due mainly to bathing, as had been suggested. It was possibly due to faulty storage of drinking water or to the eating of raw vegetables and fruit washed in dirty canals or rivers.

Dr. Armand Ruffer said he was of opinion that women in early life were as much infected as men. Infection might be due to ablutions, and was possibly rectal.

Dr. F. M. Sandwith said Dr. Ruffer's suggestion would hardly explain the prevalence of bilharziasis in the English soldiers in South Africa.

Sir Patrick Manson said Mrs. Elgood had made a most important contribution towards the solution of the problem of the etiology of bilharziasis, which for many years had been languishing for want of new facts. He disputed Dr. Ruffer's suggestion of infection per anum.

Dr. Louis W. Sambon moved a vote of thanks for the president for the admirable manner in which he had conducted the business of the section.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Transactions of the American Pediatric Society. Nineteenth Session. Edited by Linnaeus Edford La Fetra, M.D., Volume XIX. 8vo, 220 pages; illustrated; cloth. E. B. Treat & Company, New York.

Lehrbuch der Muskel und Gelenkmechanik. By Dr. H. Straber. 8vo, 212 pages; illustrated; paper. Julius Springer, Berlin.

Grundriss der Allgemeinen Symptomatologie. Von Dr. Med. R. Oestreich. 8vo, 327 pages; paper. August Hirschwald, Berlin.

The Principles and Practice of Hydrotherapy. By Simon Baruch, M.D. 8vo, 544 pages, illustrated. Cloth, $4.00 net. William Wood & Company, New York.

The Sanitation of Recreation Camps and Parks. By Dr. Harvey B. Bashore. 12mo, 109 pages, illustrated. Cloth, $1.00. John Wiley & Sons, New York.

Traitement Chirurgical Actuel des Kystes Hydatiques du Foie et de leurs Complications. Par le Dr. Albert Cauchoix. 8vo, 168 pages. Paper, illustrated, 3 fr. 50. G. Steinheil, Paris.

Etude sur les Contusions, Dechirures et Ruptures du Rein. Dr. Georges Lardennois. 4to, 232 pages. Illustrated, paper, 4 fr. 50. G. Steinheil, Editeur, Paris.

Righthandedness and Lefthandedness. By George M. Gould, M.D. 12mo, 210 pages. Illustrated, cloth, $1.25 net. J. B. Lippincott Company, Philadelphia.

Why Worry? By George L. Walton, M.D. 12mo, 275 pages. Illustrated, cloth, $1.00 net. J. B. Lippincott Company, Philadelphia.

State Board Questions and Answers. By R. Max Goepp, M.D. 8vo, 684 pages. Illustrated, cloth, $4.00 net. W. B. Saunders Company, Philadelphia.

Adenomyoma of the Uterus. By Thomas Stephen Cullen. 4to, 270 pages. Cloth, illustrated, $5.00 net. W. B. Saunders Company, Philadelphia.

Uric Acid as a Factor in the Causation of Disease. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P. 8vo, 940 pages. Illustrated, cloth, $4.00 net. P. Blakiston's Son & Co., Philadelphia

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Ohio State Board of Medical Registration and Examination.

June 8, 9, and 10, 1908.

ANATOMY.

1. What is the difference between mucous and serous membranes?
2. What forms the deep palmar arch?
3. Describe the origin, course, and distribution of the renal arteries.
4. Describe the different varieties of epithelium.
5. Name the muscles that form the abdominal walls.
6. Name the cavities, openings, and valves of the heart.
7. What features of the bony skeleton characterize the sex?
8. What is a ginglymus joint? Give an example.
9. Give the gross anatomy of the liver.
10. Describe the cerebellum.

PHYSIOLOGY.

1. What part of the nervous system is involved in stammering speech?
2. Describe the pneumogastric nerve and its function.
3. Where are the red blood corpuscles formed and what is their function?
4. Describe lymph. How is it formed?
5. Into what classes is food divided? Give a general description of each.
6. What is the pulse and what do its varieties signify within physiological limits?
7. What are proteids and how are they formed?
8. What physiological conditions influence the secretion of urine?
9. Describe the physiology of menstruation.
10. Where and in what form do the hydrocarbons reach the circulation?

CHEMISTRY.

1. What is the action of a solution of potassium permanganate when used as a disinfectant?
2. Give a simple test for organic impurities in water.
3. Give the reaction of cow's milk and mother's milk.
4. Name the inorganic constituents of the gastric juice.
5. What is the difference between urea and uric acid?
6. Give the formula, properties, and uses of hydrogen dioxide.
7. What chemical tests are most important in the analysis of urine?
8. Give the chemical names for cream of tartar, Glauber's salt, Epsom salt, copperas, sugar of lead, and common salt.
9. What antidotes should be used in corrosive sublimate poisoning?
10. Name four organic acids and give the source of each.

MATERIA MEDICA AND THERAPEUTICS.

1. From what is senna obtained? Give some indications for its use and the preparations employed.
2. Name three drugs that may be used to increase the flow of urine.
3. Write a prescription for internal use in a case of chronic eczema of the gouty type.
4. What antidote would you use in a recent case of poisoning by opium taken by the mouth?
5. When should alkalies be given with reference to meals? Why?
6. What are some of the therapeutic uses of ammonium carbonate? How should it be exhibited?
7. Upon what does the therapeutic value of calcium depend?
8. What remedy do you suggest to be used in diabetic coma?
9. Name three styptics.
10. What are some therapeutic aims of the hot pack?

PHYSICAL DIAGNOSIS.

1. State diagnostic value of decreased resonance of the percussion sound over the lung.
2. State diagnostic significance of dullness or flatness in the left anterior axillary line from the sixth to the eighth rib (Traube's area).
3. What pathological meaning has an amphoric resonance on the chest elicited by percussion?
4. What pathological significance is attached to the cracked-pot sound?
5. In what affections of the lungs is bronchial breathing found?

6. Explain significance of friction sounds.
7. What pathological significance is derived from the enlargement of the superficial abdominal veins (caput medusæ)?
8. What diagnostic significance is given by a frequent pulse (tachycardia)?
9. State pathological significance of the facial paralysis.
10. Describe location and quality of murmurs indicating mitral insufficiency.

PRACTICE AND PATHOLOGY.

1. What points in the microscopical appearance of sarcoma would enable you to make a diagnosis?
2. Describe the technique of rectal alimentation. What foods are used?
3. What symptoms mark failure of compensation in chronic valvular diseases of the heart?
4. What amount of urine is excreted in twenty-four hours in health? What is its specific gravity? How are each of these influenced in:—Acute nephritis? Chronic parenchymatous nephritis? Chronic interstitial nephritis? Diabetes mellitus?
5. Describe a typical case of typhoid fever from time of infection.
6. Name the exanthemata acuta and give time of eruption of each.
7. What condition does (*a*) a decrease of hydrochloric acid indicate? (*b*) An increase?
8. Describe eczema and give treatment.
9. Give the Diazo-reaction test. What does it diagnose and prognose?
10. Discuss immunity, giving attention to acquired immunity, to toxin immunity, and to the theories of the nature of immunity.

SURGERY.

1. Differentiate shock and hemorrhage, postoperative, as to diagnosis and treatment.
2. Give surgical anatomy of kidney.
3. Give treatment of compound fracture of upper third of femur.
4. Give indications for operative interference in cholelithiasis.
5. Give treatment of cancer of sigmoid flexure of the colon.
6. Describe a method of lateral intestinal anastomosis.
7. What are the blood findings in pyogenic osteomyelitis?
8. Give indications for enucleating eye.
9. Give common sources of wound infection.
10. Describe resection of shoulder joint.

GYNECOLOGY.

1. Describe the structure of the perineal body.
2. Enumerate three causes for suppression of menses.
3. Differentiate pelvic hematocele from pelvic abscess.
4. What may result from lacerated perineum?
5. Describe the technique of washing the urinary bladder and in what conditions it is indicated.

DISEASES OF CHILDREN.

1. Discuss briefly icterus neonatorum.
2. Write a prescription for modification of cow's milk for a child three months old.
3. Give etiology of otitis media.
4. Give etiology of infantile endocarditis.
5. Give diagnosis and differential features of basilar meningitis.

OBSTETRICS.

1. Describe the blastodermic vesicle.
2. Name some of the causes and some dangers incident to protracted labor.
3. Make a diagnosis of syphilis of the newborn; state something concerning the prognosis.
4. What conditions contraindicate the operation of version?
5. What changes in the blood are produced by pregnancy?
6. How is labor usually influenced by a kyphotic pelvis?
7. The presenting part is well engaged in the pelvis; the anterior shoulder is felt to the left but near the median line; the fetal heart sounds are heard about midway on a line from the left anterior superior spine to the umbilicus; what are the probable presentation and position?
8. What measures would you suggest to overcome uterine inertia?
9. How soon should the cord be ligated? Give your reasons.
10. How recognize tetanus neonatorum?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE BOARD OF MEDICAL REGISTRATION AND EXAMINATION.

June 8, 9, *and* 10, 1908.

ANATOMY.

1. *Mucous membranes* consist of an epithelial surface containing glands, a basement membrane, supporting connective tissue, with blood and nerve supply. They are found lining passages by which the internal parts connect with the exterior of the body.

Serous membranes consist of a single layer of endothelial cells, with no glands, upon a connective tissue membrane, with blood-vessels, nerves, and lymphatics. They form closed sacs lining visceral cavities (with the exception of the peritoneal cavity in the female).

7. The *features of the bony skeleton which characterize sex*, are: (1) In the male the bones are, as a rule, stronger, larger and heavier, and the prominences, ridges, and lines are more distinct; (2) the skull in the male looks more mature, and less like that of a child, and the glabella is more prominent; (3) in the female the sternum is shorter, the capacity of the thorax is less, and the upper ribs are more movable; (4) in the female the clavicle is shorter, thinner, smoother, and less curved; (5) in the female the sacrum is relatively wider, less curved, and is directed more obliquely backwards; (6) in the female the pelvis is wider, shallower, has an oval inlet, has a larger subpubic angle, the obturator foramen is triangular (oval, in the male), the tuberosities of the ischia are everted; (7) the inclination of the shafts of the femora from the pelvis to the knee is greater in the female.

PHYSIOLOGY.

2. *Functions of the pneumogastric nerve*: "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . . it may be said that it supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the heart; (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc." (Kirkes' *Physiology.*)

3. In the *embryo,* the red blood corpuscles are derived from cells in the vascular area of the mesoblast; in the *adult,* they are derived chiefly from the red marrow of bones, also from the spleen. Their function is to carry oxygen from the lungs to the tissues of the body; this is accomplished by the hemoglobin, which has a great affinity for oxygen.

5. Foods are classified as follows:

I. Inorganic { Water. / Salts.

II. Organic { Non-nitrogenous { Carbohydrates. / Fats. / Nitrogenous—Proteids.

The constituents and functions are shown in the following table adapted from Notter and Firth's *Hygiene*:

Food.	Functions.
Proteids.	
1. All substances containing nitrogen, of a composition identical with, or nearly that of albumin; proportion of N to C being nearly as 2 to 7.	Formation and repair of tissues and fluids of the body. Regulation of the absorption and utilization of oxygen. May also form fat and carbohydrate, and yield energy sometimes. In most foods the above, both animal and vegetable, are largely converted into albumoses and peptones during digestion.
2. Substances containing a larger proportion of N are apparently less nutritious; proportion of N to C about 2 to 5½.	These perform the above functions less perfectly, or only under particular circumstances.
3. Extractive matters, such as are contained in the juice of the flesh.	These substances appear essentially as regulators of digestion and assimilation, especially with reference to the gelatin group.

Carbohydrates.	
Substances containing no N, but made up of C, H and O; the O being exactly sufficient to convert all the H into H_2O.	Production of energy and animal heat by oxidation. Form fats and possibly some proteids.
Fats.	
Substances containing no N, but made up of C, H and O; the proportion of O being *less* than sufficient to convert all the H into H_2O.	Supply of fatty tissues, nutrition of nervous system; supply of energy and animal heat by oxidation.
Salts.	Support of bony skeleton, supply of HCl for digestion, regulation of energy and nutrition.

7. Proteids are a group of organic bodies which are never absent from living animal or vegetable cells, to whose "life" they are indispensable. They are composed of carbon, hydrogen, oxygen, and nitrogen; most of them also contain sulphur, some contain phosphorus, and others iron, copper, or iodine. The molecule is very complex and its constitution is unknown.

8. The quantity of urine secreted depends upon:—the amount of liquids ingested, the amount of perspiration secreted, the temperature and moisture of the surrounding atmosphere, increase or decrease of blood pressure, and the presence or absence of certain diseases such as diabetes, nephritis, etc.

CHEMISTRY.

1. Potassium permanganate is a very active oxidizing agent; and its action as a disinfectant is due to the oxidation of the organic matter with which it comes in contact.

2. *A simple test for organic impurities in water*: "Put a pint of water into a *perfectly clean* quart bottle, cork and shake strongly, remove the cork, and inhale the air of the bottle. If the water be much contaminated, and if the observer's sense of smell be acute, an offensive odor will be observed. This method is *quite* rough, and only very bad water will produce an odor."—(Witthaus' *Essentials of Chemistry*.)

3. The reaction of cow's milk is amphoteric or alkaline when freshly drawn, but soon becomes acid; the reaction of mother's milk is alkaline or amphoteric.

4. The *inorganic constituents of the gastric juice*, are: water; hydrochloric acid; chlorides of sodium, potassium, and calcium; and phosphates of calcium, magnesium, and iron.

5. *Urea* has the formula $CO(NH_2)_2$; it "crystallizes in transparent needles or four-sided prisms, without Aq; permanent in air; odorless, having a cooling, slightly bitter taste, resembling that of saltpeter. Soluble in an equal weight of cold water, very soluble in boiling water and in five parts of cold or one part of hot alcohol, the solutions being neutral in reaction. At 248° F. it melts, and slightly above that temperature is decomposed. It is found in the blood, chyle, lymph, humors of the eye, saliva, perspiration, bile, milk, serous fluids, amniotic and allantoic fluids, and especially in the urine.

"It is the principal product of the oxidation of protein substances in the animal body, and is the form in which most of the nitrogen is excreted."

Uric acid has the formula $C_5H_4N_4O_3$; it "crystallizes in small, colorless, rhombic, rectangular, or hexagonal plates, or in rectangular prisms. As crystallized from the urine, it is more or less colored by the urinary pigments, and the angles of the crystals are rounded to produce lozenge shapes, which are arranged in bundles, crosses, or daggers.

"It is odorless, tasteless, very sparingly soluble in H_2O, insoluble in alcohol and ether, soluble without decomposition in H_2SO_4 or HCl. Moist uric acid has an acid reaction. It is a dibasic acid."—(Witthaus' *Essentials of Chemistry*.)

6. Hydrogen dioxide: *Formula*, H_2O_2.

Properties: It is a colorless, syrupy liquid, heavier than water, with a metallic taste; it is a powerful oxidizing agent, and a good bleacher and disinfectant.

Uses: Disinfectant, antiseptic, and bleaching agent; as an oxidizing agent; for renovating old oil paintings, and bleaching hair.

7. The most important chemical tests in the analysis of urine, are: the tests for albumin (heat, and nitric acid test); sugar (Fehling's, Trommer's, Boettger's, Nylander's, phenylhydrazin); bile, blood, indican, chlorides, phosphates; and quantitative for urea and uric acid.

8. Cream of tartar is monopotassic tartrate; Glauber's salt is sodium sulphate; Epsom salt is magnesium sulphate; copperas is ferrous sulphate; sugar of lead is lead acetate; common salt is sodium chloride.

9. In poisoning by corrosive sublimate, white of egg should be administered in not too great a quantity; and this should be followed by an emetic.

10. (1) *Oxalic acid*, occurs as oxalate of K, Na, Ca, etc., in the juices of rhubarb, sorrel, oak, etc. (2) *Malic acid* occurs in apples, pears, cherries, etc. (3) *Citric acid* is obtained from lemon juice. (4) *Gallic acid* is obtained from nutgalls.

MATERIA MEDICA AND THERAPEUTICS.

1. Senna is obtained from the leaves of the Cassia acutifolia. It is *indicated* in constipation, as a cathartic and a laxative.

Preparations: Confection, syrup, fluid extract, compound infusion; also compound licorice powder.

2. Three drugs that may be used to increase the flow of urine: water, spirit of nitrous ether, and caffeine.

3. For *chronic eczema of the gouty type*:

℞

Potassii acetatis
Potassi citratis aa ʒi.
Aquæ destillatæ q.s. ad ʒiv. Misce.

Sig.: One tablespoonful in water, after each meal.

4. In acute opium poisoning, by the mouth: Wash out the stomach with a dilute solution of potassium permanganate, and leave about three-quarters of a pint of the solution in the stomach. Maintain respiration, and give strong coffee.

5. Alkalies given before meals increase the secretion of hydrochloric acid in the stomach; if given after meals, some of the acid secreted is neutralized.

6. Ammonium carbonate may be used: as a gastric stimulant, as a cardiac and general stimulant, as an emetic, an expectorant, and a carminative.

It should be exhibited in small doses, which can be frequently repeated if necessary.

8. In diabetic coma a full dose of magnesium sulphate may be given.

9. *Three styptics*: Alum, silver nitrate, and tannic acid.

10. *Some therapeutic aims of the hot pack*: To cause sweating, to remove poisons and fluid in renal disease and uremia, to relax muscular spasm, to relieve excitement and insomnia of nervous origin.

PHYSICAL DIAGNOSIS.

1. Decreased resonance of the percussion sound over the lung may denote: Consolidation of the lung, presence of a tumor, fluid in the pleural cavity, collapse of the lung, phthisis, pneumonia, abscess of lung.

2. Dullness or flatness in Traube's area denotes effusion into the left pleural cavity.

3. Amphoric resonance is present in: pneumothorax, or a cavity in the lung.

4. Cracked-pot sound may be due to: a cavity in the lung communicating with a bronchus, pneumothorax connected by a fistula to a bronchus; it may be present in pneumonia.

5. Bronchial breathing is present in: Consolidation of the lung, pneumonia, tuberculosis, compression of the lung by pleural effusion.

6. Friction sounds are found in: pleurisy or pericarditis; also in hepatic or subphrenic abscess.

7. *Caput Medusæ* indicates portal obstruction, and is present in: ascites, tumors of abdomen, cirrhosis or tumor of liver.

8. *Tachycardia* is present in: Fevers, valvular cardiac lesions, phthisis, exophthalmic goiter, chlorosis, pernicious anemia, locomotor ataxia, arthritis deformans, sexual and alcoholic excesses.

10. The murmur of mitral insufficiency is soft, blowing, systolic, heart loudest at the apex, and is transmitted through the left axilla and posteriorly to the angle of the left scapula. The second pulmonic sound is accentuated.

PRACTICE AND PATHOLOGY.

3. Failure of compensation in chronic valvular disease of the heart may be marked by: Dyspnea, hemoptysis, cough, chronic bronchial catarrh; congestion of the stomach, intestines, and liver; dyspepsia, gastritis, enlarged spleen, ascites; cyanosis; dropsy; scanty and albuminous urine, with casts; clubbed fingers; vertigo, headache, or syncope.

	Amount of Urine Excreted in 24 Hours.	Specific Gravity.
In health	About 50 ounces	About 1015 to 1025
Acute nephritis	Greatly Diminished	Raised
Chronic parenchymatous nephritis	Diminished	Somewhat raised at first, then lower.
Chronic interstitial nephritis	Increased	Low
Diabetes mellitus	Enormously increased	Usually raised.

7. (*a*) *Decrease* of hydrochloric acid in the gastric juice indicates chronic gastritis, gastric dilatation, beginning carcinoma. (*b*) *Increase*, denotes gastric ulcer.

9. For the diazo reaction two solutions are required: (1) A saturated solution of sulphanilic acid in a mixture of 50 c.c. of hydrochloric acid and 950 c.c. of water, and (2) a 0.5 per cent. solution of sodium nitrite.

To make the test, 1 c.c. of (2) is added to 40 c.c. of (1), and the mixture thoroughly shaken. Equal quantities of this mixture and the urine to be tested are shaken together in a test tube, and 1 c.c. of ammonia is then floated upon the surface, when, in an affirmative result, a red band is formed at the junction of the fluids.

Its diagnostic value is uncertain. Von Jaksch "disclaims for this test any clinical importance whatever." Others have claimed that the reaction is pathognomonic of typhoid; but it has been found in other diseases besides typhoid—namely, phthisis, pneumonia, measles, scarlet fever, smallpox, and malaria.

As to *prognosis* it is said: that if the reaction is not found in the second or third week of a typhoid fever, the case is a mild one; (2) in phthisis a constant reaction implies an incurable case.

SURGERY.

8. The *indications, for enucleation of the eye*, are: "(1) Injuries of the ciliary region, when the eye is completely blind, or the traumatism so extensive that the form of the eyeball cannot be preserved; (2) traumatic iridocyclitis, to prevent or cure sympathetic ophthalmia; (3) severe pain in a blind eye; (4) irido-cyclitis, phthisis bulbi, and glaucoma, when accompanied by severe pain or inflammatory symptoms, and when the eye is blind or is certain to become so; (5) malignant tumors, either intraocular or epiocular, if they cannot be removed with retention of the eyeball; (6) anterior staphyloma, if the eye is blind, troublesome, and disfiguring; (7) panophthalmitis, after the suppurative stage is passed; (8) foreign bodies in the eye when they cannot be removed and cause irritation, or the eye is blind."—(May's *Diseases of the Eye.*)

GYNECOLOGY.

2. *Three causes for the suppression of menses*: (1) Pregnancy; (2) chlorosis; (3) imperfect development of the genital organs.

4. *Lacerated perineum* may be followed by local tenderness, irritable scar, reflex disturbances, subinvolution of the uterus, rectocele, cystocele, prolapse of the uterus, and incontinence of feces.

OBSTETRICS.

1. As soon as the nuclei of the germ-cell and sperm-cell have conjugated the ovum divides into two cells, called *blastoneres*. These divide and divide again until a mass of small cells results, called the *morula*, which is not much larger than the original ovum. These small cells now become differentiated into larger granular elements in the center and smaller clear cells at the periphery, the two being separated by fluid. The latter accumulates until the morula becomes converted into a vesicle, the wall being formed of a single layer of the small peripheral cells, the central mass floating free in the fluid, attached to the outer layer at only one point. The embryo is developed from this central mass. It is at this stage that the ovum is called the *blastodermic vesicle*.

4. *Cephalic version is contraindicated in*: (1) Contracted pelvis; (2) when rapid delivery is required; (3) rigid uterus; (4) immobility of the fetus.

Podalic version is contraindicated in: (1) Extreme contraction of the pelvis; (2) impaction of the presenting part; (3) when the retraction ring of Bandl rises two inches or more above the pubes.

5. *In pregnancy*: the total quantity of blood is increased; the white corpuscles are increased, as is also the hemoglobin; the red corpuscles are said by some to be increased, by others to be decreased; there is an increase of fibrin and extractives.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 22, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	437	153
Diphtheria	157	12
Measles	66	5
Scarlet Fever	72	5
Smallpox	—	—
Varicella	13	—
Typhoid Fever	132	14
Whooping Cough	17	7
Cerebrospinal Meningitis	7	3
Malarial Fever	—	—
Totals	901	199

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending August 21, 1908:

			CASES.	DEATHS.
SMALLPOX—UNITED STATES.				
California, Oakland	July	1–31	2	..
San Francisco	Aug.	2–8	5	
Stockton	July	1–31	1	..
Idaho, Carey	May	21–Aug. 4	21	
Indiana, Fort Wayne	Aug.	2–8	1	.
Indianapolis	Aug.	3–9	7	.
Jeffersonville	July	1–31	5	
Lafayette	Aug.	4–10	2	
Missouri, Kansas City	Aug.	2–8	1	
St. Joseph	Aug.	2–8	3	
New York, Schenectady	June	1–30	2	
Ohio, Canton	June	6–13	1	.
Dayton	Aug.	2–8	2	
Toledo	Aug.	2–8	1	
Oregon, Portland	July	1–31	47	
Washington, Spokane	Aug.	2–8	2	
Wisconsin, La Crosse	Aug.	2–8	15	
Manitowoc	Aug.	2–8	1	..
Utah, Salt Lake City	July	1–31	10	.
SMALLPOX—FOREIGN.				
Arabia, Aden	July	20	..	3
Argentina, Buenos Aires	May	1–31	..	2
Austria, Silesia	July	19–25	4	..
Borneo, Sandakan	May	1–31	37	13
Brazil, Pernambuco	June	1–30	..	55
Rio de Janeiro	July	8–16	1	1 on S. S. *Peruviana*
Ceylon, Colombo	June	28–July 4	7	2
China, Hongkong	June	28–July 4	4	2
Ecuador, Guayaquil	June	28–July 11	..	6
Egypt, General	June	26–July 8	44	44
Cairo	July	1622	2	2
India, Bombay	July	8–14	..	11
Calcutta	June	28–July 4	..	5
Indo-China, Cholen	June	28–July 4	2	2
Java, Batavia	June	28–July 4	5	..
Peru, Lima	July	13	5	cases in the lazaretto
Portugal, Lisbon	July	19–25	2	..
Russia, St. Petersburg	July	12–18	29	3
Spain, Barcelona	July	21–31	1	..
Valencia	July	19–Aug. 1	6	1
Turkey in Asia, Bagdad	June	23–July 4	44	12
Turkey in Europe	July	20–26	..	9
Zanzibar	June	7–14	..	1
CHOLERA.				
Ceylon, Colombo	June	28–July 4	.	14
India, Bombay	July	1–14	..	1
Calcutta	June	28—July 4	..	29
Madras	June	5–10	..	13
Indo-China, Cholen	June	28–July 4	20	20
Russia, Astrachan	July	21–Aug. 6	51	24
Saratov	Aug.	6	14	2
Zarizyn	July	24–Aug. 6	96	55
YELLOW FEVER.				
Brazil, Pernambuco	June	15–30	..	1
Cuba, Dauquiri	Aug.	1–8	2	1
Ecuador, Guayaquil	June	28–July 11	..	3
Martinique, Port de France	Aug.	17	..	Present
Mexico, Veracruz	Aug.	14	1	..
PLAGUE.				
Brazil, Pernambuco	June	1–15	..	:
British East Africa, Port Florence	June	11–20	6	4
Chili, Antofagasta	July	12	3	.
Arica	July	15	1	..
Iquique	July	14	3	.
China, Amoy, in native city and vicinity	July	14	..	Present
Hongkong	June	28–July 4	65	61
Ecuador, Guayaquil	June	28–July 11	..	2
Egypt, General	July	24–30	21	7
Alexandria	July	3–28	10	3
Port Said	July	8	1	from S. S. *Orenoque*
India, General	June	28–July 4	512	435
Japan, Kobe	July	12–18	1	..
Osaka	July	4–11	2	2
Peru, General	July	7–13	32	13
Salaverry	July	19	1	..
Turke in Asia Adalia	July	27	2	..

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Original Articles.

THE INFLUENCE OF OVERWEIGHT AND UNDERWEIGHT ON VITALITY.*

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NEW YORK.

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WHEN your committee asked me to prepare a paper on some topic connected with life insurance for this meeting of your society, I was embarrassed to choose a subject which should prove of general interest. The subject should be one which contained a minimum amount of figures with a maximum amount of information and which should be of interest to all. The influence of overweight and underweight upon vitality seems to combine these facts. This subject can be handled with only a few figures if you will accept some assertions in place of figures. Furthermore, the profession as a whole does not realize its importance, nor the dangers which beset those who are far removed from the correct standard of weight, whether above or below. In life insurance we have to measure these dangers for commercial reasons.

In 1836 Quetelet[1] published a table of heights and weights based upon the facts gathered from the examination of a moderate number of Belgians. His data were few in number and mostly taken from young people. The table shows one height and one weight for each year represented, and those are supposed to be the average height and weight for that year. Thus at age 20, the average height is 5 feet 7 inches and the average weight is 143; at age 30 the average height is 5 feet 8 inches and the average weight is 151. These isolated facts agree fairly well with our standard, but they are so imperfect that they are of little practical use.

In 1846 Hutchinson and Stevens published his table of heights and weights, also based upon certain data gathered in England by statistics. It purports to represent the standard weight for each height at age 30, and is as follows:

TABLE I.

5 ft. 0 inches	120 pounds
1 "	126 "
2 "	133 "
3 "	139 "
4 "	142 "
5 "	145 "
6 "	148 "
7 "	155 "
8 "	162 "
9 "	169 "
10 "	174 "
11 "	178 "
6 ft. 0 "	

For heights from 5 feet 3 to 5 feet 9 it agrees with our present standard at age 30. For the shorter heights it is too light, and for the taller height it is too heavy. This table was soon adopted by insurance companies as a guide. Each medical department had its own set of rules by which to calculate the proper weight for other ages than 30. These rules were based upon theoretical considerations and did not give very satisfactory results.

The army and navy have tables of the maxima and minima of both heights and weights by which they select recruits for the different branches of these services. These tables are intended to secure efficiency in physical development, which is above the average of even life insurance risks. For that reason they would not serve as a standard, even for the few years which they cover.

In 1897 Dr. George R. Shepherd compiled for the Association of Life Insurance Medical Directors a table of height and weight for each quinquennium from 15 to 69. This was based upon the heights and weights of 74,162 accepted male applicants for life insurance. The weight included the clothing and the height the shoes. In other words, the conditions were as these applicants presented themselves to the medical examiner. Many of the figures were undoubtedly estimates, but the estimates were usually made by trained men. These results were checked by the actual measurements of 5,250 accepted male applicants carefully obtained at the time of examination in one office. The two sets of figures substantially agreed, showing that the estimates were in accordance with the actual facts. At the extremes of age and of height, the number of individuals in any one class was quite small and the curve of weight showed abrupt changes which had to be equalized. The net result was a table of heights and weights varying according to age which was adopted by the leading insurance companies as being the standard.

TABLE II.

HEIGHT AND WEIGHT AT DIFFERENT AGES.

Based upon an Analysis of 74,162 Accepted Male Applicants for Life Insurance, as Reported to The Association of Life Insurance Medical Directors, 1897.

Ages	15-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
5 ft. 0 in.	120	125	128	131	133	134	134	134	131	
1	122	126	129	131	134	136	136	136	134	
2	124	128	131	133	136	138	138	138	137	
3	127	131	134	136	139	141	141	141	140	140
4	131	135	138	140	143	144	145	145	144	143
5	134	138	141	143	146	147	149	149	148	147
6	138	142	145	147	150	151	153	153	153	151
7	142	147	150	152	155	156	158	158	158	156
8	146	151	154	157	160	161	163	163	163	162
9	150	155	159	162	165	166	167	168	168	168
10	154	159	164	167	170	171	172	173	174	174
11	159	164	169	173	175	177	177	178	180	180
6 0	165	170	175	179	180	183	182	183	185	185
1	170	177	181	185	186	189	188	189	189	189
2	176	184	188	192	194	196	194	194	192	192
3	181	190	195	200	203	204	201	198		

*Read at the One Hundred and Forty-second Annual Meeting of the Medical Society of New Jersey, June 18, 1908.

...900 a tab... according to age of heights and weights varying the Medical Sections compiled by a committee of Congress. This was of the National Fraternal 133,940 applications based upon an analysis of United States and Canad selected risks from the marvelously the table cda. It corroborated almost In fact, there are 111 compiled by Dr. Shepherd. possibilities in the two tabcidences out of 112 with the chairman of this comes. Correspondence that this miracle was naturalmittee convinced me

In view of these two recordsand legitimate. tained and based upon over 200,(independently ob- in the United States and Can)00 healthy males may safely assert that we now ha, I think we standard of height and weight, vary ave a correct to age, of men in the United States ing according

It will pay to glance over this and Canada. moment. You will note that the table for a steadily as you go down each vertica eight rises Dr. Oscar H. Rogers[3] has formulated t column. from a study of this table that each adde he rule in height calls for an addition of 3 per ce inch the weight. This rule will apply, if libert in interpreted, to all but the small man. The weig lly increases steadily with the age in each horizontal t line up to the year 45 among the little men, the year 50 among the middle-sized men and the year 55 and even 60 among the tall men. One is almost tempted to say that the taller the man the longer it takes him to reach full maturity as shown by his weight. In the very tall this rule does not seem to apply, but the number of these were so few that a small error may have crept in. The largest number of individuals was found at 5 feet 8 inches of height, and this is true for all ages below 60. The age-period showing the largest number of individuals was the decade 25-34, and this is true for all heights.

In the case of women our standard is not yet assured. Dr. Shepherd analyzed the records of 3,016 female applicants accepted for insurance. This number is too small to give accurate results. In general the record shows that at the age of 20 women are lighter than men by six to nine pounds. This difference gradually diminishes with advancing age. By the time the menopause is reached, it becomes one or two pounds only, and after this it may be obliterated.

We must remember that these heights and weights were taken when the parties were shod and clad in ordinary clothing. The shoe of a man will ordinarily raise him about 1 or 1¼ inches. The weight of his clothing, including shoes, but excluding any form of overcoat, varies considerably according to the season. In the neighborhood of New York a man of 5 feet 7 inches during the summer will wear 6 or 7 pounds of clothing, while in winter this may rise as high as 12 or 14 pounds. This difference is undoubtedly a factor in the increase in weight during the winter which so many people believe in. For life insurance purposes we do not attach any great importance to the differences due to clothing, for they are not large enough to modify materially our results.

It is a curious fact that the lowest death rate does not coincide with the standard. In general terms it may be said that the lowest death rate is found in the class who are about 5 per cent. below the standard, but in the ages below 30 the lowest rate is found among those who are 5 to 10 per cent. above standard. The differences are not great, and I wish to discuss in fuller detail the more marked cases of overweight and underweight.

Here I must interpolate a definition. The word "mortality," when used in this paper, means the ratio of actual deaths to expected deaths. We calculate the deaths which are expected to occur in a given group of individuals by means of a standard mortality table, usually making an allowance for the benefits of selection in the early years of insurance. This process is quite intricate and need not be given in detail. If this group of individuals shows 1,000 actual deaths and 2,000 expected deaths, the mortality is 50 per cent. If the group shows 2,000 actual deaths and 1,000 expected deaths, the mortality is 200 per cent.

A—Let us first take up overweights. A case is not considered overweight unless it is more than 20 per cent. above the standard weight for the height and age. For example, at age 40 the standard weight of a man 5 feet 6 inches tall is 150 pounds. We would not regard him as an overweight until he had passed 180 pounds, which is 20 per cent. in excess of his standard weight. Even in the classes of smaller excess than this the mortality is increasing, but at this point it begins to be a serious matter. The effect of overweight is influenced by two fundamental factors. These are: (1) Percentage of overweight; (2) age of the individual. It may be said that as the t... percentage of overweight at a given age increases, age... e mortality rises with it. Take, for example, age... 40. The standard weight for a man of this poun... 5 feet 6 inches tall, is 150 pounds. At 180 pounds... s he is 20 per cent. in excess and at 195 a large... y he is 30 per cent. in excess. If we take weigh... group of men of this height and age who that our ... etween 180 and 195 pounds, we will find expected de... ctual deaths will be 112 as against 100 then, has ju... eaths. The mortality of this group, crease the w... mped up to 112 per cent. If we in- more than 19... eight of each of these individuals to in excess of t... 5 pounds, it is more than 30 per cent. the actual deat... he standard, and we now find that 130 as against ... hs in this heavier group will be words, the morta... 20 expected deaths. In other 130 per cent. ... ty has risen still further to

Take for another... mple age 65. The standard weight for a ma... tall, is 180 pounds. ... this age, 5 feet 11 inches per cent. in excess and ... 216 pounds he is 20 cent. in excess. If we t... 34 pounds he is 30 per of this height and age ... large group of men and 234 pounds, we wi... veigh between 216 deaths will be 126 as again... that our actual The mortality of this gro... xpected deaths. to 126 per cent. If we inc... has jumped each of these individuals to m... e weight of it is more than 30 per cent... 234 pounds, standard, and we now find tha... ss of the in this heavier group will be 172 ... al deaths pected deaths. In other words, ... t 100 ex- now reached 172 per cent. Exa... ality has multiplied, but these will suffice to ... could be mortality increases markedly as the ... that the above 20 per cent. in excess, and to a s... it rises degree when the weight passes 30 pe... reater excess. This holds true for all heights ... t. in ages above 30 years. ... all

Age is another factor of consequence, or... esent moderate degree of overweight is not a detrimen... among those younger than 30. People of the age of 22 who are 20 per cent. to 30 per cent. in excess, will give a mortality of 87 per cent. only. This mortality is not much larger than that of well-selected lives. When the weight at age 22

rises to over 30 per cent. in excess, the mortality rises to 109 per cent. This, of course, is unfavorable, but compare it with a mortality of 130 per cent. at age 35 and of 172 per cent. at age 65 in the same degree of overweight.

It may be said, then, that moderate degrees of overweight in persons below age 30 are not harmful, provided the party does not get actually heavier with advancing years. You will note that this remark refers to actual weight and not relative weight. Our standard increases with advancing age so that an excess of 33 per cent. at age 22 is almost exactly equal to an excess of 20 per cent. at age 45. If a boy, 22 years old and 5 feet 9 inches tall, weighs 199 pounds, his weight is 33 per cent. above the standard of 150 pounds at that height and age. When that boy gets to be 45 years old and his height and weight still remain the same, we now find that his weight is only 20 per cent. in excess, for the standard at age 45 is 166 pounds. He has just kept at the edge of the danger zone, and people of his class will give an almost uniform mortality, moderately in excess of the normal irrespective of age.

Beyond 30 years of age the mortality among overweights rises rapidly with the age and with the weight. This will happen in spite of the utmost care in examining and selecting the risks. Nothing seems to help these cases as a class. Even a long-lived ancestry only reduces the excessive mortality a little, but does not bring them within normal bounds. On the other hand, several other conditions make for the worse. A short-lived ancestry is bad. A tuberculous family history is not bad in the younger ages, for it might be supposed that the overweight would tend to overcome a tuberculous predisposition. Increasing abdominal girth is a very serious addition to overweights, and when this exceeds the expanded chest, the mortality is markedly increased. Any other blemish, whether in the personal history or in the physical examination, regularly increases the mortality of these overweights.

In the case of women we must make our standard a little lighter than that of men, as stated in the beginning of this paper. Having done this, overweights among women are found to be just as bad as among men; in fact, a little worse. They are fewer in number, for women take greater pride in their shape, and do not often allow themselves to become fat, showing in this their superior wisdom.

As regards foreigners, it may be urged that our standard table is based entirely upon selected lives in the United States and Canada, and that it would not aply to another race, like the Germans, who are usually stouter and heavily built. We have found, however, that overweight foreigners are, if anything, a little worse risks than overweight natives. In truth, human fat seems to be the same wherever found, and has the same effect upon the prospects of life, whether in England, Germany, Holland, Belgium, France, Italy, Mexico, or the United States.

B—Now, let us consider the effect of underweight. As long as the weight is not below 80 per cent. of the standard, *i.e.* not more than 20 per cent below the standard, the effect seems to be slight. The mortality rises slowly, especially among the younger ages, but the increase is gradual and not alarming. Below this level, however, the mortality rises to a point where it is of consequence, especially in the younger ages.

Below 20 years of age we can expect a mortality of 118 per cent. when the weight is from 80 to 75 per cent. of the standard, *i.e.* 20 to 25 per cent. below the standard. Ages above 20 years in this group show a fairly uniform mortality of about 95 per cent. As you see, this is not very bad, but, on the other hand, is not very good.

In the next group, in which the weight ranges from 75 per cent. to 70 per cent. of the standard, *i.e.* from 25 to 30 per cent. below the standard, the number of entrants in my company below age 20 numbered only 30 in the 30 years from 1870 to 1899. This number is too small to furnish any figures of consequence. Even in the decade 20-29 the total number of exposures only amounted to 299, an average of less than 30 for each year. These gave 2 deaths as against 1.9 expected. The numbers are too small to be of consequence. In the decade 30-39 the number exposed rises to 1,391, and these give a mortality of 100 per cent. After this the mortality is fairly satisfactory, ranging from 90 to 95 per cent.

For weights below 70 per cent. of the standard, *i.e.* more than 30 per cent. below the standard, our experience is very limited and too small to divide into different age periods. The actual deaths amounted to 12 and the expected to 13.5, showing that our selection was reasonably good. The number of entrants below age 40 was too few to give any information. Above age 40 we can only say that when they are picked with care, these extreme underweights live a good while.

As regards the other factors which modify the influence of underweight, we have to deal with a problem quite different from that of overweight. The influence of age is reversed among underweights. The younger ages are the ones most affected, while the older ages are but slightly disturbed.

The mortality increases as the weight diminishes, but even among those who are more than 30 per cent. below the standard, the mortality is not excessive.

The association of dyspepsia with underweight is a serious matter with those below age 25. This combination will give us a mortality as high as 150 per cent. I have no doubt that dyspepsia and underweight together in the young is often indicative of incipient tuberculosis, the extent of which is so small that it is not determined on physical examination.

The association of underweight and tuberculous family history has long been recognized as serious, especially in the younger ages. Thus, we find that this combination gives a mortality of 180 per cent. in the ages below 35. Above that age the influence of tuberculosis depends upon the number of cases in the family. If we have 2 or more cases occurring in the family of an underweight, the mortality is 107 per cent. for all ages above 35. In these older ages the underweight who has had only one case of consumption in his family runs but little risk, perhaps for the reason that he takes better care of himself.

As regards women, we must make allowances in our standard weights for the sex. We then find that the lesser grades of underweight from 80 to 75 per cent of the standard give a mortality of only 77 per cent., an excellent result and practically uniform for all ages. For weights below this the mortality becomes bad, in fact over 100 per cent., but the cases are so few that no deductions can be made from them. There is no reason to suppose, however, that underweight women are any worse than underweight men, and

I have no doubt that they will give as good a mortality if selected under the same circumstances.

As regards residence, I regret to say that I have no figures pertaining to foreign underweights, nor have I been able to find any statistics. From a general empirical knowledge of risks, native and foreign, I think it reasonable to assume that foreign underweights have about the same mortality as native underweights.

C—It is of interest to the profession to know from what causes these overweights and underweights die, for none of them ever dies of obesity or emaciation. There were 1,499 deaths among the male overweights and 1,078 among the male underweights. These numbers are sufficiently large to enable us to subdivide them into all the important classes and most of the leading individual classes. I will compare these deaths with the figures obtained by Dr. E. J. Marsh, a former president of this society, from the entire male mortality of the Mutual Life Insurance Company.[4] It is proper to do so, for these deaths form a small part of the material which he used. We will, therefore, be comparing results which are homogeneous so far as their origin is concerned. Any differences may be ascribed to the influence of overweight or underweight. These differences are in some cases considerable and of much interest.

TABLE III

SHOWING THE PERCENTAGE OF DEATHS IN ALL CLASSES AND SOME INDIVIDUAL DISEASES AMONG OVERWEIGHTS, UNDERWEIGHTS AND THE GENERAL EXPERIENCE OF THE MUTUAL LIFE INSURANCE COMPANY

	Causes of Death	Overweights	Underweights	General Experience
Class I	General Diseases—Acute	9.67	9.28	8.90
	Typhoid fever	4.00	3.06	3.94
	Malarial fever	1.27	1.21	1.24
	Influenza	1.47	2.04	1.00
Class II.	General Diseases—Chronic	13.07	24.59	19.56
	Tuberculosis	2.93	16.98	12.42
	Cancer	4.40	5.57	4.18
	Diabetes	3.40	0.65	1.25
Class III.	Diseases of the Nervous System	19.08	12.16	17.44
	Cerebral Congestion and Hemorrhage—Cerebral Softening, Paralysis	14 14	8.47	12.32
	General Paralysis and other forms of mental alienation.	1.80	0.84	1.30
Class IV.	Diseases of the Circulatory System	16.01	11.69	11.85
	Organic diseases of the heart.	12.94	8.54	10.76
Class V.	Diseases of the Respiratory System	8.54	15.78	11.86
	Pneumonia	6.87	12.34	9.03
Class VI.	Diseases of the Digestive System	10.61	8.54	10.19
	Cirrhosis of Liver	3.47	0.65	1.00
Class VII.	Diseases of the Genitourinary System	12.01	7.42	8.78
	Bright's Disease and Nephritis	11.07	5.30	6.66
Class IX.	Diseases of Skin and Cellular tissue	1.20	0.47	0 50
Class XI.	Old age	None	2.04	1.50
Class XII.	Violent causes	7.07	5.57	7.42
	Casualties	4.20	3.43	5 21
	Suicides	2.87	2.14	2.20
Class XIII	Ill defined	2.60	2.50	3.98

The class of acute general diseases includes all the acute infectious diseases except a few which are distinctly localized, like pneumonia. Overweights suffer a little more from these than underweights, the experience of the latter being nearly identical with the general experience. Typhoid fever shows a little better among the underweights, while malaria is about the same in both. Influenza is a little worse in both than in the general experience.

Overweight seems to secure a marked degree of immunity from tuberculosis, for we find among them not one-quarter of the amount of fatal tuberculosis which we find in our general experience and hardly one-sixth of what we find among the underweights. The large amount among the latter is partly due to the fact that the underweight was only a symptom of a tuberculosis, which was not recognized at the time of the examination. After allowing for this, however, we are tempted to say that underweight predisposes to tuberculosis or rather to fatal tuberculosis, and the reverse is the case with overweight.

Cancer among overweights and underweights, men and women, shows no appreciable difference from the general experience.

Diabetics are scarce among the underweights, hardly one-half of the general experience, but they are five times as numerous among the overweights.

If we group together the different forms of cerebral congestions and hemorrhage, cerebral apoplexy and paralysis, we find that overweights are a little in excess as compared with the general experience, while the underweights are distinctly below the average in this group. This difference also holds true for the various forms of mental alienation, grouped together.

Organic diseases of the heart show a decided excess among overweights, and as great a deficiency among underweights.

Pneumonia is nearly twice as fatal among underweights as among overweights, although the prognosis in pneumonia is usually regarded as more serious in an overweight than in an underweight. Taking these two factors into account, it would almost appear that overweights have a certain immunity from the pneumococcus, while the underweights are more than usually susceptible.

Cirrhosis of the liver is three and a half times as prevalent among overweights as in our general experience. This undoubtedly points to alcoholism, for statisticians generally consider that hepatic cirrhosis is a very accurate index of the alcoholic habits of a class. Among the underweights it is below the normal, as are also the other diseases of the digestive system, thus showing their moderation in food as well as drink.

Bright's disease, both acute and chronic, is nearly twice as prevalent among overweights as in our general experience. This excess can probably be ascribed to the habit of overeating and overdrinking, which produces both the overweight and the Bright's disease. Among underweights it is a little below the average.

In Class IX there were eleven deaths from carbuncle among the overweights, where there should have been but two. This is a great excess, but I am inclined to think that many of these cases were associated with unrecognized diabetes, which would be properly described as the cause of death. If this surmise is correct, diabetes becomes a still more serious factor among overweights.

Casualties among both overweights and underweights are a little below the average. This may show that they take care to avoid injuries, or else it may be that the abnormal weight, whether above or below the standard, prevents them from entering occupations liable to fatal accidents.

No overweight, whether man or woman, died of old age or senility according to our record. On the other hand, old age or senility caused 22 deaths among the male underweights and 5 among the female. Furthermore, it should be noted that no overweight attained the age of 80 years at death, while, on the other hand, 44 underweights passed this age, and two of them even reached the age of 90 before dying.

Deaths among the women, whether overweight or underweight, were too few to permit any elaborate criticism. In so far as the small material could be analyzed, it corroborated the male experience in both classes. No deaths occurred from puerperal causes among the underweights, and only 4 among the overweights, this being about the average experience of the company among women.

D—Now, let us sum up in a general way the differences between overweights and underweights. The mortality among all those, irrespective of age, who are between 20 and 30 per cent. below the standard weight, is 96 per cent., while the mortality of all, irrespective of age, who are between 20 and 30 per cent. above the standard, is 113 per cent. These figures alone would show that overweight is a much more serious condition than underweight. On the other hand, we must take into account the fact that until recent times overweights were accepted more freely by insurance companies than underweights. To put it in another way, underweights were selected with more rigid care than overweights. The old idea that an overweight had a reserve fund to draw upon in case there was a run on his bodily bank was prevalent, although it was recognized that excessive fat might be harmful and should exclude the risk, on the ground, perhaps, that it was a form of capital which was not active. Similarly, an underweight was considered to be undercapitalized, and if his bodily bank had to go through a panic like pneumonia, or hard times like organic heart disease, he would become insolvent and bankrupt. As a result of this method of thought, our underweight mortality is rather better and our overweight mortality rather worse than if both sets had been accepted under exactly the same conditions. But, even if we make full allowance for the difference in selection, I am convinced that the same percentage of overweight is a more serious matter than if it were underweight. The excessive weight, whether it be fat or muscle, is not a storehouse of reserve strength, but it is a burden which has to be nourished if muscle, and which markedly interferes with nutrition and function if fat. This does not apply to the young, those below 25 years of age. Here a moderate degree of overweight is much more favorable than underweight. In fact, up to age 25 an overweight not to exceed 110 per cent. of the standard is upon the whole good for the individual. It seems to indicate a certain hypernutrition and robustness of physique which is favorable to the subsequent life. Underweight among these young people, on the other hand, is unfavorable, and in some cases indicates commencing disease or the tendency thereto. But when we pass the age of 30 these conditions are reversed and the difference between overweight and underweight in their influence upon vitality becomes more marked with each year of age.

Of course, for the best interests of health, one should be near standard weight, and that is the sermon which you should preach to your patients. Impress upon them the advisability of their being within 10 per cent. of the standard, for within that range is found the lowest mortality and the greatest vitality.

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CONGENITAL UMBILICAL HERNIA, WITH REPORT OF CASE.

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Moynihan (Encyclopedia Medica, Vol. IV., 1900) describes the formation of umbilical cord hernia as follows: "At the beginning of the third month of intrauterine life the viscera become enclosed in the abdominal cavity by the growth of the visceral plates. If the growth is defective, the visceral enclosure is more or less incomplete and hernia results. The term hernia, as Malgaigne suggests, is inappropriate, for we are not concerned with viscera escaped from a cavity, but with viscera which have never entered it."

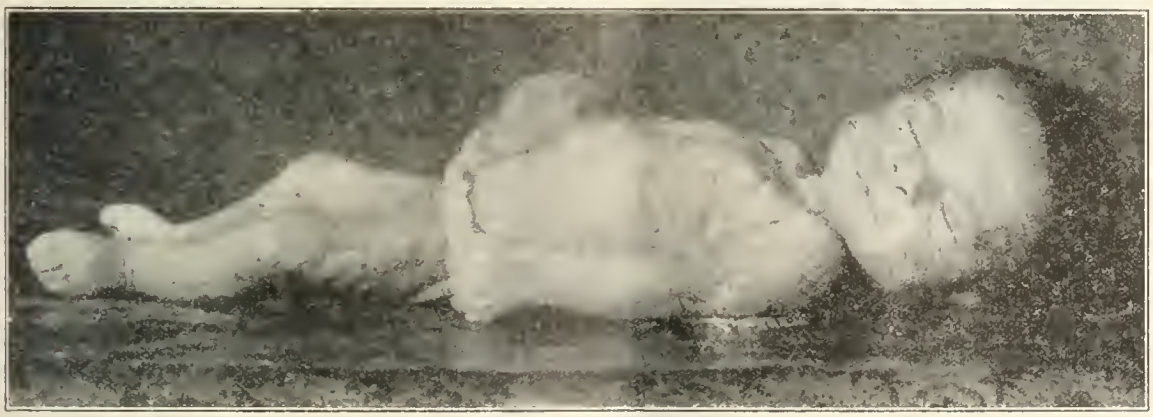

Fig. 1.—Congenital umbilical hernia.

Three classes of hernia are described: (*a*) Where the gap at the umbilicus is small, hernia of the root of the cord; (*b*) where the gap is moderate in size, sacculated hernia; (*c*) where the abdominal wall is grossly incomplete (eventration), the viscera having a thin covering derived from the amnion. The case described below belongs to the last variety.

Lindfors (*American Journal of the Medical Sciences*, October, 1889) states that this condition occurred once in 5,184 births at the Munich Maternity Hospital, between 1862 and 1881. Accord-

ing to Wollstein (*Archives of Pediatrics*, 1904). Block saw one in 5,000 births at Berlin Charité, and Vienna did not see a case among 3,043 births at the Paris Charité. The following is the report of the case:

Colored female child, delivered normally on August 6, 1903. Mother was fifteen years old, of healthy parents, and of a family of seven children of normal development. Father was one of three boys, of about her age, and, as she was uncertain which one to blame, the paternal history could not be obtained.

Last menstruation was on January 1, 1903, which made the term exactly seven months.

She was seen on February 27, when a history was obtained of attack of violent cramp in right inguinal region on the preceding day, followed by a fainting spell with unconsciousness for two hours. A boggy mass was found in the right tubal region, extending well down into Douglass' cul de sac, pushing the uterus to the left. Cervix was soft; abdomen rigid. Arrangements were made to have her moved to a hospital for observation, but she failed to go, and was next seen in labor on August 6, when she was suffering from general anasarca with extreme edema

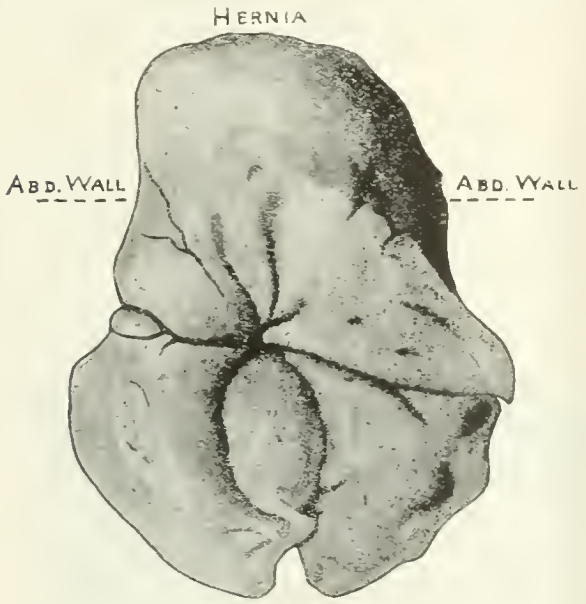

FIG. 2.—The liver in the case of umbilical hernia.

of the vulva, which her mother claimed had existed for three weeks. Twenty minutes after delivery of the placenta she had convulsions, and remained in a stupor for three hours.

The child was found to have solid tumor larger than half an orange in the region of the umbilicus, covered by what appeared to be a continuation of the membrane of the cord, and this entered the abdomen below and to the left of the tumor.

The infant died at the end of forty-eight hours, having peculiar convulsions, involving the hands and arms. In spite of the fact that very little cyanosis was observed until just prior to death, we were unable to make the child cry.

The covering of the tumor had sloughed off and exposed part of the liver, which proved to be the contents of the hernial sac.

A photograph was made by Dr. Laciar and autopsy performed by the writer sixteen hours after death. The organs proved to be normal and no malformations were found except of the liver, which was shortened from above downward, and had its right lobe compressed into a rounded mass and pushed through the abdominal wall at the umbilicus. The liver weighed 120 grams, and its peculiar shape is well shown in the drawing by Dr. Palmisano (Fig. 2). The cord entered the abdominal cavity to the left of the tumor with the arteries and vein coming together slightly below the surface.

A full discussion of the views of Cruveilhier, Simpson, Muller, Scarpa, Richter, Aschoff, and others, concerning the causes of this malformation, may be found in Wollstein's report, and much additional information may be gained from Cumston's comprehensive article in the *British Journal of Children's Diseases*, November, 1905.

The contents of these herniæ vary, and, according to Cumston, a few loops of small intestine alone may be present, or the cecum, as well as most of the large intestine, may be in the sac. The stomach, pancreas, spleen, liver, and kidneys have all been found outside the abdominal cavity. Cases in which the heart and part of one lung are prolapsed must be classified as true eventration. The size of this variety of hernia varies greatly, and the tumor may be so large as to interfere with delivery. It is usually covered by amnion, Wharton's jelly, and peritoneum.

Cumston states that the arteries and veins quite frequently become united at the apex of the tumor forming the cord, but the insertion of the cord does not always take place at the apex of the tumor. Usually the cord occupies one of the sides, and, according to Cruveilhier, the insertion is found more frequently on the left. It often happens that in these cases the elements of the cord, arteries, and vein are thrown to the same side, instead of being disassociated. In cases of irreducible hernia the insertion preferably takes place at the apex of the tumor. In forty-five cases, where the point of insertion of the cord was given, Buschan found the following: Thirteen times in the middle of the tumor, once on the right of the tumor, and twice on the left, on the anterior aspect of the tumor once, and on its lower aspect twenty-eight times. This same authority makes the remark that the cord is usually very short, and Otto has described a case where it was completely wanting, the hernial sac being directly adherent to the placenta. A similar case has been described by Thorner.

Operation for the cure of these malformations was suggested by Oken in 1810, but no record is found showing that any successful operations had been performed at this time. Malgaigne, writing in 1840, speaks of this variety as being of merely pathological interest.

According to the statistics of Linford and others, expectant methods of treatment have proved unsuccessful, and early operative interference has reduced the mortality to a large extent.

J. M. Elder (*Montreal Medical Journal*, April, 1903) collected statistics of nineteen cases which had been operated upon with modern technique, of which seventeen recovered and two died; and of nine cases, treated by compression, of which six died.

A review of the reports of 160 cases, which I have been able to find in a thorough search of the literature, shows 126 were operated upon, of which 84 recovered and 40 died, the results in the other two cases not having been known.

Operations proposed for the radical cure of congenital umbilical hernia, including those of Dorhm, Olshausen, Carl Breus, Lawson Tait, Quenu, Condamin, Duplay, Dauriac, and others, are fully described by Cumston, who summarizes as follows: "As to the method to employ for the radical cure, I do not believe that any one can be considered the

TABLE I.—CASES TABULATED BY MICHAELIS (*Berliner Klinik* 1906, HEFT 222.)

Surgeon	Reference	Sex	Description	Treatment	Course	Remarks
Putz	Dissert. Halle, 1891.	Male	Swelling size of man's fist. Orifice of hernial sac 16 cm. in circumference.	Laparotomy performed under chloroform anesthetic 24 hrs. after birth.	Cure in 21 days.	
Reymond	Medical Record, 1896.			Immediate laparotomy.	Died soon after	Liver weighed 130 g. Diameter of hernia, 6 cm.
——			Swelling size of child's head. Small and large intestines. Liver.	Laparotomy performed 24 hrs. after birth.	Cure.	
Steinbüchl	*Archiv. f. Gynakol.* 1900.		Size of walnut. Loops of small intestine.	Olshausen's method.	Died of ileus	
Kennedy	*Brit. Med. Jour.*, 1901.		Swelling size of an apple. Cecum, appendix, small intestine.	Laparotomy performed 12 hrs. after birth.	Cure.	
——			Size of an egg. Loops of small intestine.	Laparotomy performed 1 hour after birth.	Cure.	
McDougall	*Brit. Med. Jour.*, 1902.		¼ in. in diameter.	Single ligature. Protective dressing.	Died	Premature birth.
Lotheissen	*Wiener kl. Rundschau*, 1903.		Swelling size of an apple. Ileum, cecum, ascending colon.	Laparotomy without anesthetic 24 hours after birth.	Cure in 8 days.	
Alder	Dissert. Zurich, 1903.	Male	Liver. Intestines. Circumference of base 24 cm. Height 10 cm.	Laparotomy under chloroform anesthetic 3 days after birth.	Died.	
Kinlt	Dissert. Leipzig, 1904.	Female	Swelling larger than abdomen of the child. Liver, stomach, spleen, entire intestinal tract	Laparotomy 10 days after birth.	Died.	Reposition impossible.
——		Male	Oval in shape. Diameter at base, 4 cm. Liver, loops of small intestine.	Laparotomy 10 hrs. after birth.	Died 5 days after.	
Zillmer	*Zeit. f. Geburtsh. u. Gynäk.*, 51 B.		Prolapsed lobe of the liver.	Laparotomy. Reduction of prolapsed liver lobe.	Cure	
Hedmann	*Centr. f. Chir.*	Male	Size of an egg. Loops of small intestine.	Ligature and excis'n 5 hours after birth.	Died later of dyspepsia.	
——				Laparotomy 6 hours after birth.	Cure.	
Küstner	*Medicinische Klinik*, 1906.			Laparotomy.	Cure.	
Ladenburg	*Centr. f. Chir.*, 1906.			Laparotomy 5 hours after birth.	Died.	
Kongel	*Deut. Med. Woch.*, 1906.		Size of pigeon egg perforating Meckel's diverticulum.	Laparotomy, resection of intestines 3 days after birth.	Cure.	
——			Size of fist. Liver, large part of intestines.	Laparotomy when few hours old. Two oper. on account of intestinal fistula.	Died.	
Stevenson	*Centr. f. Chir.*, 1906.		Unusually large. Large intestine, large part of small intestine. Meckel's divert'l'm.	Laparotomy 24 hrs. after birth.	Died.	

TABLE II.—CASES NOT IN ANY OF THE PREVIOUS TABLES, BUT COLLECTED BY THE AUTHOR OF THE ACCOMPANYING REPORT.

Surgeon	Reference	Sex	Description	Treatment	Course	Remarks
Knoop	Samml. kl. Vortr., 1903. No. 348.		Swelling size of walnut.	Operation.	Cure.	Operation without anesthetic. Reduction of hernia and closure with catg
Knoop	Samml. kl. Vortr., 1903. No. 348.	Male	Sac contained liver.	Operation.	Cure.	Chloroform anesthetic. Incision through peritoneum and reduced hernia. Clos'd with silver wire. Healed by granulation.
Guizeit	*Deut. Zeit. f. Chir.*, 1904. V. 73.		Size of hernia, 5 x 6 cm. Oval. Increased in size when child cried. Sac contained liver up as far as the suspensory ligament.	Operation. No anesthetic.	Cure.	Operation postponed for 3 days. Peritoneum opened. Closed with catgut. W'nd closed with silk. Healed by granulation.
Wollstein	*Arch. of Pediatrics*, 1904.	Male	Tumor large as small pear. Sac contained cecum with vermiform appendix and 3 inches of ileum.	No operation.	Died	Prolapsed ileum showed a Meckel's diverticulum half an inch in height.
Michaelis	*Berl. Klinik*, 1906. Hft. 222.	Female	Larger than fist. Base size small plate. Transparent covering. Sac contained omentum, liver coils of small intestines.	Under chloroform, incision and reduction, which was difficult. Jaundice followed. Removed dressing at end of 6 days.	In 3 weeks w'nd had healed and child was OK. Nine mo. later child seen and well.	
Michaelis	*Berl. Klinik*, 1906. Hft. 222	Male, 5 days old.	Mother insane. Sac not translucent. Fibrin within. Could not make out contents on account of fluid, which was reduced, and coils of intestines and part of liver felt. Child had hare lip and cleft palate. Temperature sub-normal.	Died before it could be operated upon.	Died	Autopsy showed sac to contain dark fibrinous liquid, part of small intestine, cecum and appendix, part of ascending colon, and part of left lobe of liver. Adherent. General peritonitis.
Michaelis	*Berl. Klinik.*, 1906 Hft. 222.	Male	Cyanotic child. Tumor little larger than apple. Covering thin. Could see loops of small intestine.	Operated upon by Carl Breus. Incision. Sac empty, having reduced spontaneously. Ligatured.	In 3 weeks discharged well. Child seen in Clinic freq'tly aft'w'ds and found well.	
Nove-Josserand	*Lyon Méd.*, V. CVIII, 1907		Hernia size of an orange. Sac contained small intestines and almost entire liver.	Operation at end of ten hours.	Cure	Intestinal obstruction followed about seventh day after the cutting of a small adhesion which had permitted the accumulation of blood in upper part of wound.
Wilson	*Western Med. Rev.* V. XII, 1907.	Male	Sac contained entire small intestine and cecum firmly united by adhesions, forming a tumor about the size of an orange.	Operation under chloroform when child was 3 hours old.	Cure	

TABLE II.—(Continued.)

CASES NOT IN ANY OF THE PREVIOUS TABLES, BUT COLLECTED BY THE AUTHOR OF THE ACCOMPANYING REPORT.

Surgeon	Reference	Sex	Description	Treatment	Course	Remarks
Klots	*Transvaal M. J.*, V. 2, 1896–7.	Female	Sac contained liver, intestines and omentum. Cord ran peripherally.			Premature fetus of 7 months apparently dead just before birth. Beside omphalocele showed spina bifida.
Klots	*Transvaal M. J.*, V. 2, 1906–7.	Male	Hernia large. Cord ran peripherally. Sac contained liver, intestines and omentum.			Has seen this malformation twice in 1,986 confinements. Case reported, child was stillborn at term and showed all the signs of congenital syphilis.
Meredith	*N. Y. Medical Journal*, V. 86, 1906.	Male	Large pear-shaped tumor, 7 x 8 x 8 cm. Contained large portion of small intestines, cecum with its appendix.	Operation	Cure	Reduction. Entire sac was resected. No vomiting. Bowels moved. Stitches removed on twelfth day. No indications of recurrence.
Meredith	*N. Y. Medical Journal*, V. 86, 1906.	Female	Large oval tumor 10 x 12 x 12 cm. Tissue had thin, translucent and somewhat myxomatous appearance. Contained liver and apparently the entire gastrointestinal tract. Irreducible.	No operation	Died day after birth.	
English	*Lancet*, Nov. 11, 1905.	Female	Swelling size of tangerine orange. Contained small intestine, one part of which consisted of a blind diverticulum adherent to sac wall.	Laparotomy	Died	Post-mortem examination. Local peritonitis had commenced around neighborhood of diverticulum. Intrauterine adhesions had occurred between Meckel's diverticulum.
Moran	*Am. J. Surg.*, V. XIX, 1905–6.	Male	Elliptical, translucent tumor at root of cord about size of baseball.	Radical operation under chloroform 2 hours after birth.	Cure.	
Doolittle	*Canada Lancet*, V. 39, 1905–6.	Male	Sac ruptured. Entire intestinal tract from duodenum to sigmoid flexure lying partly in and partly out of sac. Opening connecting sac with the abdominal cav. about ¾ in. in diam., almost completely filled with sec. of large and small intest.	No operation	Cure.	
Jones	Trans. Rhode Island Med. Sec., V. 7, Pt. 1, 1904.	Male	Irreducible tumor at umbilicus size of lemon. Sac very thin. Contained 3 coils of ileum, the cecum with appendix, the ascending transverse and a portion of the descending colon.	Operation 16 hours after birth.	Cure	Operated on under ether anesthetic.
Veron	Bul. I. Soc. Scient. et Méd. de l'Ouest., 1904.	Male		Operation	Died	Malformations of the intestines.
				Operation	Cure.	
Piollet	*Lyan Méd.*, CIII, 1904.	Female	Embryonic hernia. Spheric in shape, large as adult hand.	Operation	Lived for 15 days.	
Spencer	Trans. Path. Soc., Lond., V. 49.	Male	Pedunculated egg-shaped swelling covered with gangrenous skin.	Operation under chloroform	Cure	Serous covering of hernial protrusion had become infected. No question of any form of treatment other than immediate operation
Elder	*Montreal Medical Journal*, 1903.	Male	Tumor size of orange. Dull on percussion. Sac contained cecum with appendix, ascending and transverse colon, about half small bowel.			
Michaelis	*Berl. Klinik*, 1906. Hft. 222.	Male, Newborn.	Swelling about size of hen egg. Covering necrotic.	Operated upon immediately. Made 2 elliptical incisions around tumor. Sac cont'd greater part of left lobe of liver, which was adher't to walls of sac. Replaced cont'ts and sutured.	Died on day after operat'n.	Autopsy showed fluid in pericardium and twist in liver, which had resulted from efforts at reduction.
Michaelis	*Berl. Klinik*, 1906. Hft. 222.	Male, 7 days old.	Cord about size of half dollar. Tumor size of hen's egg. Covering dry and parchment like. Diarr. and vomiting.	Not operated upon.	Died third day.	Autopsy showed cecum and appendix attached to wall of hernia. Ascending colon with fecal fistula.
Michaelis	*Berl. Klinik*, 1906. Hft. 222	Male	Cyanotic child. Swelling size of man's fist, larger on crying Covered by skin except at apex, which was covered by translucent membrane. Contained coils of intestine apparently of large gut. Peristalsis. Had hypospadias and congenital heart lesion.	Parents objected to operation. Treated by compression.	Died of some acute infect'n at 8 months.	
Koller-Aeby	*Arch. f. Gynæk.* V. 82, 1907.		Hernia 13 x 15 cm. Oval, shape of eyeglass. Contained part of left ventricle		Premature, died 3 hours after birth.	Hernia was diverticulum of the heart. Posterior surface of diverticulum was covered with peritoneum
Ringel	*Münch. med. Woch.*, V. 54. 1907.		Sac contained part of colon, cecum and part of liver.	Operation without anesthetic.	Died	One day old when brought to hospital. Wound heal'd 10 days after operation Died eighteenth day from sepsis.
Ringel	*Münch. med. Woch.*, V. 54. 1907.	Male	7 cm. long. Contained Meckel's diverticulum and 2 coils of small intestine.	Operation without anesthetic.	Cure	Four days old when brought to hospital. Meckel's diverticulum. Peritoneum closed in operation.
Fiedler	*Deut. med Woch.* V. 33. 1907.		Circumference 22 cm. Tumor of hard consistency. Contained whole liver and several coils of small intestine.	Operation when child was 5 days old.	Cure	Adhesions between liver and peritoneum.
Ritterhaus	*Deut. Zeit. f. Chir.* V. 89. 1907.	Male	Hernia extended from ensiform cartilage to pubis. Sac contained meconium. Stricture of anus.	Operation under chloroform.	Died 12 hours after operation.	
Ritterhaus	*Deut. Zeit. f. Chir.*, V. 89, 1907.	Male	Sac contained part of stomach and whole of liver.	Operation under chloroform.	Died 9 months after operation.	Post-mortem examination showed adhesion between liver and abdominal cav
Ritterhaus	*Deut. Zeit. f. Chir.*, V. 89, 1907.	Female	Swelling size of mark. Contained part of small intestine.	Operation	Unknown	Hernia reduced. Operation 3½ hours after birth.

TABLE II.—(Continued.)

CASES NOT IN ANY OF THE PREVIOUS TABLES, BUT COLLECTED BY THE AUTHOR OF THE ACCOMPANYING REPORT.

Surgeon	Reference	Sex	Description	Treatment	Course	Remarks
Ritterhaus	*Deut. Zeit. f. Chir.*, V. 89, 1907. *See-i-Kwai Medical Journal.*, Tokyo, 1904, V. XXIII. A case of cong. umbilical hernia.	Female	Sac contained greater part of small intestine.	Operation	Cure	Hernia reduced.
McColl	*Dominion Med. Monthly*, 1907, V. XXIX. Congenital umbilical hernia with report of case.					
Fiusterer	*Wiener kl. Woch.*, 1906, V. XIX.					
Brodfûhrer	*Med. Woche*, 1903. A case of congenital umbilical hernia.					
Coenen	*Berl. kl. Woch.*, V. XLIV, 1907.					

best, and it is well to make a selection among the various techniques according to the given case. In reference to Mayo's method, which in the adult is, according to my way of thinking, superior to any other, I have done this operation eighteen times without recurrence; it has been purposely not alluded to when discussing the radical cure of congenital hernia, because it cannot be readily applied with any chance of success on account of the necessary resection of the tissues which it involves. Generally speaking, simple laparotomy, with extirpation of the sac and suture of the freshened borders of the wound, will be sufficient in a large majority of cases. As to the use of several layers of buried sutures, I can say from practical experience that, although they may be practised successfully in the adult, they are far from being easy in newly born children. The question now arises as to when a congenital umbilical hernia should be operated on, and, in reply to this, I would say that it should be done as soon as possible after birth, because desiccation of the sac will soon become the starting-point of inflammatory attacks in the viscera. If the operation is carried out carefully and without undue loss of time, babies will stand the operative shock and anesthesia well."

Safford (*Philadelphia Medical Journal*, February 23, 1901) reported a case and published a table made up of those previously tabulated by Linford, Hallet, and Berger, and additional ones collected by him from the literature up to 1900, making in all 90 cases. Yates and Davis (*American Medicine*, Vol. II., 1907) have tabulated 15 cases, and I have found reports of 36 cases in the literature not included in any of the previous tables.

In addition, Michaelis (*Berliner Klinik*, 1906. Heft 222) reported 26 cases, 19 of which, not having been previously reported in English, are tabulated below.

922 Madison Avenue.

REPORT OF A CASE OF BRAIN TUMOR, WITH AUTOPSY.*

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The following extremely interesting case recently came under my observation:

The patient, Mrs. Melanie B., was admitted to Manhattan State Hospital on August 20, 1907, and on the next day transferred to my service, where she remained until the time of her death.

There is no history of vesanic or neurotic taint in her family or its collateral branches. Lues in the husband and neoplasm in her ancestors could not be ascertained.

The patient was born in France in January, 1864. The development of her infancy and her childhood was uneventful. At the age of four or five she fell off a horse and sustained an injury to her left hip and ever since then her gait was limping. When six years old she received a trauma to one of the parietal regions of her head (a bottle was thrown at her head) but apparently at that time no ill effect was noticed.

She received a fair education; she could read and write French. About fifteen years ago she came to the United States. Here she learned English readily and was soon able to speak, read, and write it. Before marriage she was employed as a cook, in which capacity she showed proficiency.

She married at the age of twenty-nine: she gave birth to no children and had no miscarriages. She was treated gynecologically for a number of years, and twelve years ago she was operated upon for some uterine affection, the nature of which is not clearly known (probably curettage, as it was done at home). She was always pleasant, agreeable, highly generous, and diligent. The climacterium did not occur.

So far as it can be determined the first evidences of her malady became manifest in 1904, when she began to have convulsive seizures, which varied in frequency and intensity. At first they appeared once a week, and later she would have them several times a day.* For the past three years she suffered with headaches and was quite often troubled with emesis. It was also noticed that she became seclusive, somewhat cranky, and would frequently make peculiar remarks to her husband.

In November, 1906, the symptoms of her disease became aggravated. She commenced to talk in a bizarre manner, and one night she woke up her husband and told him "I want to see those loafers—I know what I want to say, but I can't tell you." On the next day when her husband put on his clothes she said: "Take your coat off, this belongs to my husband." During this time convulsions were more frequent and her speech became affected. She was unable to find proper words for the expression of her thoughts. She could not name objects, but

*Read before the New York Neurological Society, May 5, 1908.

*The informant described the convulsions as general, but later thought that the right side was more involved.

identified them correctly when their names were suggested to her. She lost her ability to read or write French and English. She vomited more often, headaches became more severe, and at times she would exclaim "I have pains in my head, I cannot suffer so much, I would rather die." Evidences of rightsided paralysis were observed in the early part of November, 1906. She grew gradually ataxic in gait and station, and on account of her poor physical health she was sent to Bellevue Hospital, whence she was transferred to Manhattan State Hospital.

Here physical examination revealed the following: There was slight facial asymmetry, the left side of face being somewhat elongated and its muscular contraction apparently more active than on the opposite side. The tongue protruded in the median line and grips were equal; in raising her arms she lifted the left one much higher than the right; the extensors and flexors were satisfactorily tested. The left lower extremity was decidedly shorter than the right one and its general musculature was in a state of atrophy. However, this condition was due to an injury which she received in her early childhood. Gait was limping, she dragged her left foot; station was slightly ataxic. Elbow, supinator, and wrist reflexes were active. Knee jerks were unequal, but brisk (right was less active than left). Ankle jerks were present. Patellar reflexes were unequal (left more active than right). No ankle clonus; Babinski's reflex was present on the right. Corneal reflexes were much diminished. Stereognosis was doubtful. Reaction to pin pricks was more marked on the left than on the right side. Distinct tenderness to percussion was elicited on the left side of the cranium. Internal strabismus of the left eye; pupils were equal, irregular in outline, and the reaction to light was sluggish, but the accommodation reflex was good. On the first examination by Dr. Ward A. Holden optic disks were normal, but later only a slight optic neuritis was demonstrable. According to Dr. Adolph Meyer there was a suspicion of a right hemianopsia, for she did not react to feinting on the right side, nor did she notice objects on that side till the median line was reached. Hearing was more acute in the left ear than in the right. Examination of the cerebrospinal fluid revealed the presence of serum albumin and a moderate lymphocytosis (an average of twelve cells in a field). Heart and lungs were without grave pathological lesions. No arteriosclerosis; blood pressure 125.

The patient was quiet, did not seem to recognize her new environment, and showed no acute depression. General inactivity was in evidence. She was unable to grasp the meaning of questions and her speech was somewhat rambling. Her orientation was apparently affected. The following answers to questions will illustrate her peculiar trend of thought:

What place is this? "My husband does not know where—where I am—somebody else put me here—I don't like here—I want to go away."

What place is this? "This is a house for people to be swept here."

Are you sick? "A young man made me stay here yesterday, I was sick before. I ask everything of the girls but they don't give me away things I like to have my things."

Who am I? "He is a man who wants to do." (Makes gestures and does not complete her thought.)

Where were you born? "I don't know."

Have you had convulsions? "Yes—a long time ago."

Where were you born? "France."

How old are you? "Fifty-five."

Aphasic Examination.—Reaction to words heard. As a rule the patient could not understand what was said to her. However, at times she comprehended some questions, but framed her answers poorly. She was asked to take her shoes off, she complied with the request after the instruction was repeated. She was able to give her name. She could not perform complicated tasks and her comprehension in general showed considerable impairment.

She was unable to pick out objects as they were named to her. She handled certain things correctly, and especially with the left hand. A flute was shown to her, she immediately put it in her mouth, and blew into it.

She was asked several times to repeat words and sentences, but she failed to do so, except on one occasion she repeated the fourth word ("examine") of the sentence: "I wanted to examine you."

Spontaneity in speech was limited. Her vocabulary was meager. Now and then she would make irrelevant comments and only rarely her productions contained an intelligible concept. Once she dictated to the nurse the following letter in English:

"My dear husband: You didn't write to me—to write—to pay you know—the letter—she said—she has what she write you—the letter that you write me—I suppose I have—to you—have no mama—you know—yes that's all—that's it."

Some of her remarks were as follows: "I don't want to go with you (addressing her husband) because you put me here—it is a shame to put me here." "You (to husband) better go, otherwise he (pointing to the ward physician) will keep you here, I will go for money, you did not let me, I will give you back the money, you will write a letter for me, you know, this afternoon you write it your way—write my letter and send it because we are going to have rain soon (looking out of the window)." She could not enumerate the alphabet, count money, recite the Lord's Prayer, or spell words.

She was unable to recognize objects and only at times she identified few articles by their proper names.

Objects shown and patient's reply:

Watch—Thief.

Keys—I don't anything I want to get my clothes.

Glass—No.

Spoon—I don't see.

Knife—Knife.

Fork—Flowers.

Plate—To eat.

$10—$10.

$1—$10.

Rubber ball—This is to play with, I played enough with it.

Scissors—Paper.

The reaction to things smelled and tasted not ascertained.

She could not read or write either French or English.

The internal language was not ascertained, on account of lack of cooperation.

Paraphasia and perseveration were present.

Apraxia.—Patient showed some peculiar awkwardness in handling objects, and especially it was noticed in the right hand. She attempted to put on her underwear but was unsuccessful. She fumbled with her chemise, and could not understand how to get it over her head. In disgusted manner she threw the skirt down and the rest of her underwear and made no other effort. She adjusted her petticoat properly, but this was accomplished with

her left hand. She put on her wrapper wrongly, hindside foremost. The left stocking was put on correctly and without any difficulty, but in endeavoring to get on the right one, she placed the sole on the top of her foot. On another occasion she donned the skirt, wrapper, stocking, and shoes without any trouble, but this was done with the left hand. However, she was unsuccessful with her underwear.

During the months of September and October the patient was drowsy, fatigued, and somnolent. At times she moaned and groaned as if she were in great pain. She manifested no impulsive or assaultive acts, and at no times could hallucinations be satisfactorily defined. Quite often she would make a few incoherent remarks and occasionally would answer a question correctly. At no time, however, was it possible to engage her in a conversation. On November 2, 1907, at 4 A. M. patient had a general convulsion which was followed by coma. She had another convulsion about 1 P. M., and five hours later she succumbed to exhaustion.

The autopsy was performed two hours after death by Dr. G. Y. Rusk, to whom I am indebted for the following pathological report:

"The necropsy showed irregularly distributed purulent bronchitis in a few of the bronchi of the lower lobes with slight pulmonary edema. Chronic pelvic inflammatory disease with double hydrosalpinx, atrophic ovaries and small interstitial myomata.

The calvarium was symmetrical, averaged 4 mm. in thickness, the diploe was slightly deficient. An attempt was made to inject the brain, the results being only partially satisfactory. The brain was of good size (1,568 grams), convolutional markings normal in distribution. The convolutions appeared diffusely compressed, but especially in the region back of the frontal lobe of the left hemisphere. The left hemisphere was distinctly the larger, and on palpation one could roughly outline a solid mass, underlying the lower third of the left posterior central convolution and extending upward and backward beneath the supramarginal and angular gyri, then downward to the point of separation of the parietal and occipital lobes, then inward and forward towards the uncus, where an irregularly colored soft tumorous mass projected from the mesial end of the Sylvian fissure, compressing and causing considerable distortion of the left optic tract and also compressing the third nerve. There was considerable distortion (foreshortening and widening of the temporal lobe) and the firmness to palpation extended across the temporal lobe to the point of origin. The pons appeared flattened, the groove for the basial artery deep. The cerebellum was also compressed so that the vermis was almost entirely hidden. The markings of the pachyonian granulations along the longitudinal fissure were numerous; and numerous small pits, especially at the tip and along the lower edge of temporal lobes, marked points of adhesion to the dura.

After fixation, the brain was sliced into a series of blocks of about 4 mm. in thickness and the majority directly imbedded in paraffin. The limitation of the growth could not be made out macroscopically. The center and apparent origin of the growth, however, lay in the region of the left amygdala, where there was a large skim-milk appearing mass. From this point the growth infiltrated the remainder of the corpus striatum, the overlying island of Reil, the adjacent surface of the temporal lobe, the internal capsule, the thalamus, and apparently the centrum ovale, which, while not differing in color or consistency from the corresponding region on the opposite side, was relatively enlarged, as were the parts noted above as being infiltrated. The centrum ovale of the frontal lobe was also enlarged on this side and showed areas which were slightly more translucent, suggesting tumor infiltration as far forward as the anterior tip of the lateral ventricle. Posterior to the main growth, in addition to the areas noted above, the tumor proceeded along the cornu ammonis and infiltrated the mesial and inferior surface of the occipital lobe, especially the calcarine area and parts lying about it. From the region of the thalamus the growth infiltrated the tegmentum of the midbrain and pons, and also the crus.

Microscopically, the growth was a glioma chiefly of the small-celled type, although spider cells and the even quite fibrous areas containing few cells occurred. In spite of the extensive infiltration no areas of medulated fiber degeneration were seen; the growth itself also did not show areas of degeneration.

More exact demarcation by the microscope confirmed the gross description given above, and in addition it was found that the growth crossed the midline into the opposite thalamus; that the corona radiata was extremely infiltrated, and that in all directions the infiltration extended farther than the gross appearance would indicate."

Remarks.—The gradual development, insidious course, convulsive seizures, right side motor and sensory disturbance, headache, vomiting, drowsiness and somnolence, commencement of optic neuritis, hemianopsia, aphasia, paraphasia, alexia, and agraphia were unmistakable symptoms which pointed to a definite focal cerebral lesion, a neoplasm involving the left temporal parietal region. The following three atypical features, which are of great interest, are worthy of special emphasis: (1) Slight optic neuritis in presence of a marked intracranial pressure; (2) a relatively low blood pressure (120 to 125); (3) a moderate lymphocytosis and serum-albumin of the cerebrospinal fluid.

The last findings complicated the disease-picture to some extent and a syphilitic process suggested itself, but the therapeutic test eliminated this condition. The patient was subjected to antiluetic treatment, which produced no beneficial effect.

The question of operative procedure came under serious consideration, and Dr. Adolf Meyer, who examined the patient several times, thought that surgical interference was not indicated, and, in his own words: "The slow progression from an anomia to an involvement of reading and writing, and the general sensory path, and greater sensitiveness over the parietal region by tapping, point rather to an internal growth than to an operable dural growth or superficial process. The extent of the process and its localization in the temporoparietal area of the leading hemisphere would contraindicate any interference necessitating destruction of tissue."

The study of mental symptoms of cerebral tumors is extremely interesting, and merits careful and intelligent investigation in the field of neurology and psychiatry. The painstaking observations of Kraepelin, Schuster, Wollenberg, Gianelli, Knapp, and others show that psychical disturbances vary in every individual and depend a good deal upon endogenic psychopathic predisposition.

In the main, the mental manifestations accompanying brain tumors, in the majority of cases, are somnolence, inattentiveness, forgetfulness, poverty of ideas, indifference, fatigue, and general inability. Memory and judgment may not be affected. Not infrequently the mental picture may simulate that

of general paresis. Increased irritability, depression, idea of sin, and persecutory delusions may occur. Again, manic features may predominate, such as elation, distractability, flighty utterances, volubility, irritabilty, with childish cheerfulness and inclination toward jesting and humor (Witzelsucht). The relationship of physical disturbances to special localization of tumors of the brain is not yet definitely established.

In my case the mental symptoms were not striking, and most of them could be explained on anatomical grounds. The patient was irritable, depressed, and anxious. Her speech was incoherent, and at times she gave expression to a few ideas which suggested a persecutory trend, but these were not associated with any occurrences and were most probably purely incidental. At no time were hallucinatory reactions noticed, and *Witzelsucht*, rather a common symptom in brain tumors, was not observed.

I am under great obligations to Dr. Adolph Meyer, Director of the New York Pathological Institute, and Dr. George H. Kirby, Clinical Director of the Manhattan State Hospital, for their invaluable assistance rendered to me in the study and interpretation of the neurological and psychical manifestations of my patient. I wish also to acknowledge my hearty thanks to Dr. William Mabon, Superintendent of the Manhattan State Hospital, for the permission he has given me to report this extremely interesting case.

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CASE OF OBSTRUCTION OF THE BOWELS, SIMULATING APPENDICITIS.

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Complications connected with the appendix are likely to occur at any time. It has fallen to my lot to have a subphrenic abscess as a complication, and this has been reported (Medical Record) to the Southern Surgical and Gynecological Association. The absence of an appendix and the presence of Meckel's diverticulum has been met by some surgeons, among others, Dr. A. L. Wright, of Carroll, Iowa. It is instructive to note that the case seen and operated upon by Dr. Wright was first considered by him one of appendicitis. When he operated, he found no appendix, but not far from the location for it, discovered a protrusion something on the order of a blubber, which proved to be a Meckel's diverticulum. He was surprised to find this condition, and regarded it as a strong indication for an operation for removal. An illustration is given by him which enables the reader to see a double viscus apparently distended with gas.

I did not see the report of this case until after I had encountered one very similar to it, but his case is so important in explaining my own, that I give a short abstract of it.

He had found little on the subject of the diverticulum giving rise to pathological changes sufficient to call for surgical interference, and is very positive that the average surgeon would not be able to make a diagnosis of the diverticulum before operating. He mentions the "sudden onset of the attack, the pain coming on gradually and rapidly increasing in severity until almost unendurable, at first diffused throughout the abdomen, and then becoming localized in the right side of the iliac region. The pain always present on making firm, deep pressure, a little later vomiting, with elevation of temperature and pulse. This picture gradually yielding to a full dose of morphine, followed by a thorough cleansing of the intestinal tract with salines." Such a condition presented itself in his case—of a young man, aged 27, farmer, married, who had always enjoyed good health until two years before. His first attack was while he was at work in the field, where he was suddenly taken with severe abdominal pain. The pain extended over the entire abdomen, but gradually became localized in the lower right quarter of the same. Another physician saw him during this attack, and Dr. Wright did not elicit very much information except that he had had fever and that he had vomited several hours after the commencement of the attack, corresponding to the disturbance of the stomach in appendicitis.

In cases of intestinal obstruction, the stomach rejects whatever is put into it immediately after the commencement of the attack, usually within the first two or three hours, while in appendicitis the patient does not vomit until after several hours have elapsed.

The man had three attacks like the one just described in one year, and with each attack he was worse. The last attack occurred about six weeks before admission to the hospital where Dr. Wright treated him. The abdomen became tympanitic and excessively painful over the appendix. The patient was confined to his bed for about a week at this time and was entirely incapacitated for manual labor. Any attempt at physical exertion promptly started the pain in his side and informed him of the penalty in store provided he did not heed the admonition. The physicians who saw him all made a diagnosis of appendicitis and advised operation, but he was apparently in good health otherwise and did not undergo any operation in the interval until he did consent to have the appendix removed and entered the hospital for that purpose, and was operated upon April 13, 1899. In trying to bring up the appendix, a loop of the ileum was seized, and, when brought into the abdominal wound, had a Meckel's diverticulum about three inches long attached to it. He found the tissues of the diverticulum and the surrounding portion of the ileum so thin and attenuated that he decided to excise the greater portion of the intestinal canal adherent, and the divided ends were brought together with a Murphy button. The young man made an uneventful recovery, passing the button on the nineteenth day, except that there was a leak.

This unusual case was matched by my own in the absence of the appendix, but Wright does not mention a band of any kind, which has so often been found in other cases, and which was the source of trouble in my own case. Dr. Wright regarded the diverticulum as of traumatic origin, probably from internal violence, causing the muscular coat to give way sufficiently to allow the mucosa to insinuate itself between the fibers and raise the peritoneum. I think it is more probable that these cases are of congenital origin. The ascending colon was much shorter than normal, and the small intestine joined the larger at or near the liver. The distal end of the diverticulum was about one inch in breadth, thickened and quite rough, as though the seat of several inflammatory contests, although attachment had never taken place between

it and the surrounding viscera; the proximal end was very much smaller and accounted for the obstruction that he had.

In drawing a parallel between the above case and my own, which I shall describe further on, I would call attention to the fact that I was unable to encounter the colon and cannot explain it on any other ground but that it was, as Dr. Wright has explained, very short, and that the connection between the small intestine and the colon may have been beyond the point where I could draw upon the mesentery. It must be remembered that the colon has no mesentery, but contains a band like a ribbon running down the length of it, and that it is very easily recognized and nearly always protrudes through the wound where the abdomen is opened, as for operation in appendicitis.

The last case that I operated upon for appendicitis was that of a young lady about 28 years old, who had suffered from appendicitis in recurrent attacks until we became convinced that an operation should be done in the interval. In this case the colon was very much in evidence, and could be traced for a considerable length, and was the means of locating the appendix, which was found doubled up and adherent to the walls externally, as though enclosed in a little box. In her case the ileum was not distended particularly and was collapsed, she having been carried through the preparatory treatment of laxatives and enemas until ready for the operation; but in striking contrast to this, and the average case of appendicitis, was the very distended ileum and jejunum in my case of obstruction, with absolutely no trace of the colon. I cannot think that I could have searched without discovering the colon. Yet the history of cases of obstruction is that when the obstruction is above the colon, the distention is above also, and so the colon would naturally have been collapsed and out of sight, but could and would have been drawn up at the ileocecal valve by the traction that I placed upon it had there not been some abnormal condition.

The presence of Meckel's diverticulum itself was one that I diagnosticated after much trouble, but corresponds very closely to the experience of Dr. Wright, who describes his case as having one end smaller than the other. The average surgeon might very well have removed this and called it the appendix quite possibly, so similar was it in appearance and in its position. In these cases diagnosis cannot be made by symptoms alone, and while there are many surgeons who have met with Meckel's diverticulum during operations in the abdominal cavity, I have failed to find one who has operated with the distinct diagnosis in advance of opening the abdomen. The inference is that it is very variable in its appearance and does not follow any fixed rule.

Dr. J. G. Earnest of Atlanta, Ga., has informed me that in about a thousand abdominal sections he has not encountered one single Meckel's diverticulum, and that the only one he has seen was one that was found by Dr. W. P. Nicholson of Atlanta, in operating for another trouble. The experience of Dr. John B. Roberts of Philadelphia is confined to about half a dozen cases, some of them being found in the deadhouse, but others being complicated with hernia.

Dr. Frank E. Bunts of Cleveland, Ohio, has written a very interesting account of one case that he had, and has given the literature on this subject very completely.

In a recent discussion before the New York Surgical Association, it has come out that it is not so uncommon in experience as one might think to meet this anomaly. Lavator is said to have been the first to record its having been observed, and Ruysh, as early as 1701, called attention to it in his "Thesaurus Anatomicus," giving it the name of diverticulum, but Johan Friedrich Meckel has been given the credit of first calling the attention of the profession generally to the diverticulum ilei, which he most clearly differentiates from the acquired pseudodiverticula occasionally found along the intestinal canal.

According to Bunts, the relative frequency of the occurrence of this diverticulum was noted by Rolleston, of St. George's Hospital, to be ten out of 337 cases examined, a percentage of 3.37. Osler observed it in 2 per cent. of cases. This percentage is in very close accord with that given by the collective investigation of the Anatomical Society of Great Britain and Ireland, and by Quain and Treves independently, and also by Mitchell. This relative frequency must be between 2 and 5 per cent., but the size varies more, and also the location of it. It does not seem, however, that the diverticulum is restricted to any particular portion of the intestinal canal, for it has been described as anywhere from the pylorus to the ileocecal valve, and to have been found in the cecal region as well as upon the esophagus. The term "diverticulum ilei" is therefore misapplied, according to Bunts, as it may occur in the jejunum in a considerable number of cases. I did not find any record of the shortness of the colon connected with these cases except as given by Dr. Wright. Lamb says it has been found seven times in connection with the duodenum, and refers to two cases in the Army Medical Museum. Fitz, in a paper on "Persistent Omphalomesenteric Remains," refers to the well authenticated case of duplication of the esophagus, small intestine, cecum, and colon, and explains such anomalies on the assumption of an abnormally high or low seat of the omphalomesenteric duct.

The length of the Meckel's diverticulum is in part dependent on the degree of involution the omphalomesenteric duct undergoes. The usual form encountered is the tubular variety, resembling the finger of a glove, and with a diameter nearly equal to that of the gut proper.

The patient of Dr. Bunts left the hospital on March 31, 1902, and was able to resume work. The button had not yet passed. I will not describe the case in full, except to say that he considered it a case of strangulated hernia in which the contents of the sac consisted only of a large Meckel's diverticulum and a portion of the wall of the small intestine, to which it was attached. The patient was a laborer, 23 years old, who entered Cleveland City Hospital January 28, 1902, suffering from severe pain in his right groin and frequent vomiting. The hernial sac was very tense, and was opened up and found to be filled with a dark bloody fluid and what appeared to be a single knuckle of the intestine, resembling more a moderate sized gall-bladder. The peculiarity of its shape led to the pulling out of more intestines from the hernial orifice, where it was sharply constricted; this required the resection of the intestine and the use of the Murphy button.

My own case was that of a young man aged 25, who, while working at his desk in the bank on October 20, 1907, was suddenly seized with violent pain in the epigastric region. He was carried into the directors' room, where he was laid upon a couch and a physician was called in hurriedly and ad-

ministered hypodermically morphine, 1/4 grain, atropine, 1/150 grain. This failed to relieve his symptoms and chloroform was administered. He was seized again with apparently uncontrollable pain, and with writhing and rigidity of the abdominal muscles.

I was called in to see him during this attack, which was about an hour after he had received the first hypodermic from the hands of Dr. E. D. Richardson of Atlanta. I decided to repeat the dose of morphine and atropine, and, this failing again to have the desired effect, I also gave him chloroform by inhalation from a handkerchief inserted in a tumbler. When he had been thoroughly anesthetized, I examined the abdomen by deep palpation with the left palm, and discovered a cord-like structure down in the pelvis and leading up towards the navel. This I conceived to be indication for an operation, which I supposed would be appendicectomy, and he was removed to the Presbyterian Hospital at twelve o'clock. There the nurses were instructed to take his temperature, pulse, and respiration every half hour, and to apply every three hours an ointment consisting of equal parts of belladonna, mercurial, iodine, and camphor ointments. His temperature was 97.2° at one o'clock, his pulse was 96, and his respiration 24. He was given calomel and bicarbonate of soda, one grain each, at intervals of two hours until six grains of calomel had been given, and this was followed by sodium phosphate. There was no action upon his bowels from this until an enema of soapsuds was given.

Monday, October 22, at 9 A.M., the urine was examined and the specific gravity was 1.030, albumin negative, sugar negative, microscopic examination negative, and reaction acid. He rested fairly well Tuesday, but there were evidences of a trouble in the character of the pulse and a haggard appearance of his face.

The case was reported to his father Saturday night, and on Monday evening the father arrived from Swaynesboro, Ga., and gave his consent to an operation. A consultation was held with Dr. J. C. Olmstead October 23, and he concurred in the advisability of an operation, but could not say positively what would be found, whether gall-bladder trouble or appendicitis.

The operation consisted of an incision along the margin of the rectus muscle, midway between the navel and the anterior superior spinous process of the ileum. A gridiron incision was made in the muscles of the region traversed and a final search made for the appendix. The various devices for encountering the appendix failed to show any, and as the ileum was greatly distended with gas, it was difficult to keep it from protruding through the wound. We discovered a band and considerable enlargement in the region where the appendix should be, and in order to ascertain more positively the condition of the viscera, this band and enlargement were left for the time being, in order to continue the search for any other complication. I felt the ileum carefully to the point of constriction by this band, and found the same place by a diagnosis of exclusion. This enlargement was found to be connected with the mesentery, and was ligated with catgut and excised, while the band was found to be a connection from the mesentery to the navel and vertebral column. This was severed, having been ligated on each end, one near the mesentery and one near the navel. No serious hemorrhage occurred, but a venous congestion caused an outflow of blood from the mesentery.

In examining the position of the ileum, a dark hue was encountered in the portion of it covering about six inches of the intestine. This was probably due to the constriction, and hot cloths having been applied and saline solution poured on them, the intestines were returned and the wound was closed with silkworm gut, and the operation was completed.

The patient sustained considerable shock, and saline solution was administered in the chest, when he rallied well from the operation. He was perfectly rational at 6 P.M., having some nausea from the anesthetic, but otherwise standing the anesthetic well. The great distention of the bowels occasioned pain, and he was given codeine 1/2 grain at 2 A.M. Wednesday.

His pulse at 4:15 P.M. Tuesday, after the operation, was 112 and respiration 20, but at 8 P.M. it had fallen to 88, with a temperature of 100° and respiration of 20. At 12 midnight his temperature was 101°, and at this time he was given four ounces buttermilk. He slept from two to three o'clock, and again at 6 A.M. slept about four hours, when the pain became unbearable, and hypodermics of morphine 1/4 grain were administered at hours, 7:30 and 10:05 A.M., and 8 P.M. Hot turpentine stupes were applied at 3, 4, and 5 P.M. Nourishment consisted in albumen, liquid peptonoids, and beef tea up to midday of Thursday, when the buttermilk was repeated. An alum enema was used for his bowels at 9 A.M. and at 4 P.M. of Thursday, October 25. They proved effectual in relieving the lower bowel. The patient was suffering, and a rectal tube was used at 11 P.M., when an enema of turpentine was effective. On Friday he had a temperature of 98.6° at 4 A.M., rising to 100.6° at 9 P.M. A mustard plaster was applied to the abdomen at 10:30 P.M. The occasion for using the mustard was the nausea and vomiting, which had been a feature of his case from the beginning. Often he had refused nourishment, but on this day, Friday, we attributed a part of his nausea to the administration of calomel 1/10 grain at 10:30, 11:30 A.M., and 12:30 P.M.

The incision was dressed on two occasions within the first week after the operation and presented no special trouble, except that union by first intention of the skin was not obtained, but the muscular fibers had united thoroughly, and no danger of hernia existed. A subcuticular suture of silkworm gut had been used and collodion cotton applied to bring the skin together. With the retching and vomiting the skin had been detached.

On Saturday he was again nauseated and received 1/8 grain morphine at 12:15, and 1/4 grain at 2:15, which relieved him somewhat. He did not require another hypodermic until 6:30 P.M., when codeine, 1 grain, was used, and morphine was not resorted to until midnight.

Sunday morning he was in better condition and was able to take a dose of oil. This relieved his bowels, but not until an enema was administered late in the evening.

From this time he began to improve, and on Monday and Tuesday he was comparatively comfortable, but for a certain amount of salivation due to the small doses of calomel. He slept all night Monday and Tuesday nights, and no opiate was needed for pain. The distention had subsided, and he was resting well, with every indication of complete relief.

The second week of the after-treatment of this case presented the feature of incomplete closure of the abdominal walls, which had to be dealt with by

daily dressings and the use of peroxide of hydrogen on the wound. Examination of the sutures showed that the silkworm gut had irritated the muscles externally, but that it had held very securely the muscular fibers internally.

A faithful report of the case requires the mention of this complication in the union, and the inference drawn is that silkworm gut should not be relied upon for all the layers of the muscular tissue. I have never had any trouble with kangaroo tendon, and I had intended to use it in this case, and had it ready, but in the hurry of closing up the external incision I did not do so. It is well to advise all students, however, that in closing an abdominal wound, it is better to have a ventral hernia even than to have a death on the table. This man had been through too much already to venture upon any cosmetic effect that might come from careful approximation of the surfaces. However, perfect union had taken place between the peritoneum and the internal oblique muscle, and the aponeurosis. The wound was examined a day or two after the operation and collodion dressing was left with every appearance of a complete closure of the skin, but this began to discharge some blood. It is possible that the blood was responsible for the irritation to the skin, and this is another point that has to be disregarded at times in operations of emergency where we would like to have no hemorrhage to interfere with the wounds; but we cannot always avoid leaving some ooze rather than delay to tie every small vessel. An ideal operation would be a bloodless operation and a union by first intention would result.

No antiseptic except saline solution was employed at the time of the operation in the abdominal cavity, but the skin was thoroughly disinfected and all necessary precautions taken for having a thoroughly aseptic operation. With the removal of the silkworm gut, all irritation seemed to subside, and the skin came together with every prospect of a good, substantial abdominal wall and no ventral hernia.

Some surgeons prefer silk to all other ligatures. Binnie says: "Silkworm gut is an ideal, smooth, strong, nonporous, nonabsorbable suture. It is easily sterilized by boiling, which, at the same time, softens it and renders it easy to tie."

I have no reason to regret having used it from one point of view, and that is its nonabsorbable quality and its strength, for it held in spite of great retching and distention.

On June 17, 1908, the patient was seen at his usual work in an Atlanta bank, and has enjoyed good health since the operation.

SIGMOIDITIS.

By MARTIN L. BODKIN, M.D.,

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LECTURER ON DISEASES OF THE RECTUM AND ANUS, BROOKLYN POST-GRADUATE MEDICAL SCHOOL; RECTAL AND GENITO URINARY SURGEON, BROOKLYN HOWARD ORPHAN ASYLUM; ASSOCIATE SURGEON, ST. MARY'S HOSPITAL.

Diseases of the sigmoid flexure may be divided into simple and specific inflammations just as we recognize the many inflammatory processes in any portion of the intestinal canal. The sigmoid flexure is probably more vulnerable to these various manifestations of disease because of its peculiar anatomical construction and its physiological function. It may be the seat of, or there may be extending above or below, a simple catarrhal inflammation, namely acute or chronic colitis, or proctitis. There may be a specific disease such as gonorrhea, erysipelas, dysentery, tuberculosis, or syphilis. In addition, we may have the consideration of follicular colitis, ulcerative colitis, or secondary colitis.

Sigmoiditis and perisigmoiditis have their respective fields, so to speak, but the clinical reports of many writers on this subject have been confusing, and, with but few exceptions, of little value for classification, owing to an improper description of the diseases attacking this section of the intestinal canal. Many clinicians report cases picturing the manifold symptoms of a number of the different phases of the disease under one caption.

The sigmoid flexure is liable to secondary affections, which will not be recognized until each has been clearly understood with its relationship to the surrounding organs and tissue. It may be the seat of several quite ordinary inflammations which follow a definite course from a well-known origin.

So as to be definite, our consideration of sigmoiditis shall be of a single category, excluding dysentery, syphilis, tuberculosis, cancer, secondary sigmoiditis, and secondary perisigmoiditis. We use the term sigmoiditis and perisigmoiditis meaning the affection of the interior or exterior of the bowel, just as we speak of a typhlitis or a perityphlitis.

Sigmoiditis occurs in two simple forms, acute and chronic catarrhal inflammations, which are nonsuppurative.

Perisigmoiditis is either suppurative, which is acute in type, or nonsuppurative, which is chronic. One form may, however, merge imperceptibly into the other.

Affections of the sigmoid flexure are rarely seen before the twentieth year and are more frequent in the female than male. Scarlet fever and pregnancy are said to be predisposing causes.

Acute catarrhal sigmoiditis, nonsuppurative, attacks young adults most frequently. Intestinal parasites, foreign bodies, drugs, such as arsenic and corrosive sublimate, impacted feces, diverticula, intussusception, volvulus, and severe purging are mentioned as causes responsible for this disease. It resembles in character acute catarrhal proctitis. There is severe pain in the left iliac fossa, sometimes accompanied by a chill and rise in temperature, a coated tongue, and, possibly, peritoneal irritation; there are no bowel movements and but a slight amount of flatus will be expelled.

The acute symptoms may run the ordinary course of a catarrhal inflammation and subside within seven or eight days, or may become chronic. After the acute symptoms abate a sausage-shaped, painful, nonfluctuating mass, with its convexity to the right, may be felt. This mass may persist for a month or two after the attack. The clinical picture will vary in degree with the severity of the onset and may terminate in ulceration. The clinical history and manifestations will differentiate this affection of the sigmoid from a tubal disease or an appendicitis of the left side.

Chronic hypertrophic sigmoiditis may follow the acute catarrhal sigmoiditis and is essentially a hypertrophic catarrhal disease with a thickening of the mucous membrane and the submucosa. The glandular elements are markedly hypertrophied. A proctitis of similar nature is likely to be associated. The "iliac roll," "sausage-shaped roll," or "sigmoid sausage," all meaning the characteristic indurated sigmoid, is revealed on examination. This indurated sigmoid is particularly well defined by its peculiar sensitiveness on pressure and also by the effort of the sufferer to push the soreness lower down. The symptoms of mucous colitis, membranous colitis, or chronic colitis may be present, such as painful

crises, constipation, diarrheal attacks, and nervous disturbances. Early morning diarrhea is said by Brunton and Boas to be a characteristic symptom.

Chronic atrophic sigmoiditis is an atrophic catarrhal inflammation with its atrophied glandular elements and a thinning of the mucous membrane. It is always chronic. Its chief symptoms are a prolonged history of constipation and in general those of atrophic colitis. Local manifestations are principally referred to the rectum and anus in the form of hemorrhoids, fissure in ano, and pruritis ani.

Acute perisigmoiditis is suppurative, the clinical picture is one of a collection of pus. There is an elevation of temperature, accompanied by pain, and physical signs of an abscess. The abscess is in the form of a diffuse tumor, irregular in outline, without nodulation, and may be situated, as cited by Maurice Patel, in any of the following positions: "1. Anteroinferior; anteriorly from the iliac spine along Poupart's ligament, intraperitoneal. 2. Anterosuperior; to the left and slightly below the umbilicus, intraperitoneal. 3. Intramesocolic; lying between the two layers of the iliac mesocolon, subperitoneal. 4. Retroiliac; lying between that part of the sigmoid which is covered on its front side with peritoneum and the post-abdominal wall, in the loose tissue. 5. Lumbar abscess: in this variety the pus escapes through Petit's canal and invades the lumbar region."

A perisigmoid abscess perforates some portion of the bowel, as a rule. Peritonitis from this source is generally fatal. There may be a left-sided phlebitis as a result of secondary infection, or a left-sided inflammation of the broad ligament may be associated with this condition.

A true perisigmoiditis may be suspected when, in the female, pelvic inflammations are excluded and a history of enterocolitis exists. We have no pathognomonic symptoms of perisigmoiditis.

Chronic perisigmoiditis is due primarily to some inflammatory process on the outside of the bowel or to an ulcer which has penetrated the coats in which still lingers sufficient irritability to produce an occasional exacerbation. The disease is not limited to the sigmoid alone but extends to the surrounding tissue. The localized pain may help in the diagnosis.

Obstruction due to adhesions to adjacent organs, or to a narrowing of the sigmoid from an exudative process in its outer stricture, is the cause of subjective symptoms.

The treatment of these different affections of the sigmoid is either medical or surgical. The acute catarrhal sigmoiditis must be treated the same as a proctitis of a like nature, that is relieve the cause and use remedies to soothe the inflamed mucous membrane. The remedies most commonly employed for this purpose are solutions of carbolic acid, krameria, nitrate of silver, and flaxseed tea. Opium may be necessary, administered locally. Ice should be applied externally.

Chronic hypertrophic catarrhal sigmoiditis is also subject to the ordinary drugs for hypertrophic catarrhal conditions of the rectum, such as ichthyol, nitrate of silver, and, in general, stimulating remedies. This treatment should be preceded by a generous cleaning out of the intestinal tract with salines to relieve congestion. Atrophic catarrhal sigmoiditis is probably the most intractable of the catarrhal conditions and must always suggest suspicion of syphilis, either inherited or tertiary.

Perisigmoiditis of the suppurative type requires surgical treatment, which should be over the site of the inflammation and earlier than the extension of the inflammation to the peritoneum or a rupture of the abscess.

Chronic perisigmoiditis may be treated locally through a sigmoidoscope or surgically as indications may direct. The origin of the trouble will tend to guide one as to the time and site for operative interference.

255 DeKalb Avenue.

THE NARCOTIC METHOD OF TREATING MORPHINISM.*

By CHARLES J. DOUGLAS, M. D.,

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SUPERINTENDENT OF THE DOUGLAS SANATORIUM.

The rapidly increasing prevalence of the morphine addiction, and its disastrous consequences to mind and body, make the study of the best methods for its radical cure of vital and growing importance. Morphinism is far more serious and persistent than any other drug addiction, and if it can be cured with promptness and without pain, a valuable victory for modern therapeutics will have been achieved. Can this be done? I believe we have proved conclusively that it can.

When a morphine patient contemplates taking treatment for his addiction the first question that arises in his mind is: "Will the treatment cause me to suffer?" The withdrawal of morphine from a patient who has habitually used the drug produces great pain and distress, unless ameliorating remedies are employed. Every morphine addict knows this and consequently hesitates to submit himself to any form of treatment that will result in the complete withdrawal of the drug. But if these patients can be assured that it is possible to thoroughly cure them of morphinism without subjecting them to great suffering, the principal barrier to treatment would be removed, and the unfortunate victims of this enslaving drug would gladly avail themselves of such means of emancipation, and be restored to lives of usefulness. To be able to say to such, "You can be cured, and you can be cured without pain," is to bring to these unhappy sufferers a joyful message of deliverance. Morphinism is especially prevalent among intelligent and ambitious people, and to such the bondage is most galling and obnoxious. Yet, struggle as best they can, escape is impossible without medical aid.

There is no disease more surely curable than morphinism. It was formerly supposed, however, that the patient must suffer intensely before a cure could be accomplished. But we have now demonstrated that this suffering can be avoided. Modern medicine has developed a long list of valuable remedies that our ancestors knew not of, and many of these are especially valuable in the treatment of morphinism. If these are properly utilized the morphine patient can be carried from bondage to freedom without passing through the period of pain and general distress that was at one time thought necessary.

Of the various methods of treating morphinism the plan of gradual withdrawal was formerly considered the best. There are, however, several serious objections to it. The patient's suffering is continued over a long period, and the distress of both mind and body gradually increases as the daily allowance of morphine is decreased, and the maxi-

*Read before the American Medical Society for the Study of Alcohol and Narcotics at Chicago, June 3, 1908.

mum of suffering is reached when the last small dose is cut off. A patient using ten grains of morphine daily can easily be cut down to five grains without the aid of remedies, but when the daily allowance has gradually been reduced to one-quarter of a grain, the distress caused by the withdrawal of that small amount will be greater than all the pain caused by the withdrawel of the other nine and three-quarter grains. Another objection to this method is that during the tedious withdrawal period the patient is sorely tempted to use morphine clandestinely, and is pretty sure to do so if he has an opportunity. This of course at once upsets the entire plan of treatment, and it is necessary to begin all over again, only to have the same thing happen a second and third time in many cases. Morphine tablets are so small that they can easily be hidden, and patients who are suffering for the want of the drug, under the gradual withdrawal method, will usually manage to get it in spite of the vigilance of the best nurses. Not only is the temptation great, but the will seems to be temporarily weakened by the morphine, and under such circumstances the patient is not wholly responsible for his acts. It therefore becomes evident that the ideal method of treatment should not only be prompt and painless, but that it should be *sure*.

All these good qualities are found in the plan of treatment which I have named the "Narcotic Method." It is not only painless, but it acts with certainty and precision. There is perhaps no form of human suffering more poignant than that caused by the total and sudden withdrawal of morphine from a morphine habitué. It is comparable to a surgical operation, and my plan is to abolish the pain caused by morphine withdrawal on the same principle that surgical pain is abolished, *i.e.* by keeping the patient either asleep or so thoroughly narcotized during the painful hours that follow the complete withdrawal of morphine that he experiences no suffering. This abolition of pain is the kernel of the whole problem. The patient wants to get rid of morphine as he might want to part with an aching tooth, but he dreads the distress caused by the withdrawal of the drug in the one case, as he dreads the withdrawal of the tooth in the other. I therefore keep him in a somnolent condition till after the painful withdrawal process is accomplished, and then he awakes to the happy realization that while asleep the morphine has been eliminated from his system, the chains have been broken, and once more he is a free man.

No one specific remedy will accomplish this result. A combination of narcotic or hypnotic remedies is necessary, and a dozen different combinations may be required in treating a dozen patients. To enumerate all the remedies that might at times be useful or necessary in the treatment of morphinism would be to name nearly every hypnotic or narcotic remedy in the materia medica, as well as many other remedies not included in these groups. Remedies of this nature often act very differently upon different individuals, and in the treatment of morphinism the physician's armamentarium should include them all. I would, however, warn against the use of hyoscine as a very uncertain and often dangerous drug if exclusively relied upon. Each morphine patient must be studied and treated individually. The principle herein laid down I have, however, found applicable to every case. In the treatment of morphinism by some form of narcotism I have yet to meet my first failure. With a little experience the physician will be able promptly to select the combination of remedies best adapted to the needs of each patient, and thus safely and painlessly withdraw the morphine and restore him to a normal condition.

Physicians who have had little experience in the treatment of morphinism occasionally report remarkable "cures" of this disease. For example, in a recent medical journal a physician reported the case of a woman he treated at her home who had been using morphine in large quantities daily for several years. He reports that he at once stopped the administration of morphine and gave her none throughout the treatment, but administered a few simple remedies. She did not suffer nor crave morphine from first to last, but spent her days in chatting and laughing with her nurse, and her nights in sound sleep. As the remedies he employed could have had no material effect in relieving the great suffering caused by the sudden withdrawal of morphine, there is but one conclusion to be drawn from this report, namely, that the patient had a private supply of morphine and was keeping herself comfortable with it. Of course she did not want her physician to learn that she had deceived him, and it also pleased her to have it announced at the close of treatment that she was cured. In nearly all cases treated at home this will be the outcome. The patient will use morphine clandestinely, in spite of every effort on the part of the attendants to prevent it, and will allow them to think that his comfort and good spirits are due to the wonderful efficiency of the remedies employed. But no one who has had much experience in the treatment of these cases can thus be deceived. There is no specific remedy that will satisfy the agonizing demand for morphine in the nervous system of the addict, while he is attending to his usual business. If he is awake he cannot escape the suffering that invariably results from suddenly stopping the use of the drug, if it has been habitually used for a long time. Sleep is the only remedy, and it is an infallible one. This morphine pain, like surgical pain, can be prevented only on the anesthetic or narcotic principle herein described. In the proper application of this principle will be found a solution of this important problem.

321 Centre Street.

THE EFFECTIVE TREATMENT OF MEMBRANOUS COLITIS.

By DAVID WARK, M.D.,

NEW YORK.

This disease is readily recognized by the following group of well-marked symptoms, a majority of which may be observed in every case:

The sufferers often complain of a feeling of emptiness or faintness in the epigastric region. When this is not caused by hunger it is due probably to exhaustion of the solar plexus. In confirmed cases the whole abdomen is usually tender on pressure, constipation of an obstinate character is the rule, but rarely that alternates with diarrhea. Purgatives may afford temporary relief, but they surely aggravate the disease eventually. Blood in small quantities is often passed with the stools, but more copious hemorrhages rarely occur. Defecation is always accompanied with severe tenesmus so that the sufferer never knows when the act is completed; this symptom is very significant. Pains in the abdomen are sometimes severe, but usually they are merely annoying and irritating. Obstinate insomnia is rarely absent and when sleep does occur it is disturbed by frightful dreams. In every case with-

out exception there is passed with the stools jelly-like matter, with or without shreds of membrane resembling bits of soiled white muslin. In severe cases the whole dejection often consists of this jelly-like and shreddy material; in milder cases it is distributed throughout the stools in masses of varying size, but it is never wholly absent.

The remedy I have used for many years with unfailing success in the cure of membraneous colitis in a large number of cases is the tar yielded by the yellow pine trees (*Pinus palustris*) of Georgia and the Carolinas. It may be prepared by mixing the tar with about an equal weight of wheaten flour, to make a soft mass. Flour is the best excipient because the gluten swells up and absorbs moisture while traversing the alimentary canal, renders the tar more soluble, and therefore more therapeutically effective. The remedy should be put into gelatine capsules No. 2 and the patient should take two or three about one hour after meals. In a few days this treatment, alone, with suitable diet, will cause all the distressing symptoms to undergo very favorable modification. In those cases the tar acts as a most effective and gentle laxative, relieving the constipation remarkably, the quantity of jelly-like matter will be reduced, the stools will assume a more normal appearance and consistence, and the distressing tenesmus will be reduced or quite abolished.

In the more severe cases recovery may often be promoted by the use of high colonic injections of a few ounces of aqua picis given when patients are in the knee-chest position; the liquid thus gravitates far into the diseased colon without the necessity of passing rectal tubes through the sigmoid flexure, which should never be done in this disease. The tar water enema should be given just before the patient retires for the night and should be retained if possible. Static electricity is useful in detecting the location and extent of the disease (which I believe always exists in the descending colon), and is sometimes useful in promoting the removal of the abdominal pains; but the essential remedies are tar and tar water. The diet should be unstimulating, digestible, and nutritious; pepper, hot table sauces like Worchestershire, etc., vinegar, pickles, old, strong cheese, and all alcoholic drinks should be avoided during treatment.

The highly refined tar supplied by the wholesale druggists to retailers is therapeutically inferior in the treatment of this disease to the cruder article sold by ship chandlers for marine purposes. Vegetable tar yielded by the *Pinus palustis* has a very complex constitution and it seems that the steam refining processes to which the former is subjected deprive it of some therapeutic principle. Under the treatment I have noted complete recovery can be confidently expected in from four to six weeks.

611 West One Hundred and Thirty-fifth Street.

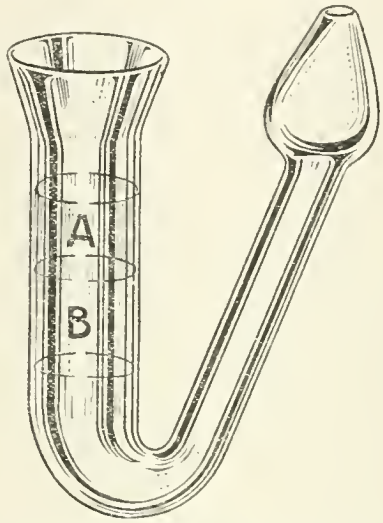
A TUBE FOR SELF-INSUFFLATION OF VAPOR INTO THE MIDDLE EAR.

By PERCY R. WOOD, M.D.,

MARSHALLTOWN, IA.

Catarrhs of the Eustachian tube and tympanum frequently leave in their wake, after every effort to eradicate the etiological factors, a distressing and persistent tinnitus aurium, with progressing deafness. That these sequelæ are often permanently relieved by prolonged inflation of the middle ear with medicated vapors is not generally appreciated, and even when it is, not infrequently treatment cannot be carried out for lack of time or means.

I have devised for home use the instrument here illustrated, consisting of a glass tube bent upon itself, one extremity shaped for insertion into one naris, while the other, retaining the medicament, is held tightly between the lips. When the tube is charged with a small amount of the solution and in place, a sudden expiration drives the vapor directly into the middle ear and adjoining cavities. This treatment restores ventilation, reestablishes



drainage, and vasomotor equilibrium, and so checks sclerotic processes, and if applied persistently for weeks or months, arrests pathological processes of the eustachian tube and intratympanic mucous membrane, relieves tinnitis, and improves audition in a large proportion of cases.

The following solution is serviceable: Chloroform, 120; ether, 60; alcohol, 0.8; oil of rose to scent.

Celery.—According to analysis celery can possess little nutritive value, for over 93 per cent. of the vegetable is water with a little oil, while the balance is made up of some 3.5 per cent. of starchy material, 1.5 per cent. of nitrogenous matters, 1 per cent. of cellular fiber, and 1 per cent. of mineral salts. Celery would, therefore, seem to play almost exclusively the rôle of a condiment rather than that of a food; it is its flavor which makes it popular. There seems to be little doubt, however, that owing to the aromatic oil which it contains celery acts as a mild carminative and stimulant. This property may possibly account for celery eaten raw agreeing very well when taken with cheese. It is well known that the difficulty of digesting cheese occurs in the stomach and that when it is passed into the intestine digestion proceeds as easily and as completely as is the case with meat. Carminatives—as, for example, certain essential oils—favor muscular contraction and therefore favor the continuity of the digestive processes, and there is no reason why the aromatic oil present in celery should not be classed with the carminatives. The oil in celery is allied to the oil of parsley or apiol, which is a well-known carminative, stimulant, and diuretic; celery is further reputed to be "good for rheumatism." In an old recipe occurs the following: "The celery should be cut into bits and boiled in water until soft, and the water should be drunk by the patient. Put new milk with a little flour and nutmeg into a saucepan with the boiled celery, serve it warm with pieces of toast, eat it with potatoes, and the painful ailment will yield." Here we are on less certain ground but at least this procedure amounts to treatment with alkaline salts which so far appears to be rational. Celery contains sodium and potassium salts and also a distinct amount of iron. In spite of the presence of the substances enumerated there can be little doubt that many persons find celery, at any rate if eaten raw, indigestible, which is not surprising when its stringy cellular character is borne in mind. The best celery, of course, is that which is crisp or brittle, but even then there is fiber present which cannot be appropriated by the human organism. Still, the fiber of vegetables serves a useful purpose in promoting a stimulus to intestinal movement.—*The Lancet.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE ARMY TEST RIDE IN THE PHILIPPINES.

THERE is a growing apprehension that the army endurance ride, the possible evils of which we have already discussed, will prove even more injurious to many officers weakened by service in the tropics and perhaps cause the retirement of some valuable men whose services the nation can ill afford to lose. The proposition that the officer should lead his horse at a trot for five miles, was wisely omitted from the test, for no matter what a few athletic extremists may say, it is an effort which no man over forty-five or fifty should think of making. But even in its milder form the exertion is too severe, and the results, according to the press reports, are what were predicted: exhaustion, heart failure, or other injury. That nearly all have successfully taken the test so far, merely proves what was already known—any class of men, trained to obey orders at the risk of life, will do so uncomplainingly when the result is nothing more than suffering or loss of health.

The case is different in the Philippines, where the climate causes marked muscular weakness even when proper exercise is taken to the limit of safety. It is said that the death rate among horses has been so large that it is now ordered that they shall not be ridden more than seven miles a day. This exhaustion is so marked in men that it has been found unwise to keep troops there more than two years, and the general trend of opinion among those of experience, is to the effect that not more than one year should elapse before a visit to a cooler climate, if one is compelled by duty to suffer exposure to the sun. Such exertion as riding thirty miles is considered most unwise unless there is necessity. Officers serving in the Philippines are also in no condition to show what their normal endurance really is. It does seem that the interests of the nation demand a postponement of the test until a year or so after return home, if such rides are found to be really necessary. The conditions could be made easier at any rate, though medical science disapproves of the whole matter.

The civilian is somewhat bewildered over all this insistence upon muscular vigor for military commanders, when he reads of Napoleon's habit of reserving his powers for thinking purposes by riding to campaigns in a comfortable carriage. Modern commanders use railroads and automobiles to cover more ground, and only young men in war are ever required to ride a horse thirty miles for three successive days. Unless the public can be convinced of the necessity for these tests, there is likely to be more than indignant protest should serious results happen, particularly in the case of men exhausted by service in Cuba or the Philippines.

THE PATHOLOGY OF MALIGNANT DISEASE.

THE last twenty-five years have witnessed unparalelled progress in the knowledge of the pathology and of treatment of infectious disease: asepsis has greatly diminished the mortality of operations, of accidental wounds, and of child-birth; specific antitoxin has made diphtheria a much less dreaded affection than formerly; quite recently epidemic cerebrospinal meningitis has been successfully treated by a specific serum that has cut down the terrible mortality of this disease. On the other hand, malignant disease, and especially cancer, continues to find its victims in undiminished numbers, various alleged cures being dropped almost as soon as brought forward by some enthusiastic but not judicious physician. In the face of the advance in our knowledge of infectious disease the continued sway of malignant disease seems to call for an explanation for the causes of our ignorance as regards its pathology and treatment, and in a recent publication (*International Clinics*, Vol. II, Eighteenth Series) Dr. Charles E. Simon discusses this question in a very instructive manner. The advance in our knowledge of infections ran parallel to the advance in experimental study of such diseases that became possible with the discovery of specific pathogenic germs and the inoculation of animals with them. Experimental methods, on the other hand, have been applied but very recently to the study of malignant disease, and already our conception of the pathogenesis of tumors has been materially modified by such work, though few practical points as to treatment, beyond the corroboration of the value of early surgical interference, have been obtained.

Of especial value has been the epoch-making work of Jensen who has made the laboratory study of the growth of tumors quite possible by the transplantation of a tumor from mouse to mouse. For five years Jensen's tumor has been growing in transplants throughout the world in striking illustration of that potential power of growth possessed by tumor cells which has led some pathologists to speak of them as immortal in comparison with the human or animal organism which they so readily destroy. Experiments with these transplants have shown that tumors may be carried from one species of animal to another, though to a limited degree; that an epithelial tumor may gradually change into one of connective tissue type through some subtle effect upon the connective tissues of the inoculated animal causing irregular and persistent growth of their elements; that immunization of animals, increasing their resistance to the growth of tumors or even completely abolishing the possibility of engrafting tumors upon their tissues, is possible. Dr. Simon himself has had some encouraging results with the experimental use of cancer extracts in human beings, two cases which he reports in his article having shown remarkable improve-

ment from malignant disease when injections of such extracts were used. Of course he has had many more discouraging experiences, but he shares the opinion of v. Leyden that the few results obtained thus far are full of promise for the future success of artificial immunization against cancer.

Dr. Simon concludes his brief outline of the experimental work in the research of malignant disease and the results obtained, by stating his conviction that this method of study has removed much of the hopeless aspect of the disease, for it has shown that at least some of its manifestations are to a certain extent capable of being influenced by human interference. The lower animals can in a measure be protected against it, and it may be hoped, in view of the analogous cases in infectious diseases, that human beings will soon enjoy the results of the recent experimental study of malignant disease in animals. It must be remembered, however, as a corrective of undue optimism, that so acute an observer and reasoner as Roger Williams denies the identity, even the analogy, of the Jensen tumor with cancer. If he is right, all the experiments with this growth in mice are just so much waste time so far as a clearer knowledge of the nature of cancer in man is concerned. But he may be wrong.

THE DECREASING DEATH RATE OF NEW YORK CITY.

During the summer just passing the weekly reports of the Health Department have shown a very satisfactory state of the health of this city. In the week ending July 25, for example, there were 1,568 deaths, representing an annual death rate of 18.50, while in the same week last year the deaths numbered 1,811, with a death rate of 22.05. The following weeks the deaths were 1,410, with a death rate of 16.63, as compared with 1,804 deaths and a rate of 21.98 for the corresponding week in 1907. For the week ending August 15 there were 1,334 deaths, giving a rate of 15.74, while during the corresponding week of the previous year the figures were 1,656 and 20.16 respectively. This gratifying decrease in mortality, chiefly infant mortality, in spite of the fact that the average of temperature has been higher than that of last summer, has been variously attributed to the improved conditions of living consequent upon the labor of the Tenement-house Commission, to cleaner streets, to the long drought, with its lessened humidity and greater amount of sunshine, to the results of the conference on the Summer Care of Babies held in the spring, to a better milk supply and a more general use of pasteurized milk, to the ever-increasing efficiency of the Health Department, and to other factors making for improved hygienic conditions.

There is one other factor, making not for better health perhaps, but for better mortality figures, which seems to have been overlooked; this is the reduced population of the city. The mortality rates are based upon the estimated population of the city, increasing each year according to a fixed ratio. The present estimate is based upon the figures of the Federal Census of 1900 and the New York State Census of 1905, the assumption being that the same ratio of increase will continue during the years 1905 to 1910 as existed between the years 1900 and 1905. In normal times this would be a conservative estimate of the increment of population since it is ordinarily greater during each quinquennial period than it was during the one immediately preceding. But during the past year there has been a very pronounced disturbance in this ratio, of which the statisticians have not taken account. The business depression of last year threw a great number of persons out of work. Hordes of laborers and others among the foreign population, despairing of finding employment for the present, packed up their belongings and returned to their former homes, where they can live at a fraction of what it costs them to keep body and soul together in this country, and especially in New York City. According to the statistics furnished by the Bureau of Immigration, 572,664 aliens left this country through the port of New York during the eleven months ending May 31, 1908, of which number 109,485 had resided in New York State. It is fair to assume that two-thirds of this number, or 72,990, were from this city. Assuming the same ratio of departures for June, New York City lost 80,134 during the year ending June 30. During the same year 241,343 aliens arrived who gave their destination as New York State, but during the previous fiscal year there were 364,544 arrivals in the State, showing a decrease of 123,201, or 80,134 for the city. This falling off in immigration has been even more marked during the past summer than it was earlier in the year. The total number of aliens arriving in the United States during July of this year was 27,570, against 97,132 in 1907, a decrease of 72 per cent. It is fair to assume, therefore, that, counting the aliens who have gone away and those expected who did not come, New York City to-day has a population at least 175,000 below the estimate of 4,422,685 upon which the calculation of the death rate is based, or more than 40,000 below the estimated population of 1907. That this decrease in population is very real is sadly acknowledged by owners of property in the tenement-house districts on the East Side in Manhattan and elsewhere, where the alien population is greatest.

It must be said, however, that this decrease in population will account for only part of the improvement in the mortality figures. It would make the death rate for the second week of August, for example, about 16.37 instead of 15.74, but that still leaves a decrease of 3.79 per thousand from the rate for the corresponding week in 1907, a decrease which must be credited in very large part to the work inaugurated last spring at the conference for the Summer Care of Babies.

The Effect of Tobacco Smoke Upon Animals.

Innumerable experiments have been performed, designed to demonstrate the toxic effect of tobacco upon the human organism. Usually, however, such experiments have consisted of injections of nicotine or other tobacco elements under the skin or into the blood of animals, procedures which in no way simulated the usual modes of using tobacco peculiar to mankind. Dr. Jebrovsky (*Russkii Vratch*, No.

13, Vol. VII) in some recent experiments has used an ingenious apparatus, by means of which rabbits were kept from six to eight hours daily in a specially constructed chamber, which was filled with tobacco smoke from cigarettes contained in the chamber and "smoked" by means of a draught produced by a water pump. In the first week of the experiments the animals showed increased frequency of respiration, restlessness, and great increase in the secretions of the lacrymal and salivary glands. After "smoking" they appeared weak and apathetic, and dragged their legs somewhat in walking. With the continuation of the experiments those symptoms gradually disappeared, but instead there was noticed marked loss of appetite accompanied by emaciation. Two animals died within two months and the microscopical examination of their hearts showed interesting changes in the nerve ganglia, namely, shrinking of the cells, vacuolization, and some chromatolysis. Other animals killed after five months showed atheromatous changes in the blood-vessels, while great loss of flesh, reaching in some cases one-half of the initial weight, was common to all of them. These experiments led the author to conclude that animals may also become tolerant to the action of tobacco smoke, although this is not the case when tobacco is injected, the resistance of the animals in such cases falling progressively with the continued injections. The pathological changes found bore out the clinically verified assumption that the heart may be early affected by smoking. It is to be hoped that the author will continue his interesting experiments with other animals less sensitive to the toxic effect of tobacco. Meanwhile, the frequent objection of the scoffing devotee of the weed, that medical experiments, as hitherto conducted, merely seem to indicate that tobacco should be smoked and that it is not beneficial to man or beast when injected under the skin, is ruled out by the author's original method of experimentation.

Cytodiagnosis in the Ophthalmo Reaction.

Even before the final value of Calmette's conjunctival reaction in tuberculosis has been settled, various refinements and modifications of the test have appeared in the literature, the general interest in the test having called out a great many articles dealing with the subject. Two French authors have casually examined the secretion produced by the instillation of tuberculin into the conjunctival sac and suggested the value of such procedure. Accordingly, Dr. Rudolph Dietschy has specially examined twenty-eight patients with this point in view and reports his findings in the *Münchener medizinische Wochenschrift* for June 16, 1908. Multinuclear leucocytes predominated during the first few days in the secretion of patients giving a positive ophthalmo-reaction; later lymphocytes prevailed—findings which were quite comparable to those found in the tuberculous inflammations of the pleura and of the meninges. Of special interest were the microscopic examinations in a second series of cases, which gave no positive macroscopic evidence of a reaction; the character of the cellular exudate was such that several cases could be classed as reacting positively, in spite of the absence of gross lesions in the conjunctiva. The author considers that the microscopic appearances of the secretion undergo a series of typical changes, which may be used for the corroboration of a doubtful macroscopic reaction, or even accepted in its place in some cases.

Formalin as a Urinary Preservative.

In consequence of the very complex composition of the urine, holding as it does in solution both organic and inorganic compounds which are subject to organic as well as chemical alterations, this fluid is subject to more or less rapid changes after it has been voided. The rapidity of these changes depends chiefly upon the reaction and concentration of the urine, the temperature at which it is kept, and the degree of access to microorganisms. In cases therefore in which it is necessary to keep urine some time before it can be examined various substances (chloroform, formalin, etc.) are added to preserve it. It is the general belief that these preservatives do not prevent us from ascertaining what the actual constituents of the urine were at the time of voiding. That this is not always the case was shown by Michaud (*Deutsches Archiv für klinische Medizin*, Volume 92, Nos. 3 and 4). He found that diabetic urine containing acetone on being voided, still gave positive acetone tests after standing twenty-four hours or more. If, however, formalin had been added to the urine the acetone tests were negative twenty-four hours later. Quantitative tests showed that this preservative had reduced the total amount of acetone seventy-five per cent. at the end of twenty-four hours. The amount of sugar was not influenced by the formalin. While it is not to be denied that formalin is at times a useful urinary preservative, Michaud's finding should be a warning against its use in all cases, and especially when we wish to ascertain whether acetone is present.

News of the Week.

The Red Cross Tuberculosis Campaign in New York State.—On June 29 the tuberculosis day camp of the American National Red Cross was opened in Schenectady. It is the first of five Red Cross day camps established or to be established this year in America. A Red Cross day camp will be opened in Albany within a short time, and another in New York City on October 1. Other Red Cross day camps are located in Washington, D. C., and Wilmington, Del. The Schenectady camp is located in a pine grove on high flats in the southeastern part of the city. It has two permanent wooden buildings—an office and a kitchen—and on platforms a large dining tent, two hospital tents—one each for men and women—and two conical tents for night campers. Of the medical visiting committee, whose members visit the camp in turn for an hour or two a day, are Drs. C. F. Clowe, H. L. Towne, Peter McPartlon, and J. H. Collins. The camp opened with six patients, and now has fifteen, the probable limit this year. The camp will be open until November 1, and perhaps longer. The design was to take only incipient and moderately advanced cases, but it has been difficult to draw the line in the new undertaking, and the camp has four fairly advanced cases. Several patients sleep in the camp.

The Albany Red Cross day camp, which, it is expected, will open soon under the supervision of the Albany subdivision, will be located on Kenwood Heights on land generously furnished by the Albany Hospital for Incurables. The camp arrangements are in charge of the day camp committee, of which the medical members are Drs. Howard Van Rensselaer, Henry Hun, and Charles K. Winne. The camp's limit this first year will be about fifteen patients. Incipient and moderately advanced cases only will be handled.

The New York City Red Cross day camp will be located on the roof of the Vanderbilt Clinic. The Clinic will fit up the roof at an expense of $10,000, and will supply medical supervision to the camp. The New York County Red Cross will supply nurses, attendants, and nourishment to the forty or more patients to be received. Inasmuch as the Clinic is a member of the Association of the Tuberculosis Clinics of the city, the Red Cross will thus be brought into the organization. The camp will open October 1, and will continue during the day all the year around. After the first few months it is probable that the camp will be open day and night. Medical supervision of the camp will be given by members of the regular staff of the Clinic. The capacity of the camp will be at least forty, and probably more, patients. Incipient and moderately advanced cases will be received, and when the camp is running the twenty-four hours of the day probably more advanced cases can be handled.

The day camp idea is a contribution of the German Red Cross, and was adopted here after investigation and consultation with leading experts and after recommendation to the Red Cross by the National Association for the Study and Prevention of Tuberculosis. The first camp of the kind in this country was opened in Boston some three years ago, and has given such a good account of itself that it has been taken over by the new Consumptives' Hospital in Mattapan. Other camps have also been conducted in Boston, Salem, Mass., Washington, D. C., and in New York City on the disused ferry-boat *Southfield,* conducted last year by the Charity Organization Society and this year by Bellevue Hospital. The day camp has, in fact, come to be recognized as an indispensable part of every progressive plan for the relief and control of tuberculosis.

Pasteurized Milk and the Infant Death Rate.—Mr. Nathan Straus, who has been a year in Europe preaching pasteurization, has had the satisfaction of seeing the practice adopted in many places in Austria, Germany, and England. He was frequently able to demonstrate the beneficial results following pasteurization, but nowhere were his experiments more striking and seemingly conclusive than in Sandhausen, a village of 4,000 inhabitants in South Germany. The death rate among children was very high there, and Mr. Straus was satisfied that this was due to the quality of the milk supply. He therefore made arrangements to pasteurize all the milk supplied to the inhabitants of the village. The experiment began on January 1, and the results have been most encouraging. In the first seven months of 1907 thirty children under one year of age died. In the first seven months of the present year, during which they have been supplied with pasteurized milk, only nine children died.

Giving Up a Half-won Battle.—According to *The New York Times,* the health officer of Newark, N. J., has announced that the board has become so discouraged over the carelessness of the public in not helping to fight the mosquito pest that the city will make no further effort. He declares that the $6,000 spent by the city already is as good as wasted, and that without the hearty cooperation of the public no advance can be made, mosquito-breeding places having been recently discovered in the heart of the city. One who expects to educate the public up to the point of efficient cooperation in sanitary work in one season, or in two, expects too much. Communities are already becoming self-conscious, and it is coming to be regarded as a reproach to any town to be plagued with mosquitos. The Newark people are learning, and their Health Board should not so quickly give up the good fight.

The President on Isthmian Sanitation.—In his letter acknowledging the receipt of a report of the special commission appointed 'to investigate the condition as regards labor and accommodations on the Isthmus of Panama, President Roosevelt expresses satisfaction with all that has been done there, and especially notes the success of Col. Gorgas's work of sanitation. "The treatment of hygienic conditions on the Isthmus," he writes, "has been such as to make it literally the model for all work of the kind in tropical countries. Five years ago the Isthmus of Panama was a by-word for unhealthiness of the most deadly kind. At present the Canal Zone is one of the healthiest places on the globe, and the work which is being prosecuted with such tremendous energy is being prosecuted under conditions so favorable to the health and well-being of the workers that the mortality among them is abnormally small."

Typhoid Fever in New Jersey.—It is reported that typhoid fever prevails to a disquieting extent in Salem, N. J., and in the adjoining section of country in New Jersey and Pennsylvania, and complaint is made that the local health authorities are not doing all they might to prevent the spread of the disease.

Cholera in Poland.—The Asiatic cholera, in its western march across Russia, has reached Lodz, Russian Poland. The German health authorities have increased their watchfulness on the eastern frontier, along which hundreds of medical inspectors have been stationed. They examine all travelers and inspect the river traffic from Russia, quarantining suspected cases. Up to the present time, however, no cases of cholera have been discovered in German territory.

A Test of the Texas Medical Practice Law.—A woman in Bonham, Texas, has brought suit against the State Medical Board to restrain it from interference with her practice of pediatrics and gynecology. The suit is an effort to compel the present board to recognize a certificate issued by an old District Medical Board in 1889 to the applicant and limiting her practice to obstetrics and diseases of women and children. The contention of the attorney-general is that the applicant must confine herself to midwifery or take an examination covering all other subjects if she wishes to practise in diseases of women and children. He also contends that there was no authority in law under the old district régime for issuing a separate license to practise in diseases of women and children, though one for midwifery alone was authorized.

Practising Under a Dead Man's Name.—A man has been arrested in Rochester, N. Y., for the illegal practice of medicine. The man has been practising there for six years, claiming to be a graduate of a New York City medical school. Investigation showed that at the time he said he was studying medicine he was making shoes, and the diploma which he claimed as his own was that of a physician who died in New Jersey.

Tennessee Has No Vital Statistics Law.—Strong efforts will be made by the Tennessee State Board of Health and other organizations and individuals throughout the State to have the next Legislature enact a vital statistics law. The State once had such a law, passed in 1881, but there was much opposition to it, for some reason, and it was re-

pealed in 1883. Ever since that time efforts have been made to have a new law passed providing for the registration of marriages, births, and deaths, but thus far without success.

Marines Treated Prophylactically for Rabies.—An officer and eleven enlisted men of the marine corps, who were bitten by a mad dog in the Panama Canal Zone a few weeks ago and were rushed to the Naval Medical School Hospital in Washington for preventive treatment for hydrophobia, have been discharged. They were at the hospital for twenty-one days. They were bitten at Camp Elliot by the mascot of the camp, which later showed symptoms of rabies.

Pan-American Delegates Plead for Clemency.—A dispatch from Guatamala states that upon the personal request of the delegates from Uruguay, Costa Rica, and Mexico to the Pan-American Medical Congress recently held in that city, President Estrada Cabrera has released the women and political prisoners incarcerated since the attempt was made upon his life.

The Picayune Cup for Public Benefactors.—Mrs. Ida B. Richardson, of New Orleans, has been awarded the Picayune cup, given by a committee of the Progressive Union to the citizen who is thought to have done the most for the public good during the last year. Her latest good work is the erecting of the Medical College Building in memory of her husband and donated to the Tulane Medical College.

Prof. Robert Koch has been the recipient of many honors during his two months' stay in Japan. The government issued official post-cards bearing pictures of the Koch Institute in Berlin and of the Institute for Infectious Diseases in Tokio. Upon his departure for the United States, where he is coming to attend the International Tuberculosis Congress, the Mikado presented him with a magnificent silver tea service.

Charges of Mismanagement Against the San Francisco County Hospital.—The San Francisco Association for the Study and Prevention of Tuberculosis, as the result of a recent investigation, charges that the tuberculous patients in the county hospital at Ingleside are shamefully neglected. In going into details regarding the management of the structure where male patients afflicted with tuberculosis are housed, the committee finds that no careful records of the patients are kept and temperatures are not taken; also, that two of the wards are overcrowded. Hopeful and hopeless cases are indiscriminately placed in the same ward. It is also charged that the patients are inadequately fed, the only addition to the diet given other patients being one raw egg and eight ounces of milk to a patient nightly. No attempt is made to isolate the female patients, they being placed in the general medical female ward. All the tuberculosis patients eat in the general dining-room with the patients from the other departments, thereby rendering the feeble attempt at isolation of the male patients abortive. The dining-room is used as a sitting-room, and the patients huddle in it with tightly closed windows, there being no attempt at ventilation.

Death of M. Becquerel.—The death is announced of Antoine Henri Becquerel, the well-known French scientist, at the age of 57 years. He was professor of physics in the Museum of Natural History, Paris, until 1895, when he was transferred to a similar chair in the Ecole Polytechnique. He was the discoverer of the radiation, resembling in many respects the *x*-rays, from uranium salts, which rays afterward bore his name.

Obituary Notes.—Dr. Stephen Andrew Wood died in Bedford, Mass., on August 12. He was born in Lowell in 1851, and studied medicine first at the New York University Medical School, and later at the University of Vermont, taking his degree from the latter in 1884. He settled immediately in Bedford and had practised there continuously up to the day of his death. He died suddenly of cardiac disease.

Dr. James P. Dunn, of Oakland, Cal., died August 13 in consequence of injuries received in a fall from his horse. He was born in Oakland in 1860 and was graduated from the medical department of the University of California in 1888.

Dr. A. C. Hulbert, of Columbia, Miss., was killed on August 15 by being crushed by the ponderous striking weight of a clock in the court house. He was sitting in the court house just beneath the shaft in which the weights swung.

Dr. C. B. Kennedy, of Parsons, Kan., died suddenly on August 15 of disease of the heart, while attending the funeral of a friend. He was one of the first physicians to locate in Labeth County, and began practice in Parsons over thirty years ago.

Dr. Isaac L. Millspaugh, of Richmond Borough, New York City, died on August 27, after an illness of about six months. He was born in Orange County, N. Y., in 1827, and was a graduate of the College of Physicians and Surgeons in this city in the class of 1850. He was in the medical corps of the U. S. Army during the Civil War. He was a member of the old Richmond County Board of Health, was physician to the New York City Farm Colony, and was a commissioner in lunacy for Richmond.

Dr. Hugh B. McMaster, of Waynesboro, Ga., died at Tryon, N. C., on August 20. He was born in Winnsboro, S. C., in 1856, and was graduated from the Kentucky School of Medicine, Louisville, in 1887.

Dr. Georgiana B. Read, of Providence, R. I., died August 21 of pneumonia. She was born in Providence in 1842, and was graduated from the New York Medical College and Hospital for Women in 1882. For fourteen years she was resident physician at the Moses Brown School in Providence.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEDICAL SERVICE OF THE NEW TERRITORIAL FORCE—LOWER DEATH RATE—RELATION OF OCCUPATION TO MORTALITY—HEALTH OF PORTSMOUTH—POLLUTED SHELL FISH—SLEEPING SICKNESS—COURT APPOINTMENTS—OBITUARY.

London, August 14, 1908.

The military maneuvers which are being carried out just now, in which regular troops and the new territorial force are engaged, are attracting much attention. Both political parties are now agreed that the Government scheme must have a fair trial and a good deal of patriotism is finding expression, the organization of the medical department of our new army of defense may therefore interest some of your readers. The Director-General, Surgeon-General Alfred Keogh, has issued a report on the subject, from which it appears that the constitution of the Territorial Medical Service is based upon that of the R. A. M. C. and consists of (1) a medical and sanitary service, with combatant units; (2) field medical units, consisting of field ambulance and cavalry ambulances attached to infantry and mounted brigades; (3) sanitary companies; (4) general hospitals. The officers and men are to be distributed among these units. Under the former volunteer system medical officers belonged to combatant battalions in no definitely limited numbers. In the new force units they are limited to war requirements, two to

each unit. But there is further an addition attached to each unit for sanitary work, under the control of the commanding officer, whose responsibility for the prevention of disease is now insisted on. The general hospitals are to receive the sick and wounded from the field army. The Director-General recommends provision for 12,000 beds in twenty-three general hospitals, for which the resources of voluntary aid throughout the country are relied upon. The localities of these are largely determined by the position of great civil hospitals and universities, and twenty-three centers have been selected accordingly. The Director-General is gratified to find that the staffs of these institutions have been ready and anxious to respond to the call for aid in connection with these hospitals. "In no single instance," he says, "in not one of the twenty-three centers has the call been heard without evoking an enthusiasm which in itself is a sufficient indication of the patriotism of the profession to which I belong. It is with no little pride that I am able to announce the approaching enrollment of 368 physicians and 368 surgeons as officers of the Territorial Medical Corps."

He thinks that nurses will volunteer as freely. A matron will be required at each hospital, with thirty sisters and eighty-eight nurses. Every two years she will be given the opportunity of studying for one week the administrative duties of matrons in large military hospitals. As regards voluntary aid societies in the formation of the new general hospitals the British Red Cross Society has already organized itself on a plan similar to the county associations, so that there is a committee in every case to focus county efforts.

The reports of the Registrar-General generally excite a mild interest in the public as well as the profession. Thus expressions of satisfaction are at present common respecting the fall in the death rate which has been general throughout the Kingdom. In the twenty-six great towns the 1907 rate was 15.4 per 1,000 persons living. Bristol had the lowest rate, 13.3, and this is the lowest ever registered.

In the second part of the decennial supplement of the sixty-fifth report, lately published, there is a lengthy statement by Dr. John Tatham on the relation of occupations to mortality, which is getting, as it deserves, considerable attention. It appears that lawyers, both barristers and solicitors, experienced a lower rate of mortality at all ages than the aggregate of males. Law clerks under forty-five years had a lower rate than commercial clerks, but above forty-five the position is reversed. Medical men die faster than lawyers at all stages of life, but compared with the clergy their mortality is enormously in excess. Diseases of the circulatory and respiratory organs are slightly in excess among doctors, while in most other occupations a considerable fall is recorded. Brewers have a low rate under twenty, but above that age a high one. Among publicans the rate is above the standard at every age. Agriculturists under twenty showed a slight excess; at every other age decreased mortality. Among gardeners and farm laborers there were low rates at every age, the lowest being at thirty-five to forty-five years. A difference of 46 per cent. was reported at this age.

The Medical Officer of Health for Portsmouth, Dr. A. M. Fraser, reports the death rate of his borough as 16.02 per 1,000. Referring to diphtheria, 423 cases were notified, equal to 2.0 per 1,000 of the population. He often found the bacillus in the throats of cats, and on inquiry discovered the cat had had a bad cold before the child was attacked. There was an increase of typhoid, 233 cases being notified. Of these, eighty were traced directly to food, viz., contaminated shell fish. "Oysters, cockles, butterfish and mussels are continually picked up from the polluted sources around Portsmouth and consumed with a total disregard to the ill results that are certain to ensue." It seems to Dr. Fraser that the only way to stop this loss of life is by legislation. He would make it illegal to collect shell fish from any place certified by the local Medical Officer of Health to be polluted. As typhoid cases have been reported lately from the same cause in London, we may have more on this matter. Another reckless thing is mentioned by Dr. Fraser. When measles has been in a family the other children have been ordered to attend school by the attendance officer. How is the Medical Officer of Health to restrain the spread of measles in schools if his authority is to be thus superseded?

A dispatch from Uganda reports no new cases of sleeping sickness among Europeans, but during the year 1907 the deaths of natives numbered 12,000. The population has been removed from the shores of the Victoria Nyanza and some thousands of sufferers from the disease are being maintained in segregation camps. It seems evident that the campaign will have to be carried on for years before sleeping sickness is stamped out. Treatment by atoxyl, from which much was hoped, does not seem to have been of great benefit so far.

The vacancies in medical court appointments have been filled as follows: Professor Finlay, M.D., and Professor Sir William Macewen, F.R.S., as honorary physician and surgeon, respectively, to the King in Scotland; Professor James Little, M.D., one of the honorary physicians to His Majesty in Ireland.

It is proposed to raise some memorial of the late Dr. Ashby of Manchester University, who died on the 6th of July. He was long connected with the Liverpool Infirmary for Children, Owens' College and Victoria University. He was a favorite teacher and examiner for many years, and a most skillful physician and most trusted consultant in children's cases.

Dr. Talfourd Jones died on the 29th of July. He was one of Jenner's most distinguished students, but practised for many years in South Wales, where he was the most trusted consultant. He afterwards went to Eastbourne on account of failing health and practised there for several years. Then his health again gave way and he has been an invalid for a long time.

Dr. George Halley, a major in the Third Highland Field Ambulance Corps, was thrown from his horse on the 29th of July and the accident has proved fatal to an officer devoted to the duty and always ready to promote the interests of the service.

Department Inspector-General W. J. Rothe, R.N., retired, died on August 2, aged 74.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

CONGRESS OF GERMAN PHYSICIANS—PROF. LÖBKER'S OPENING SPEECH—RELATIONS OF THE PROFESSION TO THE INDUSTRIAL INSURANCE SOCIETIES—BOYCOTT AT COLOGNE.

BERLIN, July 20, 1908.

THE thirty-sixth annual "Deutsche Aerztetag" annual conference regarding the material interests of German physicians took place this year from June 26 to 29 in the city of Danzig. This meeting represents the whole German medical profession, and its transactions are probably of interest to the foreign colleagues no less than to the German physicians. The opening speech was delivered by Professor Löbker of Bochum; as usual it gave a true picture of the public activities and endeavors of the German profession and we shall attempt to report at least its substance. Dr. Löbker said that the first question on the program referred to school hygiene and to the organization of medical inspectors of schools. Although these questions had a general hygienic interest yet it must not be forgotten that the more narrow matter of the special profession of medicine was very strongly involved in their essence. The matter of a proper reward for the work of physicians in this field of their activity must not be lost sight of. The second point on the program of the Congress had reference to the proposed law dealing with the practice of medicine by irregulars not possessing such privilege from the State, and the sale of secret medicines. Though the projected law was not strong enough or comprehensive enough to drive out the evil completely, for which purpose only the forbidding of all attempts at treatment by unauthorized persons could be sufficient, yet the present meeting is the best assemblage before which the measure can be discussed. Finally, it was necessary to consider the future attitude of the society toward the Union of the German Insurance Societies, who had declared that the various measures proposed by the Congress were completely unacceptable.

The question of a proper attitude toward the medical service in industrial associations has kept the foreground of attention during the past year, and it would seem that the interference of the government with the whole problem will become a necessity in the near future. To understand this matter thoroughly an historical retrospect is necessary. When the law concerning insurance companies, including industrial insurance societies with their medical attendance clauses in case of sickness, was first enacted it included a definition of the duties of the industrial societies toward their members. The lawgivers, however, did not stipulate the reward which the physicians employed by the societies could claim for their services. It seemed to have been the general opinion that the physicians would consider themselves bound by the ethics of their profession to render these services for the least possible reward, the usual membership of the associations consisting of the poorer members of society. This state of affairs did exist for many years, but gradually medical

insurance became so popular that the greater part of the population became entitled to medical attention as members of medical insurance societies, and the whole time and professional skill of a great many physicians had to be given up to such practice among the insured. Soon enough it appeared that the physicians were completely unprotected in their business relations with the associations: the latter dismissed the doctors employed by them on any pretext and at any time; moreover, the services of the physicians were the most important part of the advantages given by the membership in such associations, yet the physicians who furnished these services were not given any voice in the administration of the affairs of the associations. It was then that we began to acquaint the general public with these facts, and in the year 1902 we addressed a letter to the *Reichstag* as well as to the *Bundesrath* recounting the circumstances as they then existed. The address remained without any consequences on that occasion. The next year a project of a new law was placed before the *Reichstag* which had for its object the complete change in the matter of industrial and medical insurance, but that body did not consider that the relation of the physicians to the associations was a proper subject for discussion at the time. The profession then decided to take the matter into their own hands; our Congress issued an open letter to the German physicians in which the latter were urged to defend their interests until the whole question of the relations of physicians to the associations was satisfactorily settled. This appeal had some effect upon the members of the *Reichstag*, and for the first time in the discussions of that body the claims of the physicians to be heard in all deliberations in regard to the proposed changes in the insurance law was regarded as justified. Meanwhile the profession was engaged in organizing itself for the struggle, and in many places the insurance societies were challenged by the organized physicians. One sorry outcome of this struggle was soon apparent; the ranks of the doctors themselves were divided in reference to one important point. Some wanted freedom in the choice of physician, so that the members of the associations could select any physician to treat them that they pleased, while others preferred the older arrangement, under which the association named several physicians to whom the members had to turn when in need of medical attention. It seems self-evident that the latter arrangement gives to the associations all the advantages over the physicians whose appointments and dismissals depended upon the will of the men at the head of the administrations of the societies. Free choice of physicians would seem to be the acceptable alternative for the profession, but opponents to this system were found in the persons of doctors who were already appointed as official physicians of the associations and who feared to lose the advantages enjoyed by them under these arrangements. The greater part of the opponents to the free choice of physicians came from Berlin, but the great body of the profession stood for the right of free choice, and it may be hoped that all medical men will soon unite on this question. The last Congress of German Physicians which took place at Münster had proposed that an audience before the Chancellor be obtained to acquaint him with the wishes of the profession. This audience took place on the 12th of November, 1907, and the Chancellor promised to give his attention to the questions put before him. On the 11th and 12th of June of this year the Chancellor held a conference upon the subject in the Ministry of the Interior and the future relations of the physicians and the insurance associations were considered. In addition to the representatives of the several German states, the administrations of the associations for medical insurance sent their spokesmen to the conference while the medical profession was represented both by the defenders and the opponents of the principle of free choice of physicians. The conference had for its sole object to enable all the interested parties to present thir views to the authorities and therefore no final conclusions were arrived at. However, it may be stated that no future law dealing with the question of insurance societies will be promulgated without calling the medical profession to take part in the deliberations previous to the preparations leading to the enactment of a law on such subject. It remains questionable whether the principle of free choice of physicians will be enacted into a legal right of the members of the associations; our organization must therefore be continued and strengthened so that the discussion of this question as well as of others will find a united and resolute profession behind it.

Once again, too, the Congress of the German Physicians must consider their action in answer to high-handed acts of an administration of a medical insurance society. The present instance of such action has taken place in Cologne where the whole question was fought over four years ago. At that time the result was that the government was compelled to take over into their own hands the administration of the associations in that city. One year ago the right of self-administration was returned to the associations, and ever since the officers have been looking for physicians who would be willing to follow their wishes and demands in every particular. They succeeded, too, in finding several physicians who answered their requirements, but not enough doctors were obtained to cover the demand. We must help the members of the profession in Cologne in their fight for their economic rights, and all members of the profession ought to join the Union of Physicians' Associations which transacts its business at the meeting of the Congress that is opened to-day.

Most enthusiastic applause followed this speech of the Presiding Officer of the Congress. The meeting then proceeded to the transaction of business before it, and we shall report the more important questions considered in our next letter.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 20, 1908.

High-Frequency Electricity in the Treatment of Cardiac Disease.—Horace D. Arnold summarizes his paper as follows: High-frequency electricity may be so applied as to reduce the blood pressure in almost all cases. The amount of the reduction is greater in proportion to the abnormal height of the pressure, although in this series of cases none have been above 200 mm. The greatest fall in the abnormal blood pressure was 40 mm., and the average fall was 17 mm. after an average treatment of twelve minutes. There is good reason to believe that there is also a favorable effect on metabolism and that in this way the conditions that cause the high pressure are improved. For this reason the effect of treatment is not merely temporary, but lasts for a considerable time. This form of treatment will be of special value in cardiac cases where the heart is having difficulty in overcoming high blood pressure, especially where the pressure is due to faulty metabolism or poor elimination. This includes the important class of cardiorenal cases. It will also be useful as an adjunct in the treatment of those cases of high pressure which have not yet developed cardiorenal disease, which are due in part to our strenuous modern competitive life and our excessive ingestion of food.

The High-Grade Mental Defectives.—W. N. Bullard applies the term "higher degree of mental impairment" to those cases in which the defect is least apparent, the so-called border-line cases—those cases which are supposed to stand near or close to the imaginary line which divides the normal from the subnormal or diseased. It is only in a modified way that intellectual ability can be accepted as a satisfactory test for the mental powers. There are other mental qualities which have a large part in the sum of mental characteristics, qualitative and quantitative, which make up the mentality of the normal child. A few of these he mentions. First, there is the moral sense. It is his opinion that the greatest caution should be exercised in placing cases in this category. Secondly, there is a class of persons (girls) who are only slightly weak in power of intellectual acquisition; that is, they can learn a good deal, but they are wholly lacking in practical judgment. Thirdly, there is another class whose difficulty seems to be lack of self-control. They are more or less weak intellectually, but this weakness is not their prominent mental symptom. He believes that it is only in carefully observed cases where some definite intellectual defect exists that they were justified in making a diagnosis of mental irresponsibility. He feels strongly the great danger which exists to society in pushing too far the idea of moral insanity in criminals. Great care should be used in diagnosticating a case as one of moral imbecility. It is only the expert, and the expert in imbecility, not insanity alone, who is fitted to give judgment in these cases. This applies with equal force to those cases in which lack of self-control or of decision seems to be the predominant factor. Girls of the cases described, whether coming from the State school or elsewhere, must be properly provided for and cared for by the State. There is no class of persons in our whole population who, unit for unit, are so dangerous or so expensive to the State; this excepts no class, not even the violently insane. They are dangerous because, being irresponsible wholly or in part, they become the prey of the lower class of vile men and are the most fertile source for the spread of all forms of venereal disease. They have not the sense nor understanding to avoid disease nor any care as to its spread. They are most expensive to the State because they are the most fruitful source of diseased and mentally-defective children, who are apt to become State charges. He does not discuss how these people should be provided for. This properly

comes under the jurisdiction of the State authorities, especially the State Board of Insanity.

New York Medical Journal, August 22, 1908.

Some Important Points in the Anatomy and Surgery of the Peritoneum.—Arthur J. Wolff says that all the splanchnic serosities, distinct in descriptive anatomy, are in reality contiguous diverticula of the same system, the original unity of which is demonstrated by their development. This close embryological relationship is again to be seen in pathology, pathological anatomy, and clinical evolution of the different varieties of pleurisy, pericarditis, and peritonitis. But while the pleura, pericardium, and meninges envelop viscera which are normally aseptic, the peritoneum, on the contrary, covers the most septic of all the organs of the body, the intestines. While the other serous membranes are the most often infected in an indirect manner from the circulatory system, the peritoneum, on the contrary, derives pathogenic agents from the most proximal sources; is infected directly by effraction, contiguity, or continuity, dependent upon the septic organs which it invests. The peritoneal cavity, as well as the pleural, pericardial, and other large serous cavities, is really part of the general lymphatic system, and the serous fluid which at times is found in these cavities is really lymph. The peritoneal surface represents a vast nervous surface, from which any powerful irritation reflects through the sympathetic system upon the cardiopulmonary circulatory system and profoundly disturbs their equilibrium. We have here the explanation of the crises of asystole often observed in the beginning of peritonitis, and also the manifestations of morbid innervation so often seen in these cases; and these grouped together constitute the peritoneal syndrome, as vomiting, constipation, meteorism, pain, tachycardia, alteration of the countenance, of the pulse, etc. It explains also the ensemble of that group of nervous symptoms simulating peritonitis, described under the name of "peritonism." He divides acute peritonitis into two varieties, septic peritonitis, caused by pathogenic microbes, and the second, putrid peritonitis, caused by saprogenetic bacteria. Peritonitis which supervenes as the result of any traumatism, solution of continuity, operative or otherwise, is due to extrinsic infection. The explanation of the variation of the severity of the infectious process may be easily found in the variability of the virulence of the organism producing it. From this argument the surgical treatment of cases of peritonitis is certainly indicated, especially when it is remembered that in general peritonitis medical treatment is of no avail. Avoid too much irrigation in local peritonitis; use systematic and careful irrigation with large quantities of sterile water or normal saline in generalized peritonitis. His experience has led him to adopt this practice and he has had no cause to regret it. He does not believe in the complete closure in all cases of laparatomy. In cases where the drain is used, he allows plenty of water by the mouth. The extensive use of water increases the flow of the liquid through the capillary drain; the flow of lymph is reversed towards the drain, or in the direction of least resistance, the toxins are washed out, diluted, and carried off very promptly. The use of large quantities of water, with good drainage, in these cases, directs the current of serous exudate towards the artificial opening, carrying with it the dead leucocytes laden with dead infectious bacteria, and prevents their being carried through the cellular stomata in the diaphragm and thence into the general circulation.

Oxygen in the Treatment of Tuberculous Peritonitis.—John A. McGlinn says that three types of tuberculous peritonitis are recognized, the ascitic, the fibrous, and the ulcerative forms. Practically all authors are in accord that it is only the first type that is amenable to treatment. In a general way two forms of treatment are recognized, the medical and the surgical. The advantages of surgical treatment have been studied by many writers. From the statement he makes he shows that by the plans of treatment now in vogue the fibrous and ulcerous forms of tuberculous peritonitis are not amenable to treatment, and at best only seventy-five per cent. of the ascitic forms can be cured. It is impossible to devise a scientific form of treatment; therefore, he suggests a plan of treatment which has given him admirable results. He has used the method in fifteen cases; of these four were the fibrous variety. He uses the method as follows: The water bottle of the oxygen apparatus is sterilized and filled with sterile water. The tube leading from the bottle and the rubber tip are sterilized. The tip is covered with several thicknesses of sterile gauze. The oxygen is introduced through the abdominal incision until the abdomen becomes inflated. The incision is now closed with gauze, and the oxygen is allowed to remain for several minutes. The gas is then allowed to escape, and the peritoneal cavity is filled again and again.

The Etiology and Treatment of Eczema.—Zama Feldstein states that eczema forms one-third of all skin diseases that come under treatment. For its production there must be a predisposition or special irritability of the skin; also, an exciting influence which brings this irritability into action. He holds that eczema is a parasitic disease and the only thing necessary to produce an eczema is the condition of the skin. He is of the opinion that the parasite having been once called into activity, as it were, the primary cause can be cured, but the effect, *i.e.* the parasite, remains until destroyed by a parasiticide sufficiently penetrating to establish contact, and sufficiently stimulating to restore the skin to its natural activity. Neisser has stated, "No eczema without micrococci." In the treatment of eczema the following aims should be constantly kept in view: Destroy microorganisms; protect the inflamed surface from further microbic invasion; regulate the strength of the remedy employed to the tolerance of the patient's skin; soothe when acute; stimulate when chronic.

Journal of the American Medical Association, August 22, 1908.

Animal Experimentation.—W. B. Cannon points out how the opponents of physiological experiments assume that all animal experiments must be painful, and discredit, without advancing proof, all statements to the contrary on the part of the investigators. For himself, he can testify that in twelve years' experience as a medical student and physiologist he has never witnessed an experiment of the painful class. On the one side of the controversy, he says, we have men trained to close observation, to careful inference, and to exact statement; on the other side persons revealing repeatedly that they are ignorant of the subject they denounce, that they are incapable of interpreting intelligently what they read, and that they let imagination play uncontrolled in regions and in procedures they have never witnessed. Even the physicians who sign the antivivisectionists' petitions show that they fail to appreciate the worth of research and ignore its direct relations to medical practice. Cannon points out that the antivivisectionists cannot escape profiting by the results of the animal experimentation which they so much oppose, no one in our civilization can avoid such indebtedness. Thousands of useless and harmful animals are annually slaughtered for the public good in our cities, but they object to a few of them being painlessly utilized for the benefit of mankind. We need not question the kindly motives of the opponents of investigation, but they are expending them on animals, while the investigators are working for the good of men.

Suprarenal Transplantation.—F. C. Busch, T. M. Leonard, and T. Wright discuss a new series of thirty cases of suprarenal transplantation. The transplantations were made into the thyroids, testes, and kidneys of dogs and rabbits, not only in the same animal, but also from one animal to another of the same species. The results of implantations into the testes and thyroids were all negative. Positive results were obtained only in those cases in which the kidney was used as a receiving tissue. The experiments in each case consisted of three stages, the technique of which is described. Complete proof of functioning graft survival was obtained in two cases. In one of these the rabbit's suprarenal was transplanted into its own kidney, and thirty-six days later the remaining adrenal was removed. Seventy-seven days after the second operation the kidney containing the graft was removed. In three days the animal died. No evidence of peritonitis and no suprarenal accessories or stump could be found. The second case was that of transplantation of the suprarenal of one rabbit into the kidney of another. The rabbit's remaining suprarenal was removed thirty-six days after the introduction of the graft. The animal recovered. Twenty-nine days later the kidney containing the graft was removed, and the animal died in forty-three hours. From the results of their work the authors conclude that the kidney seems to be the best structure for the reception of the grafts. Whether the graft alone, in any of these cases, would have been sufficient to carry on the suprarenal functions indefinitely the authors cannot say. The longest period of graft survival which they have recorded is 247 days. With improved technique and more uniform success in animal experiments, it does not seem unreasonable to attempt suprarenal transplantations as a therapeutic measure in Addison's disease.

Irregular Hearts.—A. W. Hewlett discusses the subject of absolutely irregular heart action. The most important characteristic is the absence of normal auricular contractions, denoting a fundamental change in the heart activities. It is probably to be interpreted as a total auricular paralysis, or at least as an asthenia of such a grade that the contractions of the auricle are no longer

demonstrable. The mitral stenosis murmur may also disappear, or, if it persists, it loses its presystolic accentuation, which is a fact of diagnostic importance. Physicians should recognize the fact that a typical murmur at such a time is not to be expected. In typical cases of irregular heart the term delirium cordis expresses the extreme lack of rhythm. The absolutely irregular rhythm is one of the most persistent types of arrhythmia, usually lasting till death, though it may be modified temporarily. The heart lesion most frequently present is mitral insufficiency, which occurred alone in ten out of the thirty cases examined, and was associated with mitral stenosis in five more. Rheumatism was the most common antecedent, twelve out of thirty; next came alcoholic excess, very marked in ten. Hyperthyroidism was the only demonstrable cause in two cases, chronic nephritis in one, while arteriosclerosis was noted in a number of others. The symptoms represented every type of heart failure. In some severe types, dyspnea, edema, and effusion into the serous cavities were common. In others the symptoms were less marked, and in two patients no symptoms whatever were complained of. It seems that moderate irregularity with auricular paralysis, especially if valvular disease is lacking, is not enough in itself to cause severe symptoms. The relations to tricuspid insufficiency cannot be exactly defined, but many of these patients have it without doubt, as shown by the typical murmur, the positive plateau on the venous pulse, and the positive pulsations of the liver. Enlargement and tenderness of the liver were present in a large proportion, associated presumably with the tricuspid regurgitation. Delirium cordis may occur in a paroxysmal form, an instance of which is reported, occurring from the excitement of exertion, and associated with auricular paralysis. Probably other factors than merely nervous ones are present in such cases, mitral valve disease existed in the two cases observed by Hewlett. The relation of these paroxysmal cases to the others is probably a near one. He also mentions a form of tachycardia which may also be closely related. In conclusion, he notes the fact that atropine and digitalis produce their well-known effects in these cases of absolute cardiac irregularity, but not to the extent of correcting it.

Weather and Pneumonia.—C. M. Richter discusses the relation of anticyclonic weather to the prevalence of influenza and pneumonia on the northern hemisphere. He deals specially with recent epidemics of pneumonia in Chicago and San Francisco. Because of the small difference between its mean temperature and mean relative humidity of January and July, San Francisco is thought, by the author, to be the best city in the country in which to make research in regard to the influence of weather on disease. The different meteorological factors and the pneumonia mortality figures he charted together for a number of years, and thereby demonstrated that while there was absolutely no relation between temperature and humidity and such mortality, there was a very clear relation between periods of high air pressure and such mortality. He describes the fundamental differences between high and low air pressure—that is, between cyclones and anticyclones. By analyzing the epidemics previously spoken of and studying them with reference to the air pressure prevailing contemporaneously he demonstrates that during a prevalence of anticyclonic weather pneumonia and influenza are generally prevailing. He concludes that: pneumonia is not merely a concomitant of the cold weather season. Its prevalence depends on anticyclonic weather, summer and winter, on the northern hemisphere, and not on low temperature. There is sufficient reason to assume that the quality of the air of an anticyclone changes in conformity with changes in the activity of the sun and that the prevalence of grip and pneumonia is subject to a specific quality of such air.

Experimental Parotitis.—Isabella C. Herb reports experiments on dogs and a monkey by inoculation with the culture of a diplococcus obtained from a man who died from a complication of diseases, including mumps. It was similar in its essential characteristics with that described by Laveran and Catrin and others, and produced when inoculated into Steno's duct of the animals an acute, uniform enlargement of the parotid gland, accompanied with slight fever. In the dog this enlargement is the result of an infiltration that consists largely of mononuclear cells, and is accompanied with a general increase in the mononuclear cells in the blood, as well as a distinct rise in the opsonic index with respect to the diplococcus. Further studies, however, especially of human mumps, are needed before we can say that this diplococcus is the specific cause of mumps.

The Lancet, August 15, 1908.

The Treatment of Immature Cataract.—Henry Smith says that the various procedures for the maturing of immature cataracts are puncturing the lens capsule with a needle: iridectomy (simple): iridectomy with massage through the cornea; and iridectomy with direct massage with some form of instrument. He decides that the extraction of immature cataract by the capsulotomy method is hardly justifiable; that ripening procedures are either unsatisfactory or dangerous; that to wait for nature's maturing process is highly unsatisfactory and detrimental to the patient. The treatment of immature cataract which he practises extensively and which he regards as the procedure of the future, and which will leave mature senile cataract a much rarer condition than it is at present, is extraction of the lens in its capsule, a procedure to which immature cataract is admirably suited. The state of immaturity at which he advocates this procedure is the stage at which it unfits its possessor for the performance of his ordinary duties. His experience now extends to about 20,000 cataract extractions, about 17,000 of which have been in the capsule, and among the latter have been many immature cataracts, especially in recent years.

Note on a Case of Acute Pulmonary Edema.—William Rolland reports the history of a male, 30 years old, who complained of swelling in both legs of six days' duration and of breathlessness. The urine contained a considerable quantity of albumin and numerous casts. The pulse was of high tension. A preliminary diagnosis of subacute or chronic nephritis was therefore made. The patient developed a hacking cough accompanied by slightly sanguineous expectoration and gradually increasing dyspnea. He began to show some lividity and an inhalation of amyl nitrite was administered. The lividity increased to cyanosis, however, and the respiratory embarrassment became extreme. A great quantity of frothy, blood-tinged fluid was coughed up and latterly flowed out of the mouth and nose without expiratory effort. The patient became extremely restless and attempted to get out of bed. He then gradually succumbed to respiratory failure, the heart beating for about one and a half minutes after respiration had ceased. The interval of time between the onset of the cough and the cessation of respiration was about three or four minutes.

British Medical Journal, August 15, 1908.

Pneumonia in Children.—G. H. Melville Dunlop analyzes 500 cases of pneumonia that he has seen in the hospital. Of these 147 were of the lobar variety, the rest of the bronchopneumonia type. Of the 147 cases, 85 occurred in boys, 62 in girls. An immense majority of the cases occurred during the winter and spring months. There were 45 cases under two years of age, 42 between two and five years, and 60 between five and twelve years. The left base was affected in 63 cases, the right base in 25, the right apex in 23, the left apex in 11, both lungs in 8, whole of one lung in 10, and the site not ascertained in 7. The late development of physical signs is of frequent occurrence. The chief symptoms observed heralding the onset of pneumonia were vomiting, headache, pain in the side, shivering, convulsions, and diarrhea. Vomiting in nearly two-thirds of the cases. Pain was more often referred to the abdomen than the thorax. Convulsions do not occur so frequently as an initial symptom as is generally supposed, and very rarely occurred in children over two years old. In none of the 25 cases in which delirium occurred was the child under three years old. Herpes occurred in 11 per cent. of the cases. The crisis took place on the second day in 2 cases; on the third in 3 cases; on the fourth in 6 cases; on the fifth in 16 cases; on the sixth in 15 cases; on the seventh in 16 cases; on the eighth in 22 cases; on the ninth in 14 cases; on the tenth in 10 cases; on the eleventh in 7 cases; on the twelfth in 3 cases; after the twelfth in 6 cases. Of the 147 cases, 24 terminated by lysis. Out of 147 cases, 15 have died, being a mortality of 10.2 per cent. Below the age of two years the prognosis is grave, but above that age it is exceedingly favorable. There were 353 cases of bronchopneumonia, of which 120 were primary and 233 secondary. There were 182 boys and 171 girls. Of the 120 primary cases, 92 occurred in children under two years of age. He was guided in differentiating these cases from lobar pneumonia by (1) the more disseminated character of the lesion in the lung; (2) the remissions in the temperature; (3) the greater amount of cyanosis and dyspnea; (4) the more troublesome character of the cough. In analyzing these 353 cases of bronchopneumonia he finds that both lungs were affected in 182 cases; the right lung alone was affected 83 times, the left alone 72 times, and in 16 the site was not stated. Death was generally due to one or other of the following causes: increasing exhaustion; suffocation and toxemia, owing to the bronchi becoming blocked and the lungs choked; heart failure. He was struck with three points in connection with the cases that terminated fatally: (1) The large number of cases that die very suddenly of heart failure; this occurred in 23 of his cases; (2) the tendency of the temperature to mount higher and higher as death approaches; this oc-

curred 31 times in the 89 cases of death; (3) the great liability of the child to die during an attack of general convulsions, which termination occurred 10 times. The following are the chief points to be considered in estimating the prognosis: 1. The primary disease; those cases which occurred after whooping cough, measles, and diphtheria were exceedingly fatal, giving a death rate of 54.4 per cent. 2. The younger the child the worse the prognosis; 64.4 per cent. of the deaths occurred in children under two years. 3. The greater the extent of the lungs involved the less is the chance of recovery; in 75 per cent. of the deaths both lungs were affected. 4. The poorer the previous health of the child the graver the prognosis. 5. When the child suffers from severe forms of rickets the prognosis is always grave. In 34 per cent. of the deaths the report states that severe rickets existed. 6. Diarrhea seriously affects the prognosis, and was present in 24 per cent. of the deaths. 7. A temperature of 105° F. greatly adds to the gravity of the case; 60 per cent. of these cases died. 8. A pulse rate over 180 and a pulse-respiration ratio of 1 to 2 or 1 to 1-2 is always serious. 9. The highest mortality was in the cases which had lasted for several weeks. The indications for treatment are, first, to endeavor to prevent the digestive organs becoming deranged; second, to do all in your power to maintain the strength and vitality of the patient; third, to keep the action of the heart constantly under observation; fourth, to prevent, if possible, the spread of inflammation to fresh portions of lung.

Zinc Ionization in Chronic Urethritis.—P. Clennell Fenwick says that his attention was drawn to the value of zinc ionization in rodent ulcer by Dr. Lewis Jones some months ago. After using this treatment with success in three cases of rodent ulcer he wondered if the same method could not be used in chronic catarrh of the urethra. He then reports in detail two cases of chronic urethral catarrh of long standing treated by this method with success.

Münchener medizinische Wochenschrift, August 4 *and* 11, 1908.

Artificial Hyperemia in Cerebral Arteriosclerosis.—Galli says that the ultimtae cause of arteriosclerosis is to be found in the degenerative changes of the vasa vasorum or in pathological contractions of their lumina which produce changes in the sections of the vessels that are supplied by the affected arterioles. This explains why the innermost part of the intima is usually the first to suffer from the changes of arteriosclerosis. Artificial hyperemia produces marked changes in the vasa vasorum, and the author tried it for therapeutic purposes in over twenty cases of arteriosclerosis. The elastic tube about the neck is used to produce the hyperemia, the pressure in the tube being controlled by a manometer and raised to from 20 to 50 mm. A daily treatment of one-half to two hours in duration was given. The neurasthenic symptoms which frequently attend this form of arteriosclerosis were very favorably affected by the treatment, and the general wellbeing of the patient soon resulted; advanced cases of arteriosclerosis were not affected. The author warmly recommends the trial of this method of treatment in the early stages of arteriosclerosis affecting the central nervous system.

Nonabsorption of Antitoxin from Rectum.—Hamburger and Monti say that if the absorption of various antitoxins from the rectum could be shown then rectal administration of such substances would be often preferable to subcutaneous injections. Experiments with tetanus antitoxin have shown that very little, if any, of the protective substances found their way out of the rectum into the blood. Of the twenty-four children examined only one gave a positive reaction for the presence of antitoxin in the blood after such administration. Escherich, Pfeiffer, Dehne and Hamburger have obtained similar results with diphtheria antitoxin and with foreign proteids in general. It may be assumed that none of the protective substances in the nature of antitoxins are absorbed by the rectum and, therefore, all good results reported after such administration should be viewed very critically.

The Specificity of Wassermann's Reaction for Syphilis.—Jochmann and Töpfer say that the presence of Wassermann's reaction in such diseases as frambesia does not diminish the value of the reaction as a diagnostic measure because of the extreme rarity of the disease in question in temperate climates. Much and Eichelberg, however, have claimed that scarlet fever patients may give evidence of the reaction and such a finding, if proved correct, would seriously interfere with the usefulness of the Wassermann reaction. The authors have therefore tested the sera of 33 scarlet fever patients in reference to this question and have obtained negative results in 32 cases, one case showing an intermittent positive reaction when larger amounts of serum were used than are required for the diagnosis of syphilitic infection. The method of diagnosing the existence of syphilis devised by Wassermann remains, therefore, quite dependable.

The Treatment of Scarlet Fever.—Oppenheimer says that of his 150 scarlet fever patients he lost only three, and has never observed a case of nephritis. He thinks that the appearance of the latter complication is often due to the use of cold bathing or other extreme hydrotherapeutic measures as well as to the carelessness in the diet of the children. He never uses cold packs or cold baths, making use of compresses in case of headache, unrest, etc. In the diet, meat, meat soups, eggs and even all dishes prepared with eggs are excluded; milk, rice, cooked fruit, a small amount of vegetables, and a little bread make up the diet he has found most efficacious. He admits that the freedom from complications and the low mortality of his cases may be accidental, yet as his method of managing the disease cannot do any possible harm he warmly recommends its trial in other hands.

Granular Form of Tubercle Bacilli.—Wirths says that Much has found in tubercular lesions that were apparently free from bacilli many granular particles which could be stained by Gram's method and which are probably a form assumed by the bacilli of tuberculosis under certain conditions of growth. These granules are often intercellular, lying in the epithelioid or in the giant cells. In several cases of tuberculosis the search for acidfast bacilli was unsuccessful but the granules were found in abundance. The infectivity of the material was proved by inoculation of guinea pigs. The exudate obtained from the inoculated animals contained at first only the granules described by Much and later typical acidfast tubercle bacilli. It seems proved, therefore, that the type stainable by Gram's method alone can pass into the type that may be stained with the usual technique for tubercle bacilli, as for instance by Zichl's method. The opposite metamorphosis has also been observed by the author. He concludes that the granules described by Much are not artefacts nor *débris* of bacilli but virulent organisms that seem to be the most resistant form of tubercle bacilli known.

Deutsche medizinische Wochenschrift, August 6, 1908.

Operative Treatment of Stomach Perforation.—Michelsson says that every case of abdominal injury should be immediately put under the care of a surgeon because perforative and other injuries of the internal organs cannot be readily excluded in the early examination. If a perforation of the gastrointestinal canal is suspected an operation should at once be performed. General narcosis is preferable to lumbar anesthesia in these cases as the upper abdominal organs may have to be handled, which may result in pain and consequent unrest of the patient. The indications to be fulfilled are as follows: The source of infection, if one is found is to be closed; the abdominal cavity is to be cleansed of any infectious material and drainage is to be provided for the exudate that will probably form in consequence of the infection. Such cleansing of the peritoneal cavity is to be done only in cases of spreading peritonitis and large amounts of salt solution are to be used, the washing being continued until the fluid returns clear. Gauze drains are preferable to rubber tubes for drainage. Infusions of salt solution are the best stimulants to the patient in cases of postoperative shock.

French and Italian Journals.

Discontinuance of and Return to a Milk Diet in Diarrheas of Infancy.—Rousseau-Saint-Phillipe says that milk is not the perfect, antitoxic, easily assimilable, complete food that it has been considered. The cow even if healthy, clean, and well fed gives a milk that is not suitable for the child, and it is necessary to watch its digestion and assimilation. When a good, pure milk has been obtained it is necessary to watch its dosage carefully. There are cases both acute and chronic in which it becomes poisonous and excites a gastroenteritis with putrefactions. In these cases milk must be stopped at once and a water diet made use of, with a certain amount of fasting, followed by the use of some other food. When the intestines have been cleansed, disinfected, and returned to a normal condition the use of milk should be begun very gradually and in very small doses, and thus a tolerance be gradually established for it.—*Journal de Médecine de Bordeaux,* May 10, 1908.

Intestinal Occlusion After Gastroenterestomy.—Rigollot-Simonnot says that after any abdominal operation paralytic occlusion without mechanical obstacle, occlusion without by-adhesions, by bands, or by extension of inflammatory lesions or of neoplasms that existed before the operation may occur. In other cases the occlusion results from the technique used in the operation. Three varieties may be distinguished; twisting of the anastomosed gut at

the time of operation or later; fixation of the intestine in the mesocolic breadth of the posterior mesentery and compression of the transverse colon; prevertebral incarceration. Pain is generally present, there is complete suppression of the stools, and of evacuations of gas, vomiting that is frequent, tenacious, and fecal with absence of meteorism. Prophylactic treatment consists in reduction of the afferent loop to the least length that is possible to complete the anastomosis; and closure of any space below the anastomosis by joining the stomach and intestine down to the root of the transverse mesocolon.—*La Tribune Médicale, May* 9, 1908.

Contribution to the Anatomic Pathology of Tumors of the Corpus Callosum.—Giuseppe Panegrossi contributes to the knowledge of tumors of the corpus callosum the following case: A man of fifty-three years of age became rather suddenly confused. He had no history of syphilis, and used wine moderately. Soon after his confusion he fell into a state of stupor in which he remained until his death, about a month later. There were no somatic disturbances at any time. At the autopsy a tumor was found of a gliosarcomatous nature, which had destroyed the anterior two-thirds of the corpus callosum and invaded somewhat the gray and white matter of the median frontal lobes. The points of diagnosis of tumors of the corpus callosum are these: early appearance of mental disturbances associated with disorders of speech differing from aphasia; presence of various motor and topographic disturbances, relating to equilibrium; absence of the general symptoms of intracranial tumors; absence of disturbances of the cranial nerves; subacute onset of the disease and progressive character of the symptoms. Bristow has described a state of stupor or somnolence rendering the patient difficult to nourish and to communicate with.—*Il Policlinico,* May, 1908.

Cases of Otic Pyemia Treated with Antistreptococcus Serum.—Arslan Yervant has made use of antistreptococcus serum in treating otic pyemia. In the case of a girl of twenty years of age after opening of the mastoid up to the aditus there still persisted the symptoms of pyemia. For many days all methods of treatment failed to bring about any improvement. An injection of antistreptococcus serum reduced the temperature in a few hours from 39.5° to 37.5°. After a few more injections the temperature fell to normal. Then the patient was threatened with artrosinovitis with fluctuation and pain. The return to the serum treatment relieved all the symptoms and the temperature fell again to normal. In another subject aged seventy-five years not operated on, the temperature was up to 41.5°, and after the first injection it fell to normal. When serum treatment was suspended complications supervened which caused death. By these cases the antithermic action and the tolerability of the serum is abundantly proven.—*La Riforma Medica,* April 27, 1908.

Treatment of Inguinal Hernia in the Newborn.—Broca says that in considering hernia in young children the degree of malformation is important. Another factor is the influence of rickets on the production of hernia. The obliteration of the peritoneovaginal canal occurs at the moment of the end of pregnancy, and in a premature infant of even fifteen hours there is an incomplete closure, and a predisposition to hernia. Heredity, especially heredity from the father, also plays an important part in these troubles. It is rare to find hernia at the moment of birth, and thus it is not truly congenital. It is frequent to find these herniæ of large size, containing the large intestine, either the cecum or the sigmoid portion. These herniæ also come on slowly, and cough such as occurs in a bronchopneumonia has much to do with the causation. Violent efforts may produce them as well. Diarrhea, and indigestion with colic, and the crying caused thereby are also predisposing causes of hernia. Cure results from the closure of the peritoneovaginal canal. In many cases it is produced in early life by the application of a double bandage, worn day and night, followed at the age of seven to eight months by a suitable truss. This may result in a complete cure in the young infant. Or the hernia may continue to grow larger and give more and more trouble, in which case an operation becomes necessary. The large flaccid stomach and weak abdominal walls of the rachitic child are favorable to this form of hernia. The prognosis of hernia in the baby is very variable. Strangulation occurs rather frequently. A warm bath or mustard paste may cause reduction spontaneously. Severe taxis should never be used, as gangrene may be caused by it. Operation is demanded when reduction is difficult. The child must not be separated from the mother if we wish a baby to live. So the operation should not be done in a hospital that will not admit the mother with the child.—*Bulletin de la Société de l'Internat des Hôpitaux de Paris,* April, 1908.

Surgical Suggestions.

Varicocele.—When operating for varicocele it is far better to make the incision over the external ring, as in herniotomy, than the usual incision in the scrotum. The cord, veins, and artery may be pushed out of the opening, and the veins separated from the others and ligated. The operation is much simpler and easier, involves less laceration and hemorrhage, and the dangers from embolism, thrombosis, and septic infection are greatly minimized. It is wholly unnecessary to touch either the wounds in skin and tunica vaginalis, or the cord and veins—finger infection here being very serious, since the wound must be closed without drainage. It is best sealed with collodion, over which a protective gauze pad should be placed.—*American Journal of Clinical Medicine.*

Everting the Upper Eyelid.—Bishop Harman says that the evertion of the upper lid is one of the simplest and nicest performances when done properly, and should cause no pain to the patient. But, clumsily attempted, it is hard to accomplish, and the bungling causes great pain. The secret of this little maneuvre is to use only the first finger and thumb. Tell the patient to look down; place the inner edge of the thumb parallel with the lower lid, and on its outer half just below the lashes. Place the inner edge of the index finger lightly on the upper lid, just above the lashes, and gently push up the skin; this will cause the edge of the lid to lift from the globe just a little. Now, with the thumb in position, slip the lower lid under the upper lid; and the thumb, following with the lower lid, will get under the upper lid, which can be held firmly betwixt thumb and first finger, and everted, even against a vigorous orbicular spasm. This is the only method which is invariably successful, and, skilfully done, it is painless.—*Clinical Journal.*

Dupuytren's Contraction.—Keen has successfully modified the usual technique employed in the treatment of this affection. The operation was performed under local anesthesia—a few drops of 4 per cent. cocaine solution were injected into the neural sheath. A trapdoor incision, with its base looking toward the wrist, was made; the flap consisted of all the tissues of the palm down to the sheath of the tendons; the entire palmar fascia was then excised. Primary union followed. The results were satisfactory. Keen holds that the technique is especially advantageous in advanced cases where there are distinct bands already formed.—*St. Louis Courier of Medicine.*

Fractures of the Patella.—If it is decided to adopt nonoperative treatment, a satisfactory method is the one known as the "Middlesex method." The limb is put on a back splint until the effusion has subsided. The lower fragment is then fixed by transverse pieces of strapping, which are firmly applied round the joint just below it. The upper fragment is brought down into apposition by strapping over it a piece of adhesive plaster, which is cut away over the patella; to the sides of the adhesive plaster pieces of elastic tubing are attached, which are stretched and fixed to the foot. The two fragments are thus kept more or less in apposition. The apparatus must be retained from six to eight weeks.—*The Hospital.*

The Use of Gloves in Surgery.—In a recent article W. Cohn states that the use of gloves in surgery was first suggested by Halster, who, in 1891, wore sterilized cotton gloves at his operations. Conitzer points out, however, that as long ago as 1855, Thomas Watson, in a work on the practice of medicine, said, in his section on puerperal fever, that it might be possible to invent a glove of some material which should be impervious to fluids but not so thick as to interfere with the sense of the touch, and that if such a glove could be devised it should always be used at every confinement.—*Zentralblatt für Gynäkologie.*

Sprains of the Ankle.—A method of treatment strongly advocated in preference to the usual plan of rest and elevation is that of firmly strapping the part and encouraging the patient to go about as usual, at least after the first twenty-four hours. The strapping is applied so as to enclose the whole foot except the heel; it can be kept on until pain and swelling have subsided, after which, as a rule, no further treatment is required.—*The Hospital.*

Hematuria.—Sir Henry Thompson's method of determining whether blood has come from the bladder or kidneys is to carefully introduce a soft catheter just within the neck of the bladder, draw off the urine and wash out gently with warm water. If the water will not come away clear the blood presumably comes from the bladder. If the water comes away clear, the catheter is then corked for a short while, and the patient kept at rest. When a small quantity of urine has collected it is drawn off and examined for blood. If blood is present, and if, after washing out the bladder, the water comes away clear, the presumption is that the blood comes from the kidney.—*Clinical Review.*

Book Reviews.

A Manual of Venereal Diseases. By Officers of the Royal Army Medical Corps. Introduction by Sir Alfred Keogh, K.C.B., Director-General of the Army Medical Service. History, Statistics, Invaliding, etc., Lieutenant Colonel C. H. Melville, R.A.M.C., Secretary to the Advisory Board. Clinical Pathology and Bacteriology, Colonel Leishman, R.A.M.C. Clinical Course and Treatment, Major C. E. Pollock, R.A.M.C. London (Henry Frowde, Oxford): Hodder & Stoughton (Oxford Medical Publications), 1907.

This manual is intended for officers of the Royal Army Medical Corps and has been compiled by a sub-committee of the Army Medical Advisory Board. It embodies in abstract the recommendations of the Board as to preventive measures. Aside from the fact that the book contains a brief, but satisfactory, summary of the clinical diagnosis of gonorrhea, syphilis, and chancroid, it is of interest inasmuch as it reflects the consensus of opinion of a large number of experienced army surgeons. The "methods of prevention" spoken of consist in disciplinary measures, not in the use of preventive solutions, ointments, etc. For contracting a venereal disease the soldier should be punished, so that his punishment may serve as a warning to others. This method savors of the Orient, and it remains to be seen how it will work.

Dr. Leishman gives an excellent and most complete description of the methods of examining discharges, etc., for gonococci and for spirochæta pallida. Details are given of all the known methods of administering mercury, and preference is given to inunctions and to injections of insoluble compounds, such as the various "creams," which have been popular in the British army for some years past. The question as to the desirability of insoluble as compared to the soluble compounds of mercury has by no means been solved, but preference for the soluble salts in injections is gradually growing stronger, at least in the United States. A series of plans of treatment, with the routine laid down for each period, are also shown in this volume. The appendix contains methods of keeping official histories and records of venereal diseases in the army, a formulary, a number of charts, and statistical tables. The book is to be recommended, especially to army medical officers and to those interested in the comparative study of methods of treating syphilis and gonorrhea.

Diseases of the Nose, Throat and Ear, Medical and Surgical. By William Lincoln Ballenger, M.D., Professor of Otology, Rhinology, and Laryngology, College of Physicians and Surgeons, Department of Medicine, University of Illinois, etc. Illustrated with 471 engravings and plates. Philadelphia and New York: Lea & Febiger, 1908.

In a handsomely printed volume, a bit ponderous to hold with comfort, the well-known Chicago author and clinician presents his views on the allied subjects of diseases of the nose, throat, and ear. He believes that they cannot be considered separately without missing most important connections. Since the well-known two-volume treatise of Bosworth on the nose and throat, which appeared now a considerable number of years ago, no such pretentious treatise has been published in America on the first two divisions of the medical field as that now before us. It covers practically every aspect of the specialties considered, being so well up to date as to have a separate chapter on tracheobronchoscopy and esophagoscopy. The general ground covered is, of course, well suggested by the title, but the author has departed somewhat from the usual methods of presentation, and as a consequence has produced a most readable book. A few matters have, perhaps, been unduly elaborated and some of the illustrations add but little, if any, value to the text. Surgical techniques are clearly elucidated by descriptions of each step of the various operations in numbered paragraphs, and these descriptions are complemented with suitable drawings. Lupus, syphilis, tuberculosis, leprosy, actinomycosis, etc., are grouped under the designation of chronic granulomata. The various statements made on disputed points are so set forth as to express the author's convictions as determined by his own personal experience, and the stamp of sincerity is over all.

We are inclined to question the need of new works of this kind. The vast stream of books on the nose, throat, and ear of the last few years would certainly seem to have filled every demand for literature of this kind in these particular fields. What we need is more careful cultivation of sections of the domain, rather than repetitions of descriptions and diseases as a whole. But we congratulate Dr. Ballenger most heartily on the result of what shows itself to be a most careful work, based on extensive clinical experience. No student who reads this book will fail to be amazed to see how the field of the rhinologist, laryngologist, and otologist has expanded, and no practitioner who looks over it carefully will fail to find many suggestions, the value of which will be attested by his own daily labors.

Treatise on Plague. Dealing with the Historical, Epidemiological, Clinical, Therapeutic, and Preventive Aspects of the Disease. By W. J. Simpson, M.D. Aberd., F.R.C.P. Lond., D.P.H. Camb.; Professor of Hygiene, King's College, London; Lecturer on Tropical Hygiene, London School of Tropical Medicine; formerly Health Officer, Calcutta; Medical Adviser to the Government of Cape Colony during the outbreak of plague in 1901; Commissioner for the Colonial Office to Inquire into the Cause of the Continuance of Plague in Hongkong. Cambridge: University Press, 1905.

The plague was until recently believed to be practically limited to Eastern Asia, but now its prevalence in other parts of the world, and especially on our own Pacific coast, warns us that the disease has no limitations of race or country. As the author says in his preface: "Plague takes its own time and opportunities for its development, and it is unwise to be lulled into a sense of security by its apparent impotency to spread in a particular country. That it is capable of spreading is seen too plainly in India. Few thought it possible, when plague broke out in Bombay in 1896, after an absence of 200 years, that the disease would not be controlled, checked, and stamped out in a short time.

Dr. Simpson divides his book into four parts, dealing with the history and distribution, and the epidemiology of the disease, plague in the individual, and the prevention and suppression of plague. The measures taken to prevent the importation of plague are mentioned, and the author asserts that by a careful examination of rats an outbreak of human plague may be forestalled, by tracing the course of the disease in different localities.

The methods employed for the destruction of rats on board ships are considered, and special attention is given to the Clayton process of disinfecting.

The Operations of General Practice. By Edred M. Corner, M.A., M.C., M.B. (Cantab.), B.Sc. (London), F.R.C.S. (England), Surgeon in Charge of Out-Patients at St. Thomas's Hospital and to the Children's Hospital, Great Ormond Street; Consulting Surgeon to the Wood Green and Purley Hospitals; formerly Erasmus Wilson Lecturer to the Royal College of Surgeons; and H. Irving Pinches, M.A., M.B., B.C. (Cantab.), M.R.C.S., L.R.C.P. (London), Clinical Assistant to the Children's Hospital, Great Ormond Street; late House Surgeon and Obstetric House Physician to St. Thomas's Hospital. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, 1907.

In this work the authors have successfully attempted to meet a deficiency which is perhaps more striking in the English than in the American schools, viz., the practical training in the performance of small and relatively insignificant operations, often lying on the borderland between medicine and surgery. The work is commendable for the terse and systematic manner which the authors have adopted in developing the subject, considering in order the operations of the head, the neck, the chest, the abdomen, the genitourinary apparatus, and, finally, the extremities, respectively.

For reasons of expediency and with a view of keeping within moderate bounds the authors have wisely refrained from discussing alternate methods. This, as they remark in their preface, must of necessity give a somewhat dictatorial character to the book, but at the same time it is a feature that particularly appeals to the average practitioner, clearly differentiating between such cases as should be operated upon and such as are either in the doubtful class or inoperable. The subject matter is presented most attractively and with a striking simplicity of style and diction.

The chapters pertaining to rectal surgery are especially valuable, and there is an excellent, though rather brief, description of Bier's method of passive congestion. The work is freely illustrated and excellently indexed, and will be found especially valuable to the young physician who has not had opportunities for practical work in outpatient dispensaries, and for the general practitioner as a hand-book of ready reference.

Geschichte der Laryngologie in Würzburg. Von Prof. Otto Seifert. Würzburg: Curt Kabitzsch, 1908.

This pamphlet is of interest, especially from a historical point of view. Many names of prominence in the laryngological world have been associated with the institution here described. The contents of the book consist of descriptions of the courses of instruction given, names of principals and assistants, enumeration of cases treated, titles of publications based on this work, etc.

Nothnagel's Practice. Diseases of the Heart. By Prof. Th. v. Jürgensen of Tübingen, Prof. L. v. Schrötter of Vienna, and Prof. L. Krehl of Greifswald. Edited with additions by George Dock, M.D., Professor of Theory and Practice of Medicine and Clinical Medicine, University of Michigan, Ann Arbor. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1908.

This volume is an admirable successor to those of the series that have preceded it. The important subject to which it is devoted is divided between three authors; Jürgensen having written the first section of 144 pages on cardiac insufficiency, the second of 155 pages on endocarditis, and the third of 100-odd pages on valvular disease. Krehl is the author of the chapters on diseases of the myocardium and nervous diseases of the heart, covering 340 pages, and the volume closes with a section of 66 pages on the diseases of the pericardium by Schrötter. It is unnecessary to say anything in praise of the work of such eminent authorities, and the translation has been done in a manner worthy of the original. The American edition of this large system is now drawing to a close and all those concerned in the long task are to be congratulated on the success with which the difficulties of the work have been overcome.

The Mother's Year Book. Being a Practical Application of the Results of Scientific Child-Study to the Problems of the First Year of Childhood. By Marion Foster Washburne, author of "Family Secrets," etc. New York: The Macmillan Company, 1908.

As a somewhat popular book for the expectant mother, and also for the young mother with her first baby, this volume will serve a useful purpose. It contains much information on the hundred and one little things which interest and appeal to the young mother, and, as a rule, the advice given is healthy. The advice given in the appendix on the Care of the Eyes of the Newborn is not altogether commendable. We think it would be safer for the mother or nurse to call in a physician rather than to decide whether to use boric acid or nitrate of silver.

Febre Amarella. Estudo Clinico com Observaçoes. Pelo Dr. Zeferino Meirelhes, da Academia N. de Medicina do Rio de Janeiro, etc. Rio de Janeiro: H. Garnier, 1907.

The author of this practical manual on yellow fever is physician to the San Sebastiano Hospital and ex-director of the Isolation Hospital of Nitcheroy. He deals with the disease from the viewpoint of wide personal experience. The usual arrangement is followed, the etiology, pathology, diagnosis, and treatment being discussed in turn. The author is very conservative, even skeptical, concerning treatment. Brushing aside any possible specific remedies, he speaks of his sheet anchors in yellow fever—general baths, alkalis (bicarbonate of soda internally and in enemas; alkaline mineral waters), small doses of sulphuric ether (to counteract gastric irritation). Calomel is his favorite intestinal antiseptic and eliminant, while his diuretics are water, milk, and theobromine. The book is a very good one from the clinical viewpoint and is written in simple, direct, and well-ordered style, easily understood, even by those not very familiar with Portuguese.

Traité de L'Arthritisme. Par le Dr. F. Grandmaison. Paris: A. Maloine, 1908.

This treatise on "arthritism" is a very complete and comprehensive presentation of the whole subject, from both the clinical and chemico-physiological viewpoints. The first part deals with the physiology of nutrition; the second with the causes; the third with the clinical manifestation of the disease; the fourth with the complications; the fifth with the evolution, diagnosis, and prognosis, and the last with the treatment of arthritism. The causes of arthritism are discussed under four headings: Heredity, over-eating, sedentary life, nervous over-exertion. In considering the urinary findings in gouty subjects, much attention is paid to quantitative relations of the various solids excreted, and the graphic method is made use of for the purpose of showing abnormalities in excretion. In speaking of the urinary acidity, for example, emphasis is laid upon the fact, brought out by Gautrelet, that there may be either real or potential hyperacidity. Potential hyperacidity is indicated by an increase in total solids as compared with the actual acidity, each reduced to a percentage. In this connection an excess of muscular exercise, etc., will cause real urinary hyperacidity. As regards uric acid in the urine, the author found it generally below normal in quantity in arthritics. It is relatively increased, however, as compared to the total solids. In the chapters on treatment much stress is laid upon physical methods, on diet, exercise, hygienic living, etc., and far less on drugs. The symptomatic treatment is developed along the usual lines, the subject being presented in a clear and attractive manner. There is a tendency towards building hybrid words, such as "dysfonction," "hypodésassimilation," etc., which should be frowned upon, though the intention of the author was simply to coin words that would supplant long phrases.

The book, on the whole, may be compared to the English work of Luff, though it is adapted more especially for general practitioners, and therefore seeks to simplify the more complex modern theoretical and experimental data of the subject of arthritism.

Diseases of the Male Generative Organs. By Edred M. Corner, M.A., M.B., B.Sc., M.C., F.R.C.S., Surgeon to St. Thomas' Hospital, etc., London. (Henry Frowde, Oxford), Hodder & Stoughton (Oxford Medical Publications), 1907.

The title of the book is not quite accurate. It deals with some only of the male generative organs, viz., the testes, spermatic cord, tunica vaginalis, the vesicles, and the scrotum. Nothing is said of diseases of the prostate, and only such conditions of the penis and urethra are mentioned as have to do with the generative function. An attempt has been made, in other words, to discuss separately in this book diseases of the male generative tract as distinct from the urinary tract. What gain such a separation involves is not made clear; indeed, it is most confusing to a student to hunt for a certain disease through various books, only to find that it has been omitted because the authors happened to be interested in a certain line of disorders of a given organ. Those who expect to find something about gonorrhea or syphilis in the present volume, more than the briefest mention, will be disappointed. These are not, it is true, diseases of the generative function, but they certainly affect the generative organs.

Aside from this, the book contains in a very small space a great deal of useful and practical information for students and general practitioners on such subjects as hydrocele, hematocele, undescended testicles, etc. Concise and accurate directions are given for operations and for treatment and much stress is laid upon the differentiation of doubtful conditions. The book is thoroughly up to date and contains the most advanced methods of treatment, *e. g.*, the use of tuberculin in connection with the opsonic index, etc.

The book is written in the informal style of a series of lectures, and embodies chiefly the results of the author's long experience in the out-patient department of the St. Thomas Hospital.

Cosmetic Surgery. The Correction of Featural Imperfections. By Charles C. Miller, M.D. Chicago: Oak Printing Company, 1907.

This is a small book, of about one hundred pages, that deals with the correction of deformities and featural defects of the ears, eyes, nose, and face. Most of the operations described may be performed by any one with a fair knowledge of minor surgery, and they all may be done under local anesthesia.

Abdominal Hernia. Its Diagnosis and Treatment. By W. B. De Garmo, M.D., New York, Professor Special Surgery (Hernia), New York Post-Graduate Medical School and Hospital; Fellow New York Academy of Medicine; Member American Medical Association, New York State and County Medical Societies; Honorary Member of the Medical Society of Virginia. Philadelphia and London: J. B. Lippincott Company, 1907.

Seventeen of the twenty-four chapters of this book are devoted to the consideration of inguinal hernia, in which the surgical care of inguinal hernia in the male and in the female is discussed; the cause of inguinal hernia, its types and conditions, the hernial sac, symptoms and diagnosis, the mechanical treatment, truss fitting, treating by gymnastics, complications in the surgical cure of inguinal hernia, and sigmoid, cecal, and bladder hernia are fully considered. Umbilical and ventral hernias are also treated of at some length. Among the rare forms of hernia are discussed lumbar hernia and the different varieties of sciatic hernia. Dowd's new operation for congenital lumbar hernia is also described. The aim of the author being to provide a book that will be useful to the physician in his work, he has mentioned only those operations which he has found from personal experience to give the best results. This will appeal to the busy man.

The chapter on truss fitting and mechanical and gymnastic treatment will be especially appreciated by the practitioner as a guide in the management of those cases that are either not suitable for operation or in which surgical treatment has been refused.

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-fourth Annual Meeting, Held in Philadelphia, May 20, 21, and 22, 1908.

DR. CHARLES W. BURR, PRESIDENT.

Wednesday, May 20—First Day.

Mental State in Chorea and Choreiform Affections.—Dr. C. W. BURR of Philadelphia presented this, the presidential, address and said that he had chosen this subject because it was of interest in itself and because the study of mental symptoms in physical disease would throw some light upon the nature of the insanities. For example, the study of the mental state in typhoid fever threw some light on the clinical occurrence of delirium. It was unfortunate that the word chorea could not be dropped from use. It included such diverse conditions that it carried with it no clear meaning. Sydenham's chorea was a separate and distinct disease which probably had a specific exciting cause. The majority of patients affected with this disease were entirely sane throughout the course of the disease, although even mild cases showed peevishness, fretfulness, loss of power of attention and selfishness. A second grade showed night terrors and hallucinations; a third, distinct delirium with fever; a fourth, stupor and an acute dementia. Patients of the first and second groups almost always fully recovered; of the third group, frequently died; and of the fourth group, either died or remained demented.

Progressive Hemiplegia Due to Vascular Lesions and a Glioma of the Right Centrum.—Dr. FRANK R. FRY of Cincinnati reported a case of progressive left hemiplegia with the Jacksonian phenomenon but absence of sensory or tumor symptoms. On autopsy there was found a glioma of large size in the right centrum reaching into an immediate subcortical position.

A Case of Cortical Blindness, Exhibiting Apraxic Symptoms.—Dr. JOHN H. W. RHEIN of Philadelphia reported the case of a man of fifty-five years, who had been ill for three years and had developed progressive loss of eyesight together with inability to recognize the position of his body or limbs; loss of the sense of location; loss of tactile and temperature sense in the left hand. Stereognostic perception was impaired on both sides. There was no palsy, but the left hand and arm were contractured and could be moved only reflexly. There was gradual mental failure toward the last and finally death from exhaustion. Autopsy revealed an area of softening in the cortex in the occipitoparietal region on the right side of the brain. Sections showed degeneration in the white matter of both occipital lobes and part of the parietal lobes.

Dr. JOSEPH COLLINS of New York said this patient had once been under his care and that he considered that the case presented all the clinical manifestations of a type of arteriosclerosis which had not been definitely described and which resulted in cerebral softening. He thought the areas of softening described would account for all the objective and subjective signs. He asked whether the autopsy showed arterial lesions and whether serial sections had been made of the brain ganglia and how much degeneration existed.

Dr. ALFRED GORDON of Philadelphia said that in hemiplegia of cortical or subcortical origin there was frequently change of function in the opposite side and asked whether a systematic study of the corpus callosum had been made.

Dr. J. H. W. RHEIN of Philadelphia said, in closing, that there was a general arteriosclerosis. The microscopic lesions of the brain were rather those of perivascular distension and infiltration. This was also present in the white matter, which showed degeneration. The corpus callosum was carefully studied.

Treatment of Facial Spasm by Means of Injections of Alcohol.—Dr. HUGH T. PATRICK of Chicago read this paper, reporting three cases of facial spasm which he had treated by injection of alcohol into the seventh nerve trunk. Two showed good results and in the third there was failure to reach the nerve. Fifteen drops of a 75 per cent. solution of alcohol was injected by means of a hypodermic syringe with a needle of medium length into the trunk of the nerve just in front of the mastoid over the stylomastoid foramen. The nerve was not easy to locate. As soon as the alcohol strikes it, there develops complete facial paralysis which disappears in several months and which is not nearly so annoying to the patient as the spasm. In neither of the author's cases did the spasm return after recovery from the paralysis which resulted from the treatment.

Dr. J. J. PUTNAM of Boston asked whether Dr. Patrick considered that the injection of the alcohol induced a special pathological condition of the nerve and how he explained the result.

Dr. ALFRED GORDON of Philadelphia asked whether the author had had any experience in treating in this way spasms following Bell's palsy.

Dr. H. M. THOMAS of Baltimore asked how long the spasms had existed in Patrick's first case. He had seen a number of cases of operation for facial spasm and thought the palsy which resulted as bad as the spasm. The only case he had seen cured was one of anastomosis with the spinal accessory nerve done by Dr. Cushing. In this case emotional power of motion returned before voluntary power, a phenomenon he could not explain.

Dr. G. L. WALTON of Boston emphasized the presence of other obsessive tendencies in the victims of tic. Sufferers from spasm may be also neurotic, but not necessarily obsessive. He also spoke of the importance of carefully correcting refractive error before resorting to direct attack upon the seventh nerve. He mentioned an obstinate case of many years' standing completely cured by a final adjustment of glasses and muscular exercises for insufficiency.

Dr. CHARLES E. BEEVOR of London, England, asked if there had been any twitching when the needle entered the nerve. He thought, as the nerve was a motor one, there ought to be twitching as soon as the needle entered it.

Dr. RAMSEY HUNT of New York asked if Dr. Patrick had found any etiological factor in these cases. He thought it might be reflex, for in going over the literature he had found that many cases showed some auditory disturbance, aneurysm pressing upon the facial nerve or some such cause. He thought that part of the seventh nerve might be sensory and thus convey the afferent impulses.

Dr. W. G. SPILLER of Philadelphia considered the cases of which Dr. Patrick spoke to be cases of peripheral facial palsy. When regeneration occurred connections of nerve cells took place which were different from those which had previously existed and in this way cells became connected with the upper or lower branches of the facial nerve which had not been in contact before. This accounted for the fact, as noticed, that the facial spasm was always synchronous with closing of the eyelids. He had tested this many times and always found it so.

Dr. J. J. PUTNAM of Boston said he wished to express his acquiescence in what Dr. Spiller had said.

Dr. PATRICK, in closing, said that he did not know how alcohol acted. In answer to Dr. Thomas he stated that his first case of facial spasm had been of ten years' standing. He did not put forward the alcohol treatment as a radical cure nor did he claim originality for it. If spasm returned after the palsy vanished he could see no

objection to repeating the treatment. The muscles did not twitch when the needle was inserted nor was he sure if he had touched the nerve or not. He knew nothing of the etiology in his cases.

A Special Diagnostic Phenomenon in the Attitude of the Head in Cerebellar Diseases.—Dr. Alfred Gordon of Philadelphia presented this communication and said that a certain position of the head in cerebellar disease was not infrequent. Very often the head was inclined towards the side of the lesion. It was of importance when cranial nerve symptoms were absent. The writer had observed in six cases, four of which came to autopsy, the following phenomenon: During the course of the disease and sometimes at the beginning the head had changed its position. Then when it was forcibly turned to its former position, vertigo and pain in the head ensued. The autopsies of Gordon's cases had proved that the phenomenon is of diagnostic value, as when it occurred, it enabled one to determine the seat of the tumor.

Dr. Joseph Collins of New York asked in what way the position of the head described by Dr. Gordon differed from that described by Hughlings Jackson twenty-eight years ago.

Dr. W. C. Krauss of Buffalo said he had seen cases in which this position of the head was present to a remarkable degree.

Dr. M. Allen Starr of New York said that twelve or fourteen years ago he had made a collection of forty cases of cerebellar tumor in order to determine whether the direction of the staggering gave any clue to the side of the tumor. In one-third of the cases the patient staggered toward the side of the tumor and in two-thirds away from the tumor. Since then he had collected others until now he has a series of 100 cases and has come to the conclusion that the direction of staggering gives no clue to the location of the tumor.

Dr. Joseph Fraenkel of New York said that forced movements and forced attitudes of head or extremities were commonly observed in cerebellar disease. The general diagnostic value of these motor phenomena was undisputed and had been frequently described in literature. More debatable, and hardly yet to be used as a guide, was the value of these phenomena as an indication of the exact location of a lesion. The opinions concerning this question to be found in the literature were very contradictory. The physiological literature of this question made statements quite contradictory to those found in the clinical literature.

Dr. Frank R. Fry of Cincinnati said that a few years ago he had reported a case of frontal-lobe tumor which gave all the signs of a cerebellar tumor. He thought the symptoms due to pressure of the cerebellum against the rim of the foramen magnum.

Dr. Philip Coombs Knapp of Boston said that in a good many tumors in different parts of the brain a change in the position of the head would cause increase in dizziness and headache. The head was apt to be turned to the same side as the tumor so as to bring the tumor into the lower portion of the cranial cavity and thus lessen the pressure on other parts of the brain. In cerebellar tumor where ordinarily these symptoms were more marked they would be exaggerated by change in position of the head.

Dr. J. Ramsey Hunt of New York, said he had observed two cases of cerebellar softening in which the head was fixed and he thought this was done to compensate for loss of cerebellar function. He had never been able to determine any fixed position of the head which could be used as a localizing factor.

Dr. Charles E. Beevor of London, Eng., thought the position of the head so very uncertain that it was not of much value for diagnostic purposes. In a very large number of cases there had been no characteristic position of the head.

Dr. John H. W. Rhein of Philadelphia said that the position of the head was not pathognomonic.

Dr. T. H. Weisenburg of Philadelphia said that he has recently collected a number of cases of cerebellar tumor and in most of the cases the cerebellar attitude had been of no value. In two cases there had been diplopia and the patients held their heads in this position to avoid this symptom. When paper was held over their eyes the position of the head was changed.

Dr. Gordon, in closing, said that what he wished to emphasize was that in case of cerebellar tumor the head was first inclined to one side but later inclined to the other side, and that the side to which the head latterly inclined was the side of the tumor.

Two Cases of Aphasia Relieved by Operation, and Their Bearing on Modern Theories of Aphasia.—Dr. B. Sachs of New York presented this paper and said that his first case was a man of thirty-eight who had fallen, striking his head on the right side. Operation had been performed over the site of the fracture but the patient continued unable to talk. The writer had seen the patient five months later and advised operation on the left side. This has been done and a cyst removed from the third frontal convolution. By reeducation the power of talking had been fully restored. The second case was a woman of forty-two who was found suffering from typical sensory aphasia with other evidences of organic brain lesion. Operation was performed in the left temporal region and an abscess found in the temporal lobe. Within a week the aphasia had entirely disappeared. The writer thought that in practice the traditional lines in reference to aphasia should be followed.

Dr. H. H. Hoppe of Cincinnati reported the case of a man who after injury gradually developed parietal sensory aphasia. On operation a small spicule of bone was found under the temporal muscle and around it a cyst pressing upon the temporal lobe. The patient improved after the operation but never completely regained the power of naming objects.

Dr. Joseph Collins of New York said that he considered Dr. Sachs' first case not one of aphasia but one of anarthria. He thought the case a good example in support of Marie's theory.

Dr. Joseph Fraenkel of New York said that Dr. Sachs' first case had been studied by him and it was plainly one of motor aphasia. There was no evidence of paralysis. He thought the case taught that we must still adhere to traditional lines in reference to aphasia.

Dr. Adolph Meyer of New York thought that speaking of points of vulnerability of the speech mechanism and the exact site of speech mechanism were two entirely different things and should not be confounded.

Dr. Sachs, in closing, said that he did not think his cases could be used in illustration of the difference in view between Marie and Déjerine in reference to aphasia and that he did not have that intention in presenting them. He insisted that his first case was one of aphasia and not anarthria, as Dr. Collins claimed.

The Cerebral Arterial Distribution.—Dr. Charles E. Beevor of London, England, presented this paper and related his experience in injecting the various blood-vessels of the brain with soluble colors under uniform pressure and illustrated his results by means of lantern slides. The pressure was maintained by means of pressure bottles, the canulæ entering the various arteries being fed by way of the color bottles from a several-way tube which formed the outlet of the pressure bottle. At various times two, three, four or five of the arteries of supply to the brain had been injected simultaneously. The injections were made in fresh brains which were afterward hardened in formalin. The author had been doing this work for the past six years and had successfully injected and studied about eighty brains.

Dr. M. Allen Starr of New York said that he thought

the members were extremely indebted to Dr. Beevor for his beautiful demonstration and wonderful specimens. A great many of the points, and especially the distribution of the vessels to the internal capsule and the basal ganglia, were quite new to him, and that the work reported should appeal to all as being a very valuable original contribution to the subject.

Dr. H. T. Patrick of Chicago thought one could be impressed to the proper degree with the originality of the idea and the patience and skill required only when he had an opportunity to look over Dr. Beevor's entire collection of brains and see how uniformly successful the results have been.

Dr. J. J. Putnam of Boston asked Dr. Beevor if he had attached any functional significance to this distribution of the vessels.

Dr. Adolph Meyer of New York asked whether any studies had been made in reference to anastomosis of the various arteries and the possibilities of supply in case of occlusion.

Dr. Joseph Collins of New York asked if there was anything in Dr. Beevor's investigation which would indicate the distribution of the end arteries.

Dr. Beevor in closing said he did not think the distribution had any functional significance, but was purely anatomical. In reference to anastomosis and end arteries he said that the basal arteries are certainly end arteries; others are anastomotic. However, there is very little communication between the various branches of the same artery.

The Weight of the Brain as Influenced by Nutrition or Disease.—Dr. H. H. Donaldson of Philadelphia reported his experiments with the brains of white rats and compared these results with those observed in man. It was found that the normal brain weight begins to decrease early in life, in man in the eighteenth or twentieth year. In disease the loss of weight is greater in chronic than in acute diseases. While the loss in weight of the other tissues of man in disease amounted to 24 per cent., that of the brain was only 3 per cent. As a result of improper nutrition in otherwise healthy subjects the brain weight was reduced 4 per cent. There was no loss in the spinal cord in either case.

Dr. J. J. Putnam of Boston asked upon what structures in the brain the loss chiefly fell, whether upon the nerve elements or the myelin sheath.

Dr. B. Sachs of New York asked if the loss in brain weight was greater or less than that of other organs, or whether the brain simply partakes in the general deterioration of nutrition.

Dr. Donaldson, in closing, said that the only element of the loss studied was the amount of water, which was found to be greater in amount in the diseased or poorly nourished brain. He said the whole reason for the inquiry was to show the truth or falsity of the general belief that the brain was unaffected by general disturbance of the body. The loss was more than in the skeleton, but less than in the muscles. No comparisons had been made with other viscera.

Dr. E. C. Spitzka of New York said that in the study of brains of distinguished men allowance had repeatedly been made for a decrease in weight up to 150 grams.

A Brain Tumor Localized and Completely Removed, with Some Discussion of the Symptomatology of Lesions Variously Distributed in the Parietal Lobes.—Drs. Charles K. Mills and Charles H. Frazier of Philadelphia presented this paper, in which they reported the case of a woman, forty-five years of age, in whom the dominating focal symptoms were left lateral homonymous hemianopsia and hemiataxia, the latter especially in the upper extremities. There were slight hyperesthesia, hypasteroeognosis, and hemiparesis. The general symptoms were double optic neuritis, headache, occasional vertigo, nausea, and vomiting. Some mental apathy and marked depression were present. A large parietal osteoplastic flap was raised, and at the upper back part of the opening a large cyst revealed. This was emptied and the entire sac removed. The patient made a good recovery from the operation. All focal symptoms disappeared but the hemianopsia, which was gradually improving. The optic neuritis subsided slowly. It was shown that at least four symptom-complexes useful in guiding operations can be determined in cases of tumor or other lesion of the parietal lobe. The manner in which the focal symptoms and the optic neuritis cleared up after the operation was shown, as was also the importance of rapid one-step operations. The case was regarded as one of radical cure, the microscopic examination showing the cyst removed apparently of a benignant type.

Dr. B. Sachs of New York said that in four cases of his in which the tumor could not be located, as there was no localizing symptom, the optic neuritis had been improved very much by exploratory operation. He believed in exploratory operation in cases where the tumor cannot be localized.

Dr. Charles E. Beevor of London, England, congratulated Drs. Mills and Frazier upon their splendid results. He said he had had a case very much like this one, on which Victor Horsley operated. There was improvement, but the hemianopsia persisted. The difference, he thought, was due to the depth to which the tumor extends. If it extends deeply and destroys the optic radiations there will be no improvement in the hemianopsia.

Dr. J. J. Putnam of Boston reported a case of endothelioma of the cerebellum, operated upon with removal of the tumor, which continued to do well five years after the operation. In a case of hemianopsia in which the tumor was at the base of the brain, involving the fifth nerve on both sides, a decompression operation had given excellent results.

Dr. M. Allen Starr of New York said he was in favor of decompression operation. He had had excellent results in two cases recently. There were cases which result in large hernias and death, but if one in ten could be saved the operation was justifiable. He agreed that brain operations should be done in one stage, and that the surgeon should do everything to hasten the operation and diminish shock.

Dr. Theodore Diller of Pittsburg said that he also was in favor of decompressive operation. He had had a patient recently who showed seven diopters of optic neuritis. Ten days after operation the patient was completely relieved of headache, and although his vision was only 5/200 before the operation he could afterward read a typewritten page.

Dr. Mills, in closing, said that he is in favor of decompressive operation, but that his case was presented, not as one of decompression, but of radical cure.

Dr. Charles H. Frazier of Philadelphia said, in closing, that he quoted the statistics which place the operable tumors at 6 per cent. because he thought that was the opinion of the medical profession, but that in his own experience the operable tumors were 15 to 20 per cent. He believed that if we would explore more routinely we would find the tumor oftener than we do, and that we would find them earlier, and thus get a greater percentage of operability.

Hysterical Insanity, with Report of Some Illustrative Cases.—Drs. Theodore Diller and George J. Wright of Pittsburg presented this paper, and said that hysteria may express itself chiefly by mental symptoms constituting a psychosis which may counterfeit the various other psychoses more or less closely; and this occurs more frequently than is commonly supposed. The recognition of hysterical insanity is important, both from the prognostic and the therapeutic points of view. Inconsequential answers, to which Ganser directed attention, has done much to aid in the diagnosis and to create interest in the

subject of hysterical insanity. Inconsequential and paradoxical conduct are often seen, and are of great diagnostic value. On the negative side hysteria presents a psychosis which does not conform to the pattern of any of the ordinary insanities. The theatrical and dramatic features seen in hysteria generally are to be observed in the hysterical psychoses. Some illustrative cases were given.

Dr. Charles L. Dana of New York said that he had read a great many articles on hysteria, and that every writer had a different conception of it, so that the subject was very puzzling. We could get along much better if the term hysteria was dropped entirely. He did not think we would ever get a clear idea of psychoses so long as we try to establish an hysterical psychosis. He did not say this in criticism of Dr. Diller's paper, which he thought very timely. He said he would like to hear some clear-cut description of this psychosis. He had never seen any clear-cut picture which he could qualify as belonging to this group, although he had seen hysteria combined with some form of insanity.

Dr. Henry R. Stedman of Boston said that if there was such a thing as hysterical psychosis it must be based on physical stigmata. He had met with very few cases of that type, and thought the term hysterical insanity was disappearing from our nomenclature.

Dr. Diller, in closing, said that it was very hard to define insanity, and that he was unable to define hysteria. He thought hysterical insanity was hysteria which presented such profound, prolonged, exaggerated mental symptoms as to constitute the person in the ordinary practical way an insane person.

Thursday, May 21—Second Day.

Localized Epileptic Convulsions Without Gross Lesions of the Cortex of the Brain.—Dr. Herman H. Hoppe of Cincinnati read this paper, confining his remarks to cases showing genuine epileptic convulsions, and did not include those of the Jacksonian, or reflex, type. Only cases in which the physical examination was negative were selected. In one class of cases there developed, without previous epilepsy, a status hemiepilepticus which resulted fatally in a short time. In these cases operation was futile. It was often difficult, even after prolonged observation, to decide whether a given case of localized epileptic seizure was due to an organic lesion or not, as there were so many forms of trauma and disease which might cause an organic lesion. We must, however, conclude that there were cases which were not produced by organic lesion. When the loss of consciousness occurred first and the convulsions followed, and were limited to a small group of muscles, they were undoubtedly epileptic, and not Jacksonian. There was a second class of cases, in which attacks recurred for years and in which there was no progression. The attacks always occurred in the same way. In Jacksonian epilepsy there was steady progression. Differentiation must also be made from hysterical epilepsy.

Dr. L. Pierce Clark of New York said that in a series of eleven cases of status hemiepilepticus at the Craig Colony only one had died. It was not uncommon for cases of this type to go through attacks fifteen times or more. He had looked over the cases Dr. Hoppe mentioned and thought they were not without suspicion or organic lesion. He thought that the underlying lesion in focal epilepsy was a chronic meningoencephalitis.

Dr. F. E. Southard of Boston thought the possibility of a bacterial etiology should be looked into in these cases.

Dr. W. G. Spiller of Philadelphia thought that in cases of doubt as to the presence of an organic lesion operation should be done early, even if it turned out to be only exploratory, for, in case of tumor, success could be assured only by early operation.

Dr. B. Sachs of New York stated that many cases of epilepsy were due to a lesion sustained early in life. That there was some change, either microscopic or macroscopic, we must maintain until there was very strong evidence to the contrary. In a case in which focal epilepsy comes on suddenly in one who has never had epilepsy before, the idea of operation might well be entertained.

Dr. J. J. Putnam of Boston said that, in these cases, while there was no local lesion, there was an area of maximum irritability.

Dr. F. X. Dercum of Philadelphia stated that, in a disease so hopeless as epilepsy, operation should be done if there was only a shadow of a chance of its doing good.

Dr. C. K. Mills of Philadelphia thought the further the question of operation was studied the greater the success. A species of Jacksonian epilepsy sometimes occurred inside the general epileptic attack, and, when this was the case, operation was indicated.

Dr. Hoppe, in closing, said he agreed that microscopic changes could perhaps be found in all cases of so-called idiopathic epilepsy. He believed in operation in the cases Dr. Spiller spoke of, but his cases were not of that kind.

Sane Prototypes of Insane Mental Processes.—Dr. Theodore H. Kellogg of New York, who read this paper, said that insanity was never a spontaneous mental variation, but always evolved on persistent lines of mental action. All insane mental processes had their correlative sane prototypes, which had not been adequately studied. He compared the insane mental processes with their sane prototypes in the following order, viz., delusions of the sane as the casual prototypes of the false beliefs of the insane; extremes of conduct of the insane as uniformly modeled after sane exemplars: insane emotions, propensities, and impulses as directly derived from their sane prototypes; the hallucinations and illusions of the insane as a mere projection of the prototypic sensorial disorders of sanity.

Dr. Henry R. Stedman of Boston said that the only mental conditions it seemed hard to trace were the perversions of instinct, such as sexual perversions and the eating and drinking of loathsome things.

The Course of Sensory Impulses in the Spinal Cord.—Dr. Carl D. Camp of Ann Arbor, who read this paper, said that other sensations than pain and temperature, as first taught by van Gehuchten, were conveyed in the spinal cord by fibers which take their course in different parts of the cord. Pain entered the posterior horn from the posterior root, and ascended in the gray matter for variable distance, varying from two to eight segments, crossed in the posterior commissure, ascended in Gowers' tract to the cerebrum either directly or indirectly. Heat and cold were conveyed by the posterior roots and followed the same course as the pain sense, but were distinct and separate. Tactile sensation passed by the posterior roots up in posterior columns on the same side without decussation. The sense of position came from the joints; motion from the muscles. They entered the posterior horns and ran to the cells in Clark's column, and possibly ascended in the gray matter of the same side for a number of segments, then up in the direct cerebellar tract of the same side.

A Contribution to the Diagnosis of Epilepsy and Dementia Præcox.—Dr. L. Pierce Clark of New York read this paper, and presented the results of a joint study with Dr. E. W. Scripture upon the epileptic voice, in which they had found a characteristic and constant loss of melody. The epileptic speech was "plateau" in form. No other nervous or mental disorder showed the epileptic voice type. The "voice sign" was dependent upon the chronic exhaustion or degeneration of those cortical elements which constitute the brain pathology of epilepsy proper. In three-fourths of all cases of epilepsy one might detect the voice sign without any other knowledge of the disorder being present.

Dr. Clark also showed four colored drawings of the fundus changes found by Dr. Tyson and him in all cases of dementia precox. He laid stress upon the point that one must consider all the signs and symptoms of the eye syndrome to depend upon the syndrome in the prognosis and diagnosis of this psychosis.

A Symptom-Complex of Occlusion of the Posterior Inferior Cerebellar Artery.—Dr. W. G. Spiller of Philadelphia read this paper, and said that the symptom-complex of occlusion of the posterior inferior cerebellar artery was as follows: Sudden onset, usually without disturbance of consciousness; motor power in the limbs and fifth nerve distribution not affected, or at most temporary and slight weakness of the limbs on the side opposite the lesion. Diminution or loss of pain and temperature sensations in the limbs of the side opposite the lesion, and in the fifth nerve distribution on the side of the lesion, or also in the side of the face opposite the lesion; the disturbance of sensation in the face might be only in the first, or first and second branches, or in the whole distribution of the nerve, depending on the upper level of the lesion. Subjective pain, or some form of paresthesia in the area of disturbed objective sensation. Tactile sensation usually intact in all parts. Sense of position usually intact, but sometimes affected. Occasionally a zone of intact sensation in the neck between the zone of disturbed sensation in the limbs of one side and the face of the opposite side. Ataxia in the limbs on the side of the lesion, indicating that the fibers of coordination did not decussate below the medulla oblongata. Tendency to fall toward the side of the lesion; tendency for the head to drop toward the side of the lesion. Nystagmus bilateral, more intense when the eyes were directed toward the side of the lesion. Ménière's symptom-complex; vertigo, revolving vertigo, auditory hallucinations, vomiting; intense headache occasionally. Disturbance of micturition occasionally. Paralysis of the muscles of deglutition on the side of the lesion (vagus), but causing complete inability to swallow, with impaired sensation of the pharynx. Paralysis of the soft palate on the side of the lesion. Paralysis of the larynx on the side of the lesion, voice hoarse, and speaking in a whisper (loss of phonation, with preservation of articulation). Tongue possibly a little weak on the side of the lesion, but the weakness usually not persistent, as the hypoglossus nerve and nucleus usually escaped. Taste lost in anterior two-thirds of tongue occasionally. Paresis of the sixth nerve on the side of the lesion occasionally. Paresis of the facial nerve on the side of the lesion occasionally. The paresis of the sixth and seventh nerves was often absent in a lesion confined to the posterior inferior cerebellar artery, and possibly it might be caused by further extension of the area of softening. Sympathetic disturbance; smallness of pupil, narrowing of palpebral fissure, retraction of eyeball on the side of the lesion. Loss of sweating in the face on the side of lesion occasionally, or increase of sweating in the face on the side opposite the lesion occasionally. Obstinate hiccough. Hemiasynergy on the side of the lesion. Pulse might be rapid from paralysis of the vagus. Loss of tendon reflexes, including the patellar tendon reflex, or in other cases exaggeration of the tendon reflexes. Disturbance of hearing.

Thrombosis of the Posterior Inferior Cerebellar Artery, with Autopsy Revealing the Lesion in the Medulla.—Dr. Henry M. Thomas of Baltimore read this paper, and made further reference to two cases reported in 1896, the second of which ended fatally two and a half years after the onset, but autopsy was refused. A third case was that of a man of fifty-nine, who a week before entering the hospital had intense giddiness, pain in left side of face, difficulty in talking and swallowing, drooping of left eye, and weakness of left face. Examination showed an extremely ill man, with marked vascular, cardiac, and renal involvement. Sensorium dull. Constant hiccough. Left pupil smaller than right. Slight left ptosis. Slight divergent squint of left eye. Dissociated sensory disturbance on left face, right arm, and leg. No sweating of left side of face. Death in four days. Autopsy, among much else, revealed thrombosis of the left posterior cerebellar artery.

Dr. B. Sachs of New York said he had had a patient with unquestionable thrombosis of the inferior cerebellar artery a short time ago, who had practically recovered.

Dr. Theodore Diller of Pittsburg said he had seen three or four cases such as described in these papers.

Dr. Charles E. Beevor of London, England, said he had not come across any case similar to those described.

Dr. D. J. McCarthy of Philadelphia said it should be borne in mind that there was a wide variation in the posterior branches given off by the circle of Willis, hence the symptoms might differ greatly, dependent upon which vessels were involved.

Dr. Spiller, in closing, said the symptom group he described was so striking that, if it was kept in mind, a diagnosis could be made without difficulty.

Dr. Thomas, in closing, agreed with Dr. Spiller, and said that some thirty cases could be collected, both with and without autopsy, showing this sharp cut symptomatology.

Report of a Case of Myasthenia Gravis with Negative Pathological Findings.—Dr. J. Arthur Booth of New York read this paper, and reported the case of a lad of eleven years who presented the familiar symptom-complex of the disease, with a rather acute invasion, following an operation for adenoids. Death from failure of respiratory musculature. Examination of the central nervous system negative and specimens taken from muscles and nerves did not show anything abnormal. Thyroid, parathyroid, and pituitary glands normal. Slight simple hypertrophy of thymus gland.

Dr. N. E. Brill of New York said he regarded the enlargement of the thymus in this case as distinctly pathological. Abnormalities of the thymus occur in 20 per cent. of the cases of myasthenia gravis.

Dr. W. G. Spiller of Philadelphia said he had recently had a case of myasthenia gravis found to be eliminating an excess of calcium chloride in the urine. He was put on calcium chloride, with distinct improvement.

Dr. Booth, in closing, said he did not agree with Dr. Brill that the thymus in his case was pathological.

Rest Treatment in Relation to Psychotherapy.—Dr. S. Weir Mitchell of Philadelphia read this paper, and said that he had invented the rest treatment in 1874, and in 1876 had written a book on the subject, which was soon translated into seven foreign languages. The treatment was not used by others until 1877, when it was administered by Dr. Wm. Goodell. In 1879 it was utilized by Dr. Playfair in England. He had had no reason to complain of the reception of the method of treatment by the profession at large, but many unfair criticisms of it had been made by eminent men, who ought to know better. The good effects were assigned to various influences, some of which did not even form part of the method. Dubois had been an especially unfavorable critic of the Weir Mitchell treatment, a fact which grew out of Dubois' failure properly to understand the method. Dr. Mitchell quoted from this critic's writings to show that his strictures were not warranted. Charcot had claimed priority for isolation, but Dr. Mitchell asserted that he was the first to make use of this measure in the lesser neuroses. The rest treatment was especially adapted to the treatment of neurasthenia, hypochondria, and hysteria. Neurasthenia might be, and often was, a purely physical affection, and psychotherapy would do distinct harm in such cases. Pure hypochrondria was a mental disease, but it was rare. Absolutely nothing was known of hysteria. He believed the clergyman could often give material aid to the physician. Hardly a week

went by that he did not seek the assistance of the clergyman in the treatment of a case. However, no organic disease could ever be relieved by influence exerted upon the mind. Some conditions, as masturbation, irritable temper, and kleptomania were at times favorably influenced by inflicting bodily pain, and Dr. Mitchell sometimes resorted to this measure. Hypnotism was not largely useful in the treatment of disease.

Dr. F. X. Dercum of Philadelphia said the rest treatment was certainly original with Dr. Mitchell, and that the only remarkable fact about the method was that it made use of simple physiological means. The danger in the newer methods of so-called psychotherapy was that they would be used to the neglect of physiological means.

Dr. J. J. Putnam of Boston said that the contribution Dr. Mitchell had made to medicine was a great one, and as complete as Minerva springing from the head of Jupiter. He thought no small factor in Dr. Mitchell's success was his glorious courage and inspiring personality. He agreed with Dr. Mitchell that neurasthenia was often purely physical in nature.

Dr. Charles L. Dana of New York said that Dr. Mitchell's colleagues had never questioned the value of this original contribution to therapeutics. He thought in reference to psychotherapy that it was true that a great many people were going to the wrong place, such as Christian Science and the like, for treatment, and that physicians should acquire a knowledge of all that was good in the way of treatment by whatever name it was called, and be prepared to use it.

Dr. B. Sachs of New York thought that the association should stand in opposition to the psychotherapy idea as recently developed, because it had been horribly overdone, but that physicians should go along as they have always done exerting their influence as physicians, often, perhaps unconsciously, but nevertheless with good effect. He did not think it necessary to coin any new terms.

Dr. Charles E. Beevor of London, England, said he had had in Dr. Mitchell's paper the most delightful treat of his life. He stated that in England the Weir Mitchell treatment was used with the greatest success; also that psychotherapy had not yet invaded the shores of England.

Dr. Philip Coombs Knapp of Boston said he endorsed absolutely everything that Dr. Mitchell had said. The physical condition of the patient was too often overlooked. The most important thing was to put the patient on the best possible physical basis.

Dr. Philip Coombs Knapp of Boston, as chairman of a committee appointed to collect data as to the existence of general paresis and general brain diseases in railway employees, reported that the committee had gone far enough to learn that these diseases were sufficiently prevalent to constitute a grave danger to the traveling public, and that it would be desirable to have locomotive engineers and train dispatchers examined regularly by competent neurologists.

Friday, May 22—Third Day.

The Types of Encephalitis.—Dr. E. E. Southard of Boston read this paper, and considered only the exudative forms of encephalitis, which fall into three groups: (1) Acute, including coccal and typhoid forms; (2) subacute, including tuberculous and luetic forms; (3) the progressive form, or dementia paralytica.

Occupation Neuritis of the Deep Palmar Branch of the Ulnar Nerve. A Well-defined Clinical Type of Occupation Atrophy of the Hand.—Dr. J. Ramsey Hunt of New York read this paper, and said he would isolate a group of occupation palsies of the hand having the following clinical characteristics: (*a*) Atrophic paralysis of the intrinsic muscles of the hand, supplied by the deep palmar branch of the ulnar nerve. (*b*) Reactions of degeneration in the intrinsic muscles of the hand, supplied by the deep palmar branch of the ulnar nerve. (*c*) No objective sensory disturbances of the hand or fingers They were to be regarded as due to compression neuritis of the deep palmar branch of the ulnar nerve as it passed between the muscles of the hypothenar region on its way to the deeper structures in the palm of the hand.

Dr. F. W. Langdon of Cincinnati said the association was much indebted to Dr. Hunt for the way in which he had worked out this form of neuritis. He thought there was a tendency erroneously to ascribe this condition to progressive muscular atrophy.

Dr. Philip Coombs Knapp of Boston said he was very appreciative of Dr. Hunt's careful work, and that his explanation was quite convincing; also that these cases had often been described as beginning spinal myelopathy.

Confusional Insanity and Dementia Præcox.—Dr. Philip Coombs Knapp of Boston read this paper, and stated that too sharp a distinction had been drawn between confusional insanity and dementia præcox, so-called, in the endeavor to establish two distinct diseases. The confusion of the former and the stupor of the latter were only two stages of what was really the same disease. One was a disturbance of projection and the other of perception. The pathogenesis of these conditions had not yet received sufficient study. Intoxication and exhaustion played an important rôle. The so-called dementia præcox was not always precocious, as it might begin after fifty, neither did dementia always occur. Dementia præcox, as a term, characterized the disease too strongly as hopeless, for it was not ordinarily progressive, and was sometimes curable.

Dr. F. W. Langdon of Cincinnati said he agreed with the essayist.

Dr. Alfred Gordon of Philadelphia said we were too ready to jump at a diagnosis of dementia præcox as soon as the patient was found to be a young person.

Facial Paralysis.—Dr. G. A. Waterman of Boston read this paper, which was based upon thirty-three cases of peripheral facial palsy. There was very slight difference in the side or sex affected or in the season of the year. However, exposure to cold and drafts played an undoubted causative rôle; as did also the toxins of syphilis, nephritis, and the like. Ear disease also played a part. The character of pain at the beginning was of no prognostic import.

Prognosis of Spinal-cord Tumors, with Operation.—Dr. William C. Krauss of Buffalo read this paper, and said that the first operative case of spinal cord tumor was that of Gowers and Horsley in 1888. There was one series of 50 cases in the first ten years; a second series of 50 in the next five years, and a third series of 50 cases in the next five years. The prognosis had gradually grown better and better, and was especially good in cysts and sarcoma.

Delayed Apoplexy ("Spätappoplexie") with Report of a Case.—Dr. Alfred R. Allen of Philadelphia read this paper, and concluded that traumatic delayed apoplexy was an entity; that it might be due to an occlusion of the arteries; that when hemorrhage occurred it was not due to necrosis outside of the artery. The artery changes were the result of the trauma.

Officers.—*President,* Dr. S. Weir Mitchell of Philadelphia; *First Vice-President,* Dr. Pearce Bailey of New York; *Second Vice-President,* Dr. F. W. Langdon, Cincinnati; *Secretary and Treasurer,* Dr. Graeme M. Hammond, New York; *Councillors,* Drs. H. M. Thomas of Baltimore and Charles W. Burr of Philadelphia.

The next meeting will be held in New York, the date to be determined by the Council.

Cancer of the Larynx.—There is no part of the body in which cancer occurs which is more favorable for cure than inside the larynx, just as there is no part in which it is less favorable than when it has become extrinsic to the larynx. Hence, there is an urgent appeal for early diagnosis by laryngoscopic examination in cases of hoarseness even when this symptom exists in but a slight degree.—*St. Clair Thomson.*

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, April 20, 1908.

THE PRESIDENT, DR. ROBERT T. MORRIS, IN THE CHAIR.

DR. MAX EINHORN demonstrated an apparatus which simplified the Jacoby-Solms method for the pepsin determination of the stomach contents.

Various Clinical Types of Acute Dilatation of the Stomach.—Dr. ROBERT COLEMAN KEMP stated that one of the main objects of his paper was to emphasize the necessity of a careful examination of the abdomen in all cases, and to demonstrate some of the clinical conditions with which acute dilatation of the stomach might be associated, or in the production of which it might be a prominent factor. It was clearly evident that four anatomical types of this condition existed. 1. Acute dilatation of the stomach alone. 2. Acute dilatation of the stomach supervening upon an existing chronic dilatation (the latter due to stenosis of the pylorus). 3. Acute dilatation of the stomach and duodenum; the most fatal type. 4. Acute dilatation of the stomach and intestines; a mixed type. In discussing the clinical types of acute dilatation of the stomach, Dr. Kemp said that among the symptoms pointing to the nervous system were convulsions in children, epilepsy, migraine, tetany and chorea. Among the cardiac symptoms of which acute dilatation of the stomach was a direct causative agent were the so-called dyspeptic asthma, tachycardia and pseudo-angina pectoris. The effect of the condition on the pulse, respiration and blood pressure were also recognized. In typhoid fever, when distention occurred, it was due to the general systemic infection or else to dietetic errors, and the mixed type, acute dilatation of the stomach and intestine, was quite common. Several fatal cases of the acute gastro-duodenal type had been recorded, but they were rather rare. In the mild cases there was often no vomiting. In acute distention with hemorrhage frequent gastric lavage would relieve the acute dilatation of the stomach and lessen intraabdominal pressure. In pneumonia, Broadbent and Oastler had called attention to the dangers of tympanites, and Holt referred to the danger from dilatation of the stomach in pulmonary disease. The acute gastroduodenal type of dilatation of the stomach had occurred with fatal results on several occasions, with typical symptoms, evidently due to involvement of the vagi during the course of pneumonia. The most frequent type, however, was the mixed type of acute dilatation of the stomach and intestines. The toxins of pneumonia or improper feeding were the chief causes. Acute dilatation of the stomach, Dr. Kemp said, might occur from infancy to old age. Three-fourths of all the severe cases, according to Conner, developed during adolescence or early adult life. It was well, perhaps, to classify the cases as far as possible under the following groups: 1. Cases ascribed to errors in diet. 2. Cases occurring during the active stages of severe infectious diseases. 3. Cases occurring during convalescence from severe or long-continued disease. 4. Cases developing after injury to the head or spine, or after trauma to the abdomen. 5. After operations of all types; abdominal and elsewhere. 6. Cases with other lesions, as with retroperitoneal abscess connected with the duodenum. 7. Cases associated with disease and deformity of the spine. 8. Cases without apparent cause, as after a paroxysm of laughter. The author then described in detail the symptoms and physical signs of acute dilatation of the stomach and intestines, and reported cases illustrative of the various types of the condition.

Perforating Ulcer of the Alimentary Canal.—Dr. H. BEECKMAN DELATOUR reported four cases of this condition. (See page 361.)

Local Treatment of Chronic Diarrhea.—Dr. SAMUEL G. GANT read this paper. He stated that chronic diarrhea was of common occurrence; its progress was insidious and its results were far-reaching. This class of patients not only suffered from exhaustion and loss of weight brought about as a result of the frequent evacuations, but also from nervous phenomena, anemia, skin eruptions, headache, and other manifestations of intestinal autointoxication and underfeeding. In recent years, the author said, he had had unusual opportunities for studying this complaint, and his observations had led him to believe that the primary cause of chronic diarrhea was situated in the colon, and more especially in the sigmoid flexure and rectum very much more frequently than was generally supposed. Colitis was by far the most common cause of this complaint, and it might be catarrhal, tuberculous, dysenteric, syphilitic, or gonorrheal in character. The local treatment of colitis might be non-operative or surgical. Non-operative measures, such as controlling the diet, rest, and colonic irrigations, should be given a fair trial before operative procedures were resorted to. The success of the non-operative treatment depended mainly upon the thoroughness with which the bowel was cleansed. When non-operative treatment failed to cure the diarrhea after a few weeks' or months' trial, one of the surgical operations devised for the relief and cure of ulcerative lesions of the colon should be performed. The following operations had been used with more or less success in the treatment of simple and ulcerative colitis inducing chronic diarrhea: 1. Resection of the colon. 2. Colostomy. 3. Appendicostomy. 4. Cecostomy, with irrigation of the small intestine. Resection of all or a part of the colon was occasionally justifiable in the treatment of colitis, and was indicated when the functionating power of the gut was irretrievably lost as the result of exhaustion, extensive ulceration, cicatrices or multiple polyps. Colostomy had been successfully employed many times in the treatment of chronic diarrhea due to intestinal ulceration, but the procedure had not become popular because of the difficulty experienced in making an artificial anus which would prevent the leakage of gas and feces, and further, because of the danger which accompanied the operation for restoring the continuity of the intestine after the colitis had been cured. Appendicostomy was the most popular of all the surgical procedures which had thus far been devised for the relief and cure of chronic diarrhea. The speaker said that in the *Boston Medical and Surgical Journal* of September 6, 1906, he reported eight cases of chronic diarrhea of different types treated by appendicostomy and through-and-through irrigation, and since that report he had practiced the same method in twenty-seven additional cases of ulcerative colitis. One of his earlier cases died as a result of extensive sloughing of the cecum in the neighborhood of the appendix; in the remaining thirty-four cases, the number of daily stools rapidly diminished immediately following the inauguration of through-and-through irrigation, and the general condition of the patients improved correspondingly. Appendicostomy was not a suitable operation to employ when both an enteritis and an ulcerative colitis were present. Under those conditions he had devised a new and effective way of irrigating the small and large intestine through the same opening, which for the want of a better name he had designated as "cecostomy," with an arrangement for irrigating the small intestine" (Gant's operation). The speaker described in detail the technique of this operation and presented a number of patients upon whom he had operated successfully for the relief of chronic diarrhea, either by this method or by appendicostomy.

Demonstration of a Corset for Visceral Ptoses.—Dr. A. ERNEST GALLANT made this demonstration.

Dr. WILLIAM H. THOMSON said that if we had to deal with an ulcer of the leg and systematically kept on moving it and rubbing it with feces every two or three hours, it was scarcely reasonable to expect that ulcer to heal, and yet that was virtually what happened in the ulcers ac-

companying chronic dysentery. A number of years ago, the speaker said, he recommended that the only rational treatment of this condition was to wash out the gut immediately after each movement of the bowels. For that purpose he used an enema containing the oil of peppermint, and with scarcely any internal medication the method proved much more successful than any hitherto employed. This same principle of treatment was embodied in the surgical method described by Dr. Gant, and it was the only rational treatment of inflammatory or ulcerative lesions of a mucous tract. Several years ago, Dr. Thomson said, Dr. Robert F. Weir came to him with a case of chronic colitis and asked if it would not be a good idea to bring the appendix out of the abdomen, open it, and use it as an avenue or means of entrance for irrigating the lower bowel. He informed Dr. Weir that he was delighted to hear that the appendix was at last to be turned to some good use, and experience showed that such proved to be the case. The intestinal tract was the great channel of autoinfection of the human race, and the speaker said he was entirely willing to leave these cases of chronic dysentery in the surgeon's hands. In discussing Dr. Kemp's paper, Dr. Thomson, after referring to the important rôle played by the sympathetic as the third great nervous system, said that when tympanites occurred in the course of any infectious disease, it was always of ominous significance as an indication of a toxemia that was producing very serious vital prostration. In pneumonia, for example, acute dilatation of the stomach was a very serious sign; it pointed to an intense toxemia, and the prognosis in such a case could not be based merely upon the extent of the consolidation of the lung, but account must also be taken of the pronounced depression of the vital forces.

Dr. Max Einhorn said the frequency of so-called dilatation of the stomach depended largely on what we understood by that term. If we included under it a slight increase in the size of the stomach, then such a condition was very frequent. Personally, he would classify these cases of temporary and comparatively slight increase under the term of atony of the stomach. At all events, the mere size of the organ was of secondary importance as compared with the actual symptoms. If there was vomiting and abdominal distension, and the stomach did not propel its contents properly, then we had a condition of real interference with the motility of the stomach, dependent on a morbid process. In acute diseases, such as pneumonia and typhoid fever, it should be remembered that the tympanites that might occur was dependent on another symptom-complex and it could not, therefore, be classified as acute dilatation.

Dr. Joseph Merzbach said that acute dilatation of the stomach was by no means a rare condition, and it was certainly more frequently overlooked than recognized. He referred particularly to two kinds of gastric dilatation: 1. Postoperative acute dilatation. 2. The acute dilatation which occurred accompanying pyloric stenosis in infants. Both of these forms were frequently unrecognized. Dr. Merzbach said the four cases reported by Dr. Delatour were very interesting and illustrated the difficulties of making a correct diagnosis of intraabdominal conditions prior to operation. In two of his cases the perforation had occurred without any premonitory symptoms whatever. The surgical results in these cases were certainly encouraging, and if such a patient recovered without surgical interference, as occasionally occurred, it should be regarded as nothing but a lucky accident, and not the normal result of expectant treatment.

Dr. Jacob Kaufmann said he agreed with Dr. Einhorn that some of the conditions described by Dr. Kemp should not be classed as acute dilatation of the stomach. On the other hand, atonic dilatation was of frequent occurrence and was often overlooked, especially when it was postoperative. This was perhaps due to the fact that in many instances in which there was paralysis of the stomach, belching and vomiting were both absent, and this allayed suspicion. In discussing the etiology of acute dilatation of the stomach, Dr. Kaufmann said that from his own observation and from a study of the literature, especially the writings of Braun and Seidel, he was not inclined to accept the theory that mechanical factors, such as pressure of the mesentery on the third part of the duodenum, played any great rôle in its production. Just as in certain infectious diseases the dilatation was one of the manifestations of toxemia, so in the postoperative type he was inclined to attribute it to the effects of the narcosis on the center regulating the motor activity of the stomach. There was another type of acute dilatation of the stomach occurring in persons apparently perfectly well which was brought about by the ingestion of large quantities of easily fermentable substances; this type was first described by Naunyn about a quarter of a century ago. There was no doubt that acute dilatation of the stomach, occurring in the course of an acute disease or as a postoperative complication, was a very serious condition. The most effective method of treatment was to immediately evacuate the stomach by lavage, even in the face of gastric hemorrhage.

Dr. Nathan L. Bodkin said that Dr. Gant's title of Surgical Treatment of Chronic Diarrhea was in his opinion too vague to warrant an operation for all cases of chronic diarrhea, classifying them under one head, as Dr. Gant had certainly cured many cases with medical treatment. In the simple catarrhal type of chronic diarrhea, meaning mucous colitis, chronic colitis, or catarrhal colitis, non-surgical methods of treatment were oftentimes entirely effective when the primary cause was removed, while in dysentery of the amebic, bacillary, or mixed type of infection a more radical method, such as Dr. Gant had described, was often absolutely necessary. The time might come when the surgeon would be consulted by the dermatologist for such a method of irrigating the bowel in cases of pemphigus and erythema multiforme of the severe and recurrent type, which were probably the result of autointoxication. Personally, the speaker said, he had seen a few cases which were undoubtedly of intestinal origin. In cases where the trouble was confined to the sigmoid, treatment could be instituted from below with the aid of the sigmoidoscope. The method of irrigating the small and large intestine by introducing the catheters through the incision in the cecum was a good one, but the question as to whether there would be a reverse peristalsis and the distance the fluid might be introduced seemed one which Dr. Gant alone could explain. The idea of putting a purse-string suture about the valve, tying in the catheters, instead of the ordinary Gibson valvular colostomy method, anyone might appreciate who had inverted an appendix.

Dr. Ludwig W. Kast said that a sufficiently clear distinction had not been drawn between symptomatic enlargement of the stomach and acute dilatation. What appeared at times to be an acute dilatation might prove to be due to actual motor insufficiency. In discussing Dr. Gant's paper, the speaker said that those cases of chronic diarrhea dependent on ulcerations in the rectum and sigmoid flexure were much more amenable to local treatment through the rectum than were those in which the condition was due to disease of the cecum. The great majority of these patients could be benefited by simple irrigations through the rectum as long as the condition that gave rise to the trouble was reachable. In this connection, he called attention to the so-called "dry treatment" followed at Rosenheim's clinic, which consisted in introducing the sigmoidoscope as high up as possible, and then applying silver nitrate or various powders directly to the surface of the ulcer.

The discussion was continued by Dr. MacEvitt and was then closed by Drs. Kemp, Gant and Gallant.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE BOOK OF PRESCRIPTIONS (BEASLEY). By E. W. LUCAS, F.I.C., F.C.S. 16mo, 366 pages. Cloth, $2.00 net. P. Blakiston's Son & Co., Philadelphia.

A TEXT-BOOK OF HUMAN PHYSIOLOGY. By ALBERT P. BRUBAKER, A.M., M.D. 8vo, 752 pages. Cloth, illustrated, $3.00 net. P. Blakiston's Son & Co., Philadelphia.

HANDBOOK OF MEDICINE AND THERAPEUTICS. By ALEXANDER WHEELER, L.R.C.P. and S. E., and WILLIAM R. JACK, B.Sc., M.D., F.F.P.S.G. 12mo, 512 pages. Cloth, $2.50 net. William Wood & Company, New York.

PHYSICAL SIGNS OF DISEASES OF THE THORAX AND ABDOMEN. By JAMES E. H. SAWYER, M.A., M.D. Oxon., M.R.C.P. London. 12mo, 188 pages. Illustrated, $2.00 net. William Wood & Company, New York.

AIDS TO OSTEOLOGY. By PHILIP TURNER, B.Sc., M.S. (Lond.), F.R.C.S. 16mo, 188 pages. Cloth, $1.25 net. William Wood & Company, New York.

THE TREATMENT OF GONORRHEA IN THE MALE. CHAS. LEEDHAM-GREEN, M.B., F.R.C.S. 8vo, 160 pages. Cloth, illustrated, $2.00 net. William Wood & Company, New York.

THE STUDENT'S HANDBOOK OF GYNECOLOGY. By GEORGE ERNEST HERMAN, M.B. (Lond.), F.R.C.P., F.R.C.S. 16mo, cloth, illustrated, $2.50 net. William Wood & Company, New York.

BEIERSDORFS HANDBUCH. 16mo, 112 pages. Paper, illustrated. P. Beiersdorf & Co., Hamburg.

DIAT-VORSCHRIFTEN FÜR GESUNDE UND KRANKE JEDER ART. By Dr. J. BORNTRAEGER. 16mo; paper, M. 2.50. Curt Kabitzsch (A. Stuber's Verlag).

MORTALITY STATISTICS, 1906. 4to, 480 pages. Cloth. Government Printing Office, Washington.

ZEITSCHRIFT FÜR LARYNGOLOGIE, RHINOLOGIE UND IHRE GRENZGEBIETE. Edited by Dr. FELIX BLUMENFELD. 4to, 142 pages. Paper, illustrated. Curt Kabitzch (A. Stuber's Verlag), Würzburg.

TYPHOID FEVER, ITS CAUSATION, TRANSMISSION AND PREVENTION. By GEORGE C. WHIPPLE. 8vo, 407 pages. Illustrated; cloth, $3.00 net. John Wiley & Sons, New York.

DISEASES OF THE NOSE, THROAT, AND EAR. By WILLIAM LINCOLN BALLENGER, M.D. 8vo, 905 pages. Illustrated, cloth. Lea & Febiger, Philadelphia.

FEVER NURSING. By REYNOLD WEBB WILCOX, M.A., M.D., LL.D. 12mo, 229 pages. Illustrated, $1.00 net. P. Blakiston's Son & Co., Philadelphia.

REPORT OF THE NEW YORK STATE COMMITTEE TO INVESTIGATE THE CONDITION OF THE BLIND. 8vo, 586 pages. Illustrated, cloth. New York State Commission.

HERMAPHRODITISMUS BEIM MENSCHEN. By FRANZ LUDWIG VON NEUGEBAUER. 4to, 748 pages. Illustrated, paper, 40 marks. Dr. Werner Klinkhardt, Leipzig.

THE DISEASES OF CHILDREN. Edited by DR. M. PFAUNDLER and Dr. A. SCHLOSSMAN. 4to; four volumes; 440, 619, 552, and 543 pages; illustrated; cloth. J. B. Lippincott Company, Philadelphia.

MOVABLE KIDNEY. By HAROLD W. WILSON, M.B., B.S. (Lond.), F.R.C.S. (Eng.), and C. M. HINDS HOWELL, M.A., M.B., B.Ch. (Oxon.), F.R.C.S. (Eng.). 8vo, 104 pages, illustrated; cloth; $1.25. Longmans, Green & Co., New York.

VIER VORTRAGE UBER ENTWICKLUNGSSTORUNGEN BEIM KINDE von Prof. Dr. G. ANTON. 8vo, 91 pages; paper; M. 1.80. S. Karger, Berlin.

JAHRESBERICHT DER GESELLSCHAFT NATUR UND HEILKUNDE IN DRESDEN. 8vo, 176 pages, illustrated; paper. J. F. Lehmann, Munchen.

CONSUMPTION; ITS PREVENTION AND CURE, WITHOUT MEDICINE. By CHAS. H. STANLEY DAVIS, M.D., Ph.D. 12mo, 218 pages; cloth; $1.00. E. B. Treat & Company, New York.

THE NATURAL HISTORY OF CANCER. By W. ROGER WILLIAMS, Fellow of the Royal College of Surgeons. 4to, 519 pages, illustrated; cloth. William Wood & Company, New York.

ESSENTIALS OF REFRACTION. By THOMAS G. ATKINSON, M.D. 12mo, 235 pages, illustrated; cloth; $1.25. G. P. Engelhard & Company, Chicago.

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FRIEDBERGER & FROHNER'S VETERINARY PATHOLOGY. Translated by M H. HAYES F.R.C.V.S. Vol. 2, 8vo, 702 pages; cloth. W. T. Keener & Co., Chicago.

Medical Items.

Hereditary Syphilis of the Long Bones.—Fr. Le Moine and J. Pénard give the histories of twenty cases of syphilis of the long bones. From their observations they draw two conclusions: The extreme difficulty of curing them when they have existed for a considerable time and the frequency of the occurrence of sequestra. The treatment of these lesions is to be entirely medical when observed early in the course of the disease. Energetic specific treatment will cause the quickest disappearance of the trouble and the least possible amount of deformity is left behind. When treated surgically we get decay of the bone, sequestra, and wounds that will not heal without loss of bone tissue. Such treatment is desirable only in late cases, which have been neglected and not given specific treatment. In very painful conditions which have resisted specific treatment surgical treatment is indicated. Specific treatment will not remove or cause to be absorbed hard bony formations. Multiplicity of lesions favors the diagnosis of syphilis. The study of the glands and viscera is of value, as is that of the family history. The *x*-rays are of value in disclosing the shape of the bony lesions.—*Gazette des Hôpitaux.*

Impacted Cerumen.—Much suffering from earache, as well as deafness (particularly in the aged) comes from impaction of cerumen in the external auditory canal. This may be readily removed by warming a little dioxide of hydrogen, pouring it into the ear while the patient is lying on a bed or table, and allowing it to remain for about five minutes. Then if the ear be gently syringed with warm solution of bicarbonate of sodium the plug will be easily removed. If not, it will be next day on repetition of the procedure.—*American Journal of Clinical Medicine.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending August 28, 1908:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, San Bernardino	Dec. 11–July 11.	54	11 cases previously reported
San Francisco	Aug. 9–15.	6	.
Indiana, Indianapolis	Aug. 10–16.	3	.
South Bend	Aug. 9–15.	1	.
Kansas, Topeka	Aug. 2–15.	2	..
Missouri, St. Joseph	July 25–Aug. 1.	1	4
North Carolina, Charlotte	Aug. 9–15.	1	..
Wisconsin, La Crosse	Aug. 9–15.	7	..
SMALLPOX—FOREIGN.			
Arabia, Aden	July 21–27.	..	7
British South Africa, East London	July 12–18.	5	..
Great Britain, Liverpool	Aug. 2–8.	2	..
Ceylon, Colombo	July 5–11.	7	2
China, Hongkong	July 5–11.	2	2
Egypt, Cairo	July 22–29.	3	1
Suez	June 25–Aug. 1.	1	..
France, Marseille	July 1–31.	.	1
Paris	July 25–Aug. 1.	1	..
India, Bombay	July 15–21.	.	18
Calcutta	July 5–11.	.	7
Italy, General	July 26–Aug. 2.	118	..
Naples	July 19–Aug. 1.	20	..
Japan, Osaka	July 19–25.	1	..
Java, Batavia	July 5–11.	3	..
Netherlands, The, Amsterdam	Aug. 1.	1	..
Philippine Islands, Manila	June 21–Aug. 4.	17	10
Portugal, Lisbon	July 26–Aug. 8.	6	..
Russia, Moscow	July 19–25.	13	1
Riga	July 25–Aug. 1.	1	..
St. Petersburg	July 19–25.	32	3
Warsaw	June 6–27.	..	14
Siberia, Vladivostok	June 15–21.	3	..
Spain, Malaga	Mar. 1–Apr. 30.	..	4
Spain, Valencia	Aug. 2–8.	7	1
Straits Settlements, Singapore	July 5–11.	..	1
Turkey in Asia, Bagdad	July 5–11.	32	5
Turkey in Europe, Constantinople	July 26–Aug. 2.	..	6
CHOLERA.			
Ceylon, Colombo	July 5–11.	2	3
China, Hongkong	July 5–11.	2	2
India, Bombay	July 15–21.	..	2
Calcutta	July 5–11.	..	28
Madras	July 11–17.	..	9
Rangoon	July 5–11.	..	7
Indo-China, Cholen	July 5–11.	7	7
Saigon	July 5–11.	3	1
Persia, Teheran	June 27–July 3.	1	1
Philippine Islands, Provinces north of Manila	June 28–July 4.	614	331
YELLOW FEVER.			
Brazil, Manaos	July 12–Aug. 1.	.	5
Para	Aug. 2–8.	2	1
Cuba, Daiquiri	July 31.	1	..
Mexico, Merida	Aug. 23.	1	..
Veracruz	Aug. 21.	1	..
PLAGUE.			
Chile, Antofagasta	July 14–20.	3	.
Arica	July 16–22.	1	.
Iquique	July 14–21.	3	2
China, Poochoo	July 12–18.	.	Present
Hongkong	July 5–11.	36	28
Indo-China, Cholen	July 5–11.	17	17
Saigon	July 5–11.	2	2
Japan, Kobe	July 19–25.	2	3
Peru, general	July 14–20.	17	15
Trinidad	July 23–28.	1	1
Turkey in Asia, Bagdad	July 26–Aug. 2.	3	2

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Original Articles.

THE RELATION OF THE MEDICAL PROFESSION TO THE HOUSING PROBLEM.*

By S. A. KNOPF, M.D.,

NEW YORK.

PROFESSOR OF PHTHISIOTHERAPY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; DIRECTOR IN THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS; ASSOCIATE DIRECTOR OF THE CLINIC FOR PULMONARY DISEASES OF THE HEALTH DEPARTMENT; VISITING PHYSICIAN TO THE RIVERSIDE SANATORIUM FOR CONSUMPTIVES OF THE CITY OF NEW YORK, ETC.

THIS distinguished body, the Academy, has honored me on repeated occasions by assigning important subjects concerning Medical Sociology and Hygiene to me for discussion, but never before have I felt such a weight of responsibility nor realized so much my temerity as in attempting to treat so vast a subject as the one I am to discuss to-day.

METHODS OF HOUSING.

All civilized men spend one-third of their lives indoors for sleep, and of all workers in the various fields of human activity by far the greater number have indoor occupations. According to the United States census of 1900, there were 29,073,233 persons over ten years of age engaged in earning their livelihood in some one of 303 specified occupations, out of which only 46 could be distinctly called outdoor occupations. The total number engaged in these latter were 12,058,671. The number engaged in the 257 indoor occupations would thus be 17,014,562. If we add to this the time all classes of people spend indoors for amusement, instruction, or worship, well may we say that the greater part of the people of the United States virtually spend their lives indoors. This statement alone is enough to show the importance of our subject.

In a most interesting pamphlet on the history and development of the Housing Movement in the City of Washington, my friend, Dr. George M. Kober, of that city says: "The primary object of habitations is to secure protection from the influence of heat, cold, rain, sunshine, and storms, and thus promote the health and happiness and indirectly also, the morals and culture of the human race."

In order to attain all these benefits, habitations must be built and equipped so that they offer warmth in winter, coolness in summer, and fresh, pure air and light all the time. Incidentally, I would say, it is furthermore necessary that these houses have such interior arrangements and utensils as will reduce to a minimum the danger of the appearance of endemics or epidemic diseases.

When we consider that tuberculosis, pneumonia, grippe, and bronchitis are perhaps the four diseases which are propagated through our present methods of housing the people, and when we furthermore consider that the first two diseases, tuberculosis and pneumonia, furnish at this time of our civilization the greatest morbidity and mortality, it would seem most wise and timely for the Academy to take up this serious question of the housing problem.

To do justice to our theme even in only a very small way it is necessary to limit the discussion to the housing of the well and the chronically ill. The housing or rather the hospitalization of the acutely diseased or surgically ill, the hygiene in day schools, kindergartens, factories, workshops, churches, and places of amusement, boats, ships and railroad cars, is too vast a subject to be dealt with at the same time.

All human habitations should as far as practicable be built on good porous soil, preferably coarse sand or gravel. Next best is rock, and only third in order comes clay.

I will now take up the various classes of houses; first, the private houses of the well-to-do, occupied by one or two families. Whether in the city or country they should, whenever possible, be built so that there will be no dark rooms. All the living rooms should have southern exposures; even at the risk of having the kitchen and the rarely frequented parlor facing north.

In large towns or cities in the absence of nearby playgrounds, house owners should, either by single endeavor or by combining with their immediate neighbors, provide a private playground for the children. If this is not feasible, the roof of the house should be transformed, with the aid of strong wire netting, into a safe roofgarden and serve as a playground for the children. In building individual private homes the sanitation often suffers from the desire for too many rooms. There must be a certain number, no matter how small, and usually they are badly lighted and ventilated for that reason.

I consider our American windows of which only one-half can be opened inferior to the French casement windows which allow twice the amount of bad air to escape and good air to come in.

In the construction of the better class hotels and apartment houses, in which so many American families now make their homes, the same criticism of small rooms, absence of playground for children, etc., holds good. In building hotels and apartment houses, I consider it well nigh criminal to raise them to such a height that the neighbors opposite or on the side are deprived of sunshine and light the greater part of the day. It would seem that a law limiting the height of buildings, particularly in the residential section of our American cities, is an urgent necessity.

*The above address was delivered extemporaneously with the help of a few notes before the American Academy of Medicine at its last year's meeting for the purpose of opening the discussion for a symposium on the subject.

The importance of the relation of the medical profession to the housing problem induced me to study the question still more thoroughly and to revise and rewrite the article carefully for publication in the MEDICAL RECORD. This accounts for the fact that the address is printed over a year later than it was delivered.

The problem of housing our laboring population in large cities, where owing to lack of transit facilities the masses must remain near their place of work, has baffled the minds of our philanthropists, city authorities, and sanitarians. The congestion in some of the large cities is something fearful to contemplate, especially in our city of New York. In some sections of the city more people live in a square mile than either in London, Paris, or Berlin.

Our only salvation from this fearful situation, not only for New York but for many other American cities, lies in extensive and good rapid-transit facilities concomitant with the building of sanitary homes in the suburbs for the laboring masses where they can have comfort and home life at reasonable rentals, and on the other hand the building of model tenements in the cities.

There is a third way of solving this problem which is known as the Garden City movement. It originated in England, and has already found its imitators in the United States in what is known as the Garden Cities Association of America. Permit me briefly to state the aim of this splendid humanitarian movement. Its object is the founding and development in the country of industrial garden cities, in which, amid beautiful and healthful surroundings, factories, stores, or other forms of business may be established, and where the workers may have attractive, though inexpensive homes, each with its own garden, and all to combine as many as possible of the attractions both of city and of country. The movement is patterned somewhat after the successful Garden City Association of Great Britain, which is now building its first garden city, at Letchworth, Hertfordshire, England.

An interesting item which I copy from an announcement by the American Association is the following: "It is known that many factories and employers, unable to increase and expand their business in the cities in proper ways and without enormous expense, are willing and anxious to move into the country if they can secure the right work people there. The Garden Cities Association therefore has undertaken one of the most important, far-reaching, and hopeful movements of the present day, and yet one for which the times are ripe, and which can be carried on in a practical business-like way. The Association believe that the one best thing which can be given workingmen is steady, well-paid work, with a good home in a garden city." Practical men, men of large means and broad ideas, have originated this association. Glancing over the names of the Board of Managers we come across such men as John Lewis Childs, President, W. D. Bliss, Secretary, Edward M. Shepard, August Belmont, Rt. Rev. H. C. Potter, Rev. Joseph Silverman, Prof. Felix Adler, Josiah Strong, and others of equal prominence in the world of philanthropy, commerce and science.

Our progressive Governor, the Hon. Charles E. Hughes, had, no doubt, such or a similar solution in mind when at the recent Congestion Exhibit in our city he said that the distribution of the people in more tenements on the island would not in itself suffice, but that there must also be a large distribution of centers of work.

Let us return now for a moment to a subject which for the time being at least is nearer and more urgent than this beautiful plan of garden cities. I refer to our tenement house problem. In New York City, thanks to our excellent tenement law and a tenement house department, created January 1, 1902, both of which in spite of unscrupulous politicians, greedy landlords, and heartless real estate speculators, are still in existence, conditions are much improved as compared with former times. While much has been done there is more to do. To give you an idea of how much there is still to be done, let me quote from an interesting article by Mr. L. H. Pink, which recently appeared under the title, "Old Tenements and the New Law," in University Settlement Studies, Vol. III. No. 2. The tenement house department in the five years of its existence has proved itself invaluable. It is well organized, at its head are clean and able officials: "Yet of the 362,000 dark rooms which were in existence when it was organized, but 6,000 have been provided with windows. Paul Cravath, Chairman of the Tenement House Committee of the Charity Organization Society, estimated that 'three generations will sleep in the smother of these unventilated boxes.' At the present rate it will take 86 years before light is let into the remaining 356,000 dark rooms. We cannot wait for 86 years for their removal."

In a more recent communication, dated May 2, 1908, Mr. Robert W. de Forest, president of the C. O. S., and former Tenement House Commissioner,

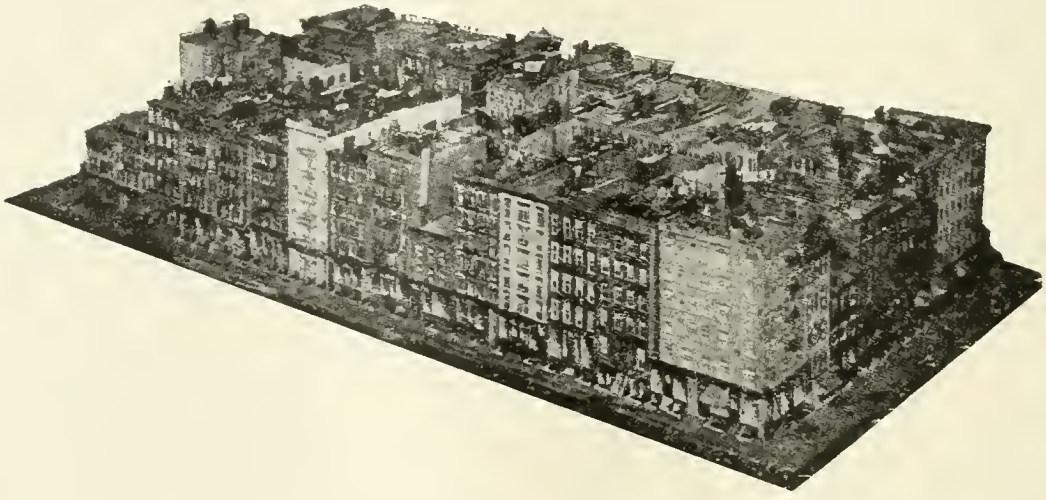

Fig. 1.—Model of an actual block on the east side of New York city as it stood January 1, 1900, block bounded by Christie, Forsythe, Canal and Bayard streets. The tenement houses in this block contain 567 different apartments for 2,761 persons. Of the latter 2,315 are over five years of age, and 446 under five years. The block contains 262 two-room apartments, 179 three-room apartments, 105 four-room apartments, and 21 five-room apartments, making a total of 1,586 rooms. There are only 264 water closets in the block. There is not one bath tub in the entire block. Only 40 apartments are supplied with hot water. There are 441 dark rooms, having no ventilation to the outer air, and no light or air except that derived from other rooms; 635 rooms get their sole light and air from dark, narrow "air-shafts." The rentals amount to $113,964 a year. This block has not been selected as one of the worst in the city. There are worse ones.

writes as follows: "More than 300,000 persons sleep every night in dark, unventilated interior rooms in tenement houses of this city. These rooms have no windows even to adjoining rooms. This state of affairs is largely responsible for the fact that 10,000 persons die of tuberculosis in New York City each year. Several thousand privy sinks and privies in crowded city yards still undermine the health of the tenement house population."

Many of the old houses cannot be made fit for use by human beings. Complete destruction is the only remedy. The law on its face gives to the Board of Health and to the Tenement House Department the necessary powers to destroy unsanitary dwellings, but in the Dassori case the Court of Appeals held that it is not enough to prove that a dwelling is unfit for human habitation; it must be unfit for any purpose before it can be torn down. This decision offers a loophole for escape and emasculates the statute. As a result the Tenement House Department has abandoned its efforts to demolish the rookeries. A new and comprehensive law, giving to some responsible body power to wipe out the plague spots, is our greatest need.

In 1903 I was privileged with many others to appear before His Honor, Mayor Low, to plead for the destruction of that horrible example of our modern way of housing the people, known to us New Yorkers as the "Lung Block." It is the block bounded by Catherine, Market, Cherry, and Hamilton streets. It surpasses all other sections of the city by its fearful mortality from tuberculosis. At No. 144 Cherry street there were no less than eleven cases in a single year. I have only been able to procure the photograph of a model which is not quite as bad, but which will give those who have never seen a crowded tenement house block in New York a fairly good idea of what is meant by dangerous congestion (Fig. 1).

I am free to confess that in view of the present condition of our social fabric, I do not think the tenement house problem can be solved without the philanthropists, and let me add the capitalist who will be satisfied with a reasonable interest on his investments.

The model tenement house, as I understand, has given to its owners six per cent. on the capital invested. If these capitalists could content themselves with four per cent. and allow the two per cent. which they could have in addition, to be given to the reduction of rent they would be both capitalists and philanthropists. What we need is more men like Mr. Phipps, who gave to the City of New York one million dollars as a perpetual fund for the construction of model tenement houses, under the condition that the earnings should be reinvested for the building of other model homes for the laboring classes. The possible objection to this plan is that in the desire to create more model tenement houses very soon, the rental price will be placed too high for the average laboring man. But I may be mistaken in this idea and should not wish to have it interpreted as a criticism of that unique and splendid philanthropy created by Mr. Phipps.

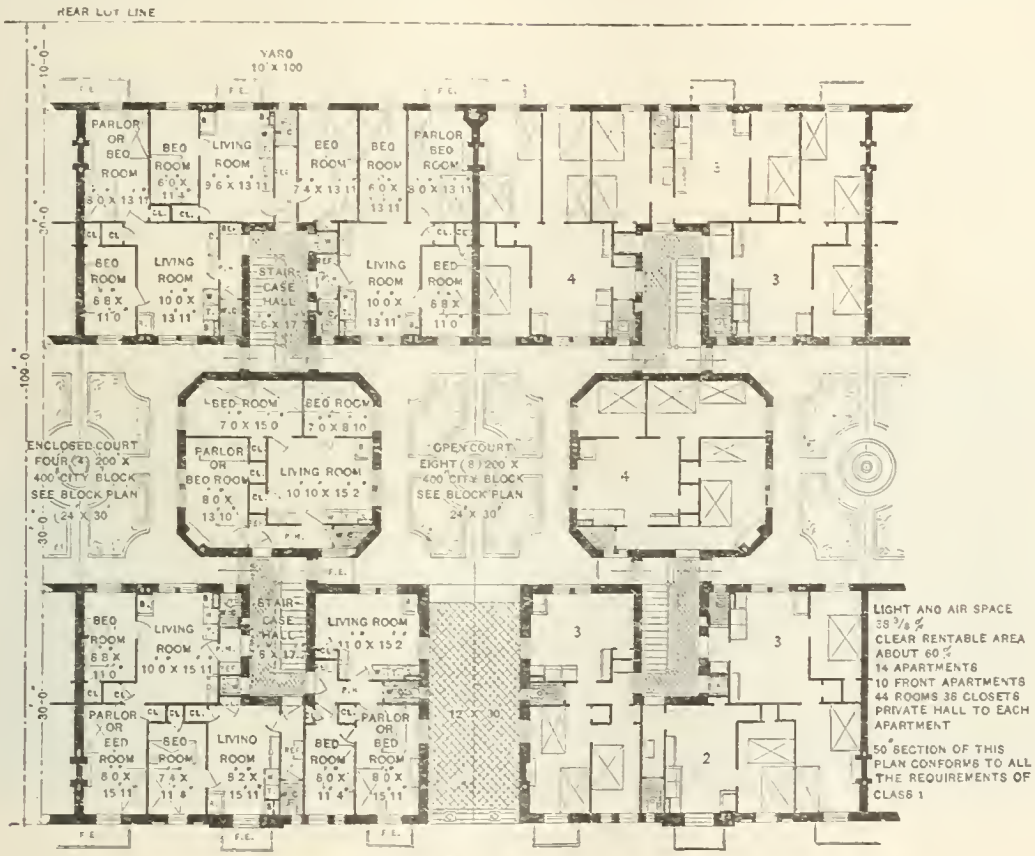
REAR LOT LINE
YARD
10' X 100
PARLOR OR BED ROOM
BED ROOM
LIVING ROOM
STAIR CASE HALL
ENCLOSED COURT FOUR (4) 200' X 400' CITY BLOCK SEE BLOCK PLAN
OPEN COURT EIGHT (8) 200' X 400' CITY BLOCK SEE BLOCK PLAN
24' X 30'
LIGHT AND AIR SPACE 38 3/8 %
CLEAR RENTABLE AREA ABOUT 60 %
14 APARTMENTS
10 FRONT APARTMENTS
44 ROOMS 38 CLOSETS
PRIVATE HALL TO EACH APARTMENT
50' SECTION OF THIS PLAN CONFORMS TO ALL THE REQUIREMENTS OF CLASS 1

Fig. 2.—First Prize Plan for Model Tenements, by R. Thomas Short, New York.

What does a model tenement house mean? Instead of describing to you my own conception permit me to show you here a plan of a model tenement house suitable for any large city, designed by Mr. R. Thomas Short, a New York architect, at the time of our tenement exhibition (Fig. 2). To this plan the prize was awarded in a competition of one hundred and seventy-five architects. As you see, this plan is designed for a tenement house on a lot 100 feet wide by 100 feet deep. A space of 10 feet in width and 100 feet in length is left at the rear of the building for light and air, as required by the New York building laws. The main feature of the plan is the large street court, which in its narrowest part is 12

feet wide and one-half of which is 24 feet wide. This court is 60 feet in total depth, and provides an abundance of light and air for all the rooms. Being open to the street, it permits free circulation of air at all times, and has the additional advantage of giving a number of rooms an outlook upon the street, thus creating a greater number of "front apartments," and materially increasing the rental values of the building. The plan provides accommodations for fourteen families on a floor, having a total of forty-four rooms, and an abundance of closets. The lack of closet space has been one of the serious inconveniences of tenement house life. Besides this, the plan possesses the further advantage of having a private hall for every set of rooms, thus insuring privacy to the tenants. Every family has its own watercloset entirely within its own control. There is no part of the building more than two rooms deep. This is the secret of the whole tenement house problem, because it means that there are no dark interior rooms. Besides these many advantages, there are four light staircases and stair-

Fig. 3. Model Tenement Houses Built by the City and Suburban Homes Company, on First Avenue between 64th and 65th Streets.

case halls provided for the tenants, thus securing greater safety in case of fire, and removing to a large extent much of the social friction that exists in the ordinary tenement house. A large open court also provides a natural playground for the children, and does away with the necessity of subjecting them to the influences of the street.

The City and Suburban Homes Company erected recently on Avenue A, Seventy-eighth and Seventy-ninth Streets, two model tenements which are particularly sanitary and strikingly simple and beautiful (Fig. 3). In the erection of these buildings there were some modifications of Short's first-prize plan.

Another interesting experiment to solve the housing problem has been made in some cities, particularly in Washington. It deserves mention here because, like the model tenement house investment, it is safe and profitable and also a most humanitarian work. The Washington Sanitary Improvement Co. has built model homes, not tenement houses in the ordinary sense of the word. I cannot possibly enter here into a detailed description of these buildings but will, with your permission, give you a synopsis of the work of this company and show you a few photographs of some of their houses.* This company has for its principal officers two physicians of whose record as sanitarians and scientists, we, as Americans, may well be proud. I refer to Surgeon General Sternberg and Dr. George M. Kober. That this great work which in its scope has been a particular blessing to the heretofore so miserably housed colored population in Washington should have for its prime movers two physicians, one of whom is a fellow of this Academy, should be particularly gratifying to us.

The following is a résumé of the company's chief merits. (1) It has established a high standard of sanitary homes for wageearners at reasonable rentals; (2) It has erected two-story houses, each constituting a distinct and complete flat with separate entrances, exits, separate yards and cellars; (3) It grants one month's rent free to every tenant or so much thereof as has not been expended during any one year for interior repairs. Exterior repairs necessitated by the elements are not charged against tenants; (4) The company carries a full insurance against loss by fire and all repairs are made on the principle that "a stitch in time saves nine"; (5) By exercise of strict economy and careful business methods the directors have been able not only to pay 5 per cent. dividends on all money invested in the company from the beginning, but have also promoted the philanthropic aspect of the enterprise by providing the very best accommodations from the standpoint of hygiene, and as to comfort, the utmost which a given cost will permit.

While model tenement houses, small individual houses for the laboring population and garden cities are being created by philanthropists, public spirited citizens and capitalists satisfied with a mod-

*Limitations of space have necessitated the omission here of those interesting and instructive illustrations.

est interest, for the protection of those who cannot enjoy the privileges of any of these three enterprises we must have good tenement house laws and a rigorous enforcement of them. It is beyond the scope of this paper to suggest improvements in any existing tenement house law. You have already heard how our New York law considered formerly so good was proved defective. All tenement house laws of necessity must vary according to the geographical and topographical situation and particularly the size of a city or town.

What should be common to all of such laws is to require all light rooms, good ventilation for all rooms, perfect plumbing, proper heating facilities, and reasonable security against fire.

The problem of providing cheap but good individual homes for our laboring classes where land is cheap, but in a region easily accessible to their center of work, is a very important matter. To see how reasonably such a house could be built, I consulted with Mr. John Van Pelt, a practical architect of this city, who was good enough to make plans for me of a modest but convenient house, of which I give the following illustrations (Figs. 4, 5, and 6) and description:

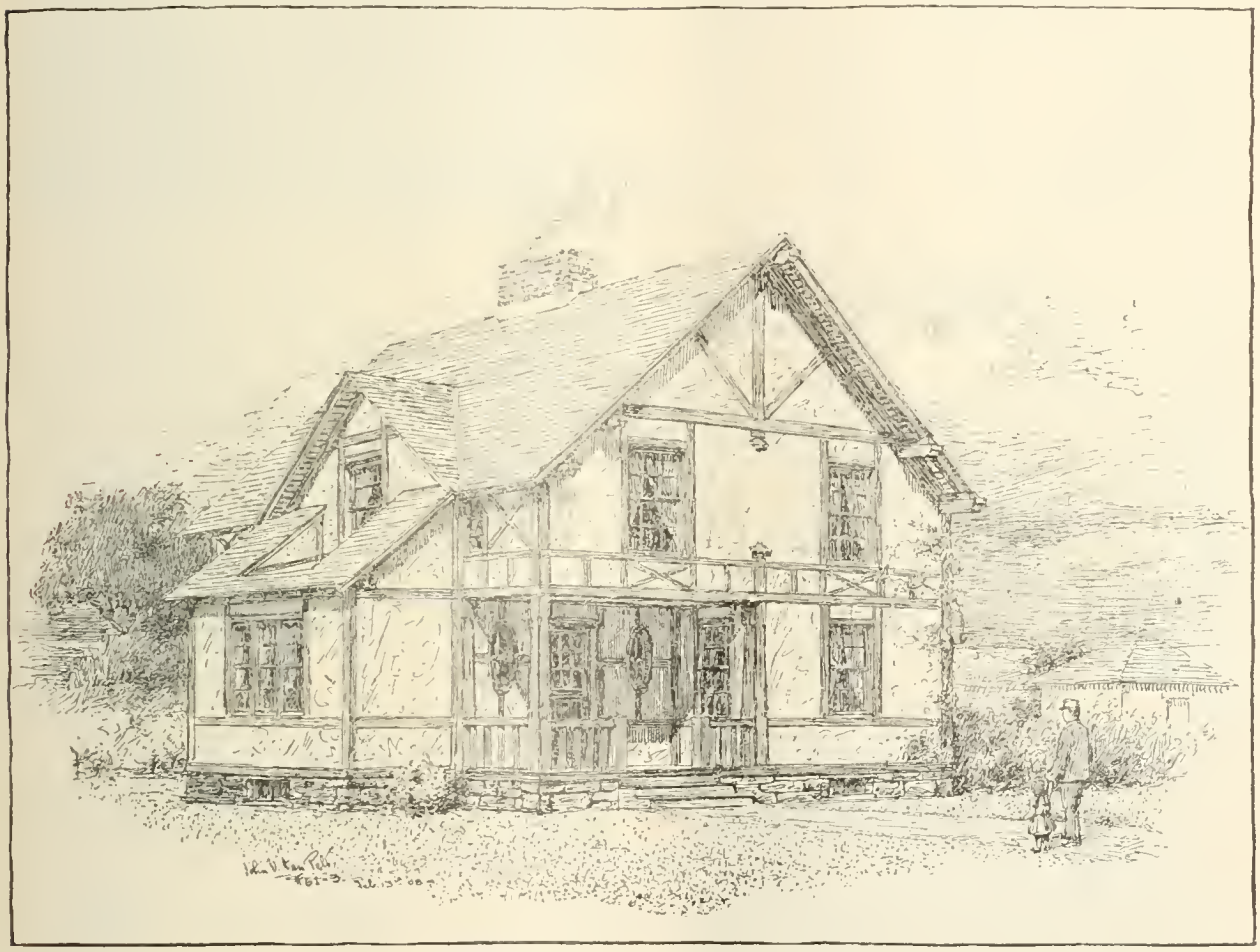

Fig. 4.—Workingman's economical house for one family.

"The building has been planned in the most economical manner possible. A single chimney, placed in the middle of the house affords a fireplace and contains flues from the heater and kitchen range.

"All rooms, except the smallest bedroom, have two windows in different walls, insuring cross ventilation. The fireplace in the living room acts as an aspirator for foul air and has a 12-inch x 12-inch flue. Hot air heating is adopted, with the cold air intake bringing air directly from the exterior, each room being provided with a riser, conducting this warmed air to the different parts of the house. The cellar stairs go down under the main stairs, and a door leading from these stairs to the exterior makes it possible to carry the ashes which descend to the ash pit in the cellar through a dust chute from the fireplace, and which also accumulate from the hot air furnace, directly out-of-doors without spreading dust through the house.

"The plumbing is centralized, a single soil pipe being sufficient, and the hot-water boiler is placed in a compartment behind the chimney so as to alleviate the conditions that lead to an overheated kitchen. The laundry tubs have been placed in the kitchen, as the wives of workmen must do all their work, and should be as near their family as possible. Space has been provided on the back porch for the refrigerator, a lattice surrounding the same to give shade.

"All of the bedrooms have closets and a broom and linen closet is also provided on the upper floor.

"In the interior treatment of the house dust-gathering projections are avoided as much as possible. Reentrant corners are rounded and a cove and sanitary base are used. The frame work is stud partition, with rubble or cement block foundation wall, according to locality. A half-timber effect is obtained with stucco in between, the house being sheathed and covered with building paper before the latter is put on. The roof is shingled.

"The house is piped for gas, but not wired for electricity on account of the expense. If the cost permits, such houses should be painted on the interior, the last coat being laid on flat; but if this is impossible, water color can be substituted.

"Under favorable circumstances, such a house should be built for $2,800. In smaller proportions it can be built for $1,650."

When, some time ago, I read in our daily papers of the promising invention of our great Mr. Thomas A. Edison. I decided not to publish this paper until

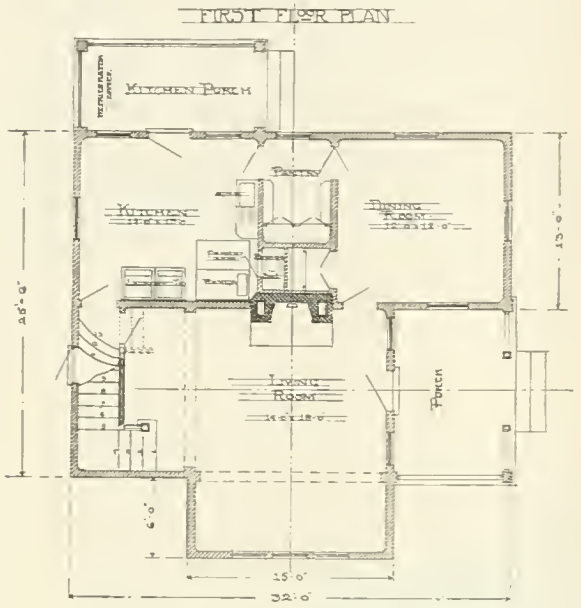

FIG. 5.—First floor plan of the workingman's economical house.

I had visited him and learned all about this new concrete house which would solve the problem of housing the laboring people in suburban districts and encourage home owning and home life to an extent of which we had never dreamt before. To have such a house monolithic, fireproof, durable, and arranged with all the necessary conveniences to make home life pleasant for the laboring man seems almost ideal.

I was granted a most cordial interview by Mr. Edison, who described to me in detail the construction of the house. The fact that it can be made in a simple style for one thousand dollars should certainly be an inducement to home seekers. That it should be eminently sanitary, and at the same time beautiful, will be seen from Mr. Edison's description:

"The reproduction shown here (Fig. 7) is made from the photograph of a model of the house for which Mr. Edison is constructing cast-iron moulds. These moulds are so made that portions can be taken off and other portions added, varying the completed design of the house in a number of ways. The moulds of the house are set up in their entirety, so that everything which may be constructed of concrete (stair railing, bath tubs, etc.) can be moulded in place. The inside and outside of the moulds are held in position by bolts covered with sleeves, the sleeve being left in the concrete after the moulds have been taken off. Holes are left in the floors so that heating and plumbing pipes and conduits for electric wires can be run through.

"The roof, which in this first design is modeled to resemble tile, will be painted or stained, and the walls will also be stained, the whole being waterproofed on the exterior. The windows are casement windows, and will be hung directly from the concrete openings. The sash of these windows and the doors will be the only wood on the building.

"While Mr. Edison's intention has not been to construct the more expensive class of house, and his idea is to build one which can rent profitably for $7 a month, he has intended to make the building as attractive as possible and perfectly hygienic and fireproof.

"The concrete is reinforced by reinforcing rods, which will be placed in the center of the moulds, and the buildings will therefore be practically indestructible. They can be washed out with a hose, and, owing to their construction, will be free from vermin. They are intended for sections of the country where the sand taken out of the cellar, with cement added to it, will be the only requisite for the construction. The walls of the house, 10, 8, and 6 inches thick, will be sufficient, with their exterior waterproofing, to preclude any danger from the penetration of moisture.

"Of course, the first of these houses has not yet been actually constructed, but Mr. Edison's proposition appears perfectly feasible, and if the houses are built in large enough numbers, it seems almost certain that their cost will not be more than he anticipates. Mr. Edison's intention is that, in the future, companies will be formed, having moulds made from the plans of their own architects, and constructing houses from these moulds as they may see fit, his only restriction being that the designs of the houses and material used shall meet with his approval."

The next subject which we have to consider is the problem of lodging houses. Those of you who have ever visited a cheap private lodging house, will understand why I favor municipal lodging houses which are of necessity under better control. My visits to lodging houses in the various parts of the country have shown me that owing to the large number of individuals who usually occupy these hostelries, the ventilation is always insufficient, particularly at night. If there are any class of buildings where our American windows should be replaced by the French type, which permits twice the

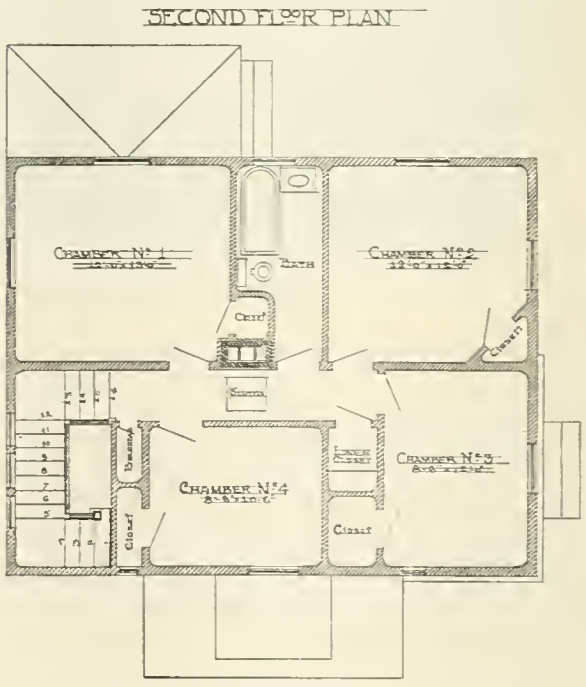

FIG. 6.—Second floor plan of the workingman's economical house.

amount of fresh air to enter and foul air to escape, it is in our private and public lodging houses.

While I intend in the second portion of my address to treat the interior arrangement of our average dwellings, I believe it may be well at this point to call attention to section 26 of our law relating to lodging houses. It provides that the beds in all

lodging houses shall be separated by a passageway of not less than 2 feet horizontally, and all the beds shall be so arranged that under each of them the air shall freely circulate, and there shall be adequate ventilation. Four hundred cubic feet of air space shall be provided for each bed and lodger, and no

Fig. 7.—Model of Edison's monolithic concrete house.

more beds shall be permitted than those provided in this way, unless free and adequate means of ventilation exists, approved by the Board of Health, etc.

If we could apply the best tenement law and lodging house law to some of our boarding schools, our asylums for the old and infirm, our orphan asylums, prisons and reformatories, there would be less morbidity and less mortality from infectious and communicable diseases in these institutions.

I do not desire to be misunderstood when I classify our prisons and reformatories as institutions which, regarding constructions and sanitary arrangement, should be placed on the same level as boarding schools and asylums for orphans, the old, and the infirm.

A prison by its very nature cannot and perhaps should not be made too comfortable a home for the morally diseased. However, when we build prisons we should select good soil to build upon, and not one like, for example, the Sing Sing Prison soil. When upon the invitation of the Prison Association, I visited that institution, I found what would have been an excellent and sanitary prison had it not been for this deficiency. The soil on which the Sing Sing Prison is built is constantly moist, and the stone walls retain the moisture to an alarming degree, so that the lower tier of the cell building is certainly thoroughly unfit for any human being to live in. The upper tiers are somewhat better, but they too are moist enough to foster tuberculosis as well as the damp soil will do.

Such disease-producing conditions can and should be avoided in selecting proper ground upon which to build penal institutions. Cells should never be smaller than 500 to 600 cubic feet, well ventilated, well lighted by natural light in daytime and by electric light at night (gas illumination absorbs too much oxygen).

All sanitary conditions tending to improve the physical and moral condition of the prison inmates should be thought of in the building arrangement and internal equipment of cell houses as well as workshops. It is our right and duty for the good of society to confine the criminal and punish him according to the gravity of his offense, by years of seclusion. But, however great the crime he has committed may be, we have no right to sentence him to contract tuberculosis or any other disease. Even leaving aside all altruistic considerations, for reasons of protection and self-preservation it is our imperative duty to do everything in our power to isolate all tuberculous prisoners, to treat every prison inmate afflicted with tuberculosis, and to give each one the best possible chance of cure. By adhering to this policy there will be fewer tuberculous prisoners discharged upon the community, and consequently a diminution of centers of infection.

INTERNAL ARRANGEMENT AND SANITATION.

What is the common defect in all our homes, rich and poor alike, hotels and lodging houses, asylums, and public homes for young and old?

We select for our bedrooms, as a rule, not the best but the worst lighted apartments. The majority of our city apartment and tenement houses are built in such a manner that only the two end rooms of the flat receive direct air and light. Thousands and thousands of persons in our large cities are thus compelled to spend their nights in rooms where sunlight has never entered. The strange custom of reserving the very best room, that is to say, the best lighted and best ventilated, to receive an occasional guest is not confined to country folks and poor city apartment or tenement dwellers. I have seen this done by well-to-do people who could have done better and should have known better. I recall here one instance from my own practice where two anemic children of six and eight years of age were forced to sleep in a dark bedroom, play in the dark dining-room and smelling kitchen, while the large front room, the so-called parlor with two large windows where the sun was streaming in a good part of the day, was locked all the week except on Sunday when visitors were expected. The little ones were not allowed to come in for fear that they might do harm to the good furniture. It was with the great-

Fig. 8.—Humidifier.

est of difficulty that these otherwise good parents were persuaded to transform the large parlor into the bedroom and playroom for the children.

The fear of night air, this nightmare of our ancestors, has not a little to do with the development and propagation of indoor diseases. In this respect I believe our institutions, or let me rather say, the heads of institutions which have dormitories for their inmates are the greatest violators of the first principle of hygiene. To have two or three, and sometimes four, children sleep in one bed, whether

in a private home or an institution, should be considered as absolutely unhygienic. The family practitioner should strive wherever he can to make people use the best lighted and best ventilated rooms for bedrooms and sitting rooms, and insist wherever he can on single beds for each member of the family.

In order to get an authoritative opinion on the best method of heating, which I may suggest in this paper, I consulted again with my friend, Mr. John Van Pelt, who is an expert architect and a former professor of the School of Architecture at Cornell, and who has been so helpful to me in my sanatorium plans. The following are his views on this important subject:

"The best method of heating buildings, in general, is one that brings warm fresh air into the rooms. The objection to a furnace is that it overheats a small quantity of air which it forces into the rooms after it may have been burned. Therefore, a better system is a direct system of heating, whereby a large quantity of moderately warmed air is brought into the room, say over steam, or better yet, hot water coils. A hot air furnace installation is the cheapest, and is, therefore, the best that can be used for the poor. Ordinarily, the poor heat with stoves which combine the objectionable features of systems that heat the air contained in the

Fig. 9.—Direct reading hair-hygrometer.

rooms without changing it with the objections of systems that burn the air; moreover presenting great danger of allowing gas to escape. Especially is carbon monoxide given off through the pores of the iron when these stoves become red-hot. The usual systems adopted in homes on account of the balancing between expense, convenience, and hygienic reasons are steam heat, or better, but more expensive, hot water with radiators placed directly in the rooms. There are so many cracks in the ordinary house that considerable ventilation is assured. Moreover, most houses have fireplaces which promote some ventilation even if there is no fire burning. As you know, most of our American houses are too tightly built, are kept at top high temperature, and the air is not changed often enough."

Might I add here that we are not only accustomed to keep our houses at a top high temperature, but that we have the air altogether too dry. I have taught and preached against this practice so dangerous to our health, quite often and considered the subject important enough to incorporate a little discussion of it in my prize essay, "Tuberculosis as a Disease of the Masses and How to Combat It." Experience has proven that we can be perfectly comfortable in a temperature of 65° F., and even a little lower, provided the relative percentage of moisture is 60. If this moisture falls to 30 or 20 per cent., then the dry throat, dry nose, and dry skin are in evidence. The explanation is simple. The dry air absorbs the moisture from the body and causes discomfort. The drying of mucous membranes in this way lays them open to the invasion of the organisms, causing colds, grippe, pneumonia, and tuberculosis.

The excessively dry atmosphere of many city and country homes in winter often gives rise to nasal catarrh, a condition which everybody, but especially those suffering from pulmonary diseases or prone to them, should be anxious to avoid. Besides keeping the water pan in the furnace constantly filled, there should be in the sitting room and sleeping rooms some humidifying arrangement, such as the one known as the humidifier (Fig. 8). More simple evaporating devices, however, such as a vessel filled with water and a cloth suspended above it touching the water, so as to produce capillary attraction, will answer the purpose of rendering the atmosphere sufficiently humid. To determine the proper humidity the direct reading hair hygrometer answers all practical purposes (Fig. 9).

After vitiated air, dust is the next most important factor as a disease-producing and a disease-propagating agent. Even the so-called sterile dust of the mineral or vegetable kind, if constantly inhaled, will irritate and inflame the respiratory tract and leave the mucous membrane in a condition for a ready invasion by any of the pathogenic microorganisms. It must be remembered that even in the normal individual we not infrequently find the pneumonia-producing pneumococcus and the Klebs-Loeffler bacillus which is the specific organism of diphtheria. The individual a little below par in general health or who has his upper respiratory tract irritated by the constant inhalation of dust, may thus fall a prey to the microorganisms of pneumonia or diphtheria of which he was the host, or to the bacillus of tuberculosis or of grippe from external sources.

The dust problem is so great and so important that we should give it our special attention. The greatest amount of dust and dangerous dust in houses is that kind which is carried in on the soles of our shoes and may I say, with apology to the ladies, by the aid of long, trailing skirts. It is to be hoped that the requirements of health will continue to dictate to fashion, and that trains will never again be seen on our streets. In the opposite event I am willing to be put down as one who favors the enactment and the enforcement of a law prohibiting the trailing of skirts in public highways.

The streets should, of course, be sprinkled regularly in dry warm weather. While flushing them with a moderate force of water is excellent, too great a force wears pot holes in the asphalt paving, thus doing more harm than good. A sprinkling cart or a hose of small caliber should be used. If the street car companies could be induced to cooperate with the city by sprinkling their tracks, much comfort would surely be assured to their patrons and some of the dangers from dust removed.

Any one who has noticed the cloud of dust that follows a swiftly moving car or the amount that is carried in by the back draught when the weather permits having the rear doors open, would appreciate the abatement of this unhygienic and unpleasant condition.

What can be done to diminish the quantity of dust which we are bound to bring into our homes on the soles of our shoes and on our garments? Let me suggest to you here a few devices, the utility of which I learned to appreciate in my studies in the prevention of carrying dust into sanatoria for the

tuberculous or into the homes of consumptives. There should be first a sort of grate and beneath it a receiving pan for the purpose of freeing the soles from the greatest amount of dirt attached to them. Next to this grate there should be a sort of apparatus composed of two blocks over which is stretched a slightly moistened canvas. After a thorough cleaning over the grate one passes his soles over this moistened canvas for a final cleaning.

There is no better way of diminishing the amount of street dust brought into our homes than to make it a practice when we wear overcoats or dusters to place them in a wardrobe situated near the door, and brush them as well as all other garments in the open air, and not as our Pullman car porters do in the midst of a close apartment crowded with people. Just as I consider sweeping a dry street a crime against one's fellowmen, so do I consider the just-mentioned practice a criminal nuisance. It is astonishing how much less dirt is carried into the rooms if these two simple devices are conscientiously used.

Against dust blowing into the rooms from the street traffic, building of houses and burning of soft coal, the individual is of course powerless. Appropriate city ordinances and their enforcement are the only remedies. However, we, as physicians, can do something by teaching the families for whose health we feel ourselves responsible, how to avoid the accumulation of dust in the homes by doing away with such articles of furniture which might well be termed dust catchers or accumulators. I refer here to all tapestry, instead of wall paper or a wall finish which can be washed; to all heavy cloth or velvet portières and curtains; to all fixed carpets, and last but not least to the innumerable articles of bric-à-brac not under glass cover, which adorn our American homes.

And now one word about the method of cleaning, that is to say, sweeping and dusting. There is no shadow of doubt in my mind that the ideal way, the most sanitary process of freeing our homes from accumulated dust is the modern method of vacuum cleaning, or exhaustive process. But before the average citizen will be able to allow himself this luxury or our tenement dwellers be privileged to avail themselves of the process, a goodly number of years will elapse. Yet we, as hygienists and physicians having the welfare of our families at heart, can do something in the meantime; first, by insisting that a feather duster should be forever banished from the hands of our women. It is surprising with what tenacity our house cleaners stick to this abominable instrument, which never cleans, but only displaces the dust from one section of the room to another. All the energy ever expended on cleaning with a feather duster has been not only useless, but one of the most powerful disseminators of the diseases of the respiratory organs. Like an instrument of ancient barbarism, the feather duster should be relegated to oblivion and be replaced by a slightly moistened cloth.

How may we diminish the dust in sweeping? Here may I suggest the method by which we try to teach the mothers in the homes of our consumptive poor? It is a leaflet composed by the distinguished Prof. T. Mitchell Prudden, of Columbia University and of our Tuberculosis Committee, and reads as follows:

"SWEEPING AND DUSTING.

"When you sweep a room, raise as little dust as possible, because this dust when breathed irritates the nose and throat and may set up catarrh. Some of the dust breathed in dusty air reaches the lungs, making parts of them black and hard and useless. If the dust in the air you breathe contains germs of consumption (tubercle bacilli) which have come from consumptives spitting on the floors, you run the risk of getting consumption yourself. If consumptives use proper spit-cups and are careful in coughing or sneezing to hold the hand or handkerchief over the nose and mouth so as not to scatter spittle about in the air, the risk of getting the disease by living in the same room is mostly removed.

"To prevent making a great dust in sweeping, use moist sawdust on bare floors. When the room is carpeted, moisten a newspaper and tear it into small scraps and scatter these over the carpet when you begin sweeping. As you sweep, brush the papers along with the broom and they will catch most of the dust and hold it fast, just as the sawdust does on the bare floors. Do not have either the paper or the sawdust dripping wet, only moist.

"In dusting a room, do not use a feather duster, because this does not remove the dust from the room, but only brushes it into the air so that you breathe it in; or it settles down and then you have to do the work over again. Use soft, dry cloths to dust with, and shake them frequently out of the window; or use slightly moistened cloths, and rinse them out in water when you have finished; in this way you get the dust out of the rooms. In cleaning rooms you should remember that dust settles upon the floors as well as on the furniture, and is stirred into the air which we breathe, by walking over them. You can easily remove all this dust in rooms which have bare floors, in houses, stores, shops, schoolrooms, etc., after the dust has settled, by passing over the floor a mop which has been wrung out so as to only be moist, but not dripping wet."

In recommending the foregoing rules, I have found housewives who object to the use of a moistened cloth to wipe the varnished woodwork and furniture. They claim that the appearance is spoiled thereby. To overcome this objection I recommend the use of a little crude oil and turpentine or some harmless furniture polish on the cloth which will make the dust cling to it as well as if it had been dampened with water.

When we consider the more recent studies in the etiology of many of the infectious and communicable diseases, we must bear in mind the common housefly and the mosquito. It has been well demonstrated that the housefly is a very frequent carrier of tubercle bacilli. When this insect has had an opportunity to feast upon tuberculous expectoration one can almost always find in its excrements the still virulent tubercle bacilli. It must be obvious that when such excrements are deposited on exposed articles of food, bacilli can enter the alimentary tract of either adult or child.

Tuberculous infection of the intestinal canal in children is so frequent that this probable source should be taken into consideration in our preventive measures. The housefly is, however, not only a danger during its short existence as a living insect, it becomes a source of infection even after death when during life it has had a chance to ingest tuberculosis germs. Virulent bacilli of tuberculosis have been found in the dust resulting from the crumbling of the bodies of dead flies. Thus there is a chance that the fly may even be the cause of the contraction of tuberculosis by inhalation. It would seem that we could with perfect safety assume that the housefly will carry all other infectious diseases in the same manner.

The brilliant work of the immortal Major Reed

and his coworkers has shown us that we must hold certain species of mosquitos responsible for yellow and malaria fevers (*Stegomyia fasciata* for yellow fever and the *Anopheles punctipennis, A. maculipennis* and *A. crucians* for malaria). While the total extermination of either fly or mosquito will be difficult, some preventive measures to diminish their number and danger in our homes can be carried out.

Wherever there are cuspidors or other receptacles to receive expectoration they should be covered when not in use. Even in institutions for the tuberculous where one often finds cuspidors outdoors, they should have a cover to prevent insects or animals from coming in contact with them.

Screens for windows and doors and ample protection by the aid of mosquito nettings during sleep in regions infested with mosquitos, fly paper, and the covering of all eatables are up to this date the simplest known precautions by which we may diminish the number of these insects and their danger as disease carriers.

We must also mention here, in connection with interior hygiene that dogs, parrots, and other house pets of the animal kingdom are at times carriers of infection. Tuberculosis, for example, has been contracted from parrots and dogs, and the echinococcus, when contracted in our country, can almost invariably be traced to the dog which has been a pet of the individual.

In conclusion, let me refer to a phase of philanthropical work carried on by the Association of Practical Housekeping Centers, which, to my mind, is destined to help in the housing problem of the people, perhaps as much as the building of the model tenements. This association has for its object to improve the sanitary and living condition of the tenement houses by the practical education of the tenement dwellers. A practical housekeeping center teaches, by precept and example, something of the art of living to all who come to visit these unique educational establishments, also known as model flats. I have visited one of these myself and watched with interest the enthusiasm of teachers and pupils. At the head of this work in New York are such well-known and practical women philanthropists as Mrs. Edward F. Dwight, Miss Mabel Hyde Kittredge, Mrs. Florence Kelley, Mrs. Hayden Richardson, Miss Lillian D. Wald.

The practical housekeeping centers try experimentally to meet the need of the mothers of to-day, of to-morrow, and of ten years hence. In a most admirable article, written by Miss Florence Kelley, for the *Century Magazine,* February, 1907, under the title of "Unskilled Mothers," reference to the subject is made in the following words: "If the practical housekeeping centers can be made permanent and numerous enough, if they can be made as much a part of the life of the community as the public schools are now, integrated in time with the schools, these problems, intemperance, infant mortality, and reduced vitality of the working class families, can be reduced to their lowest terms. Clean, orderly homes, in which air is pure, food is attractive and wholesome, and beds are clean and comfortable, give the baby the maximum chance for life and health, and his father an opportunity for keeping himself fit for his work, and a hope of escaping his deadliest enemies — drink and tuberculosis. These centers furnish a legitimate social outlet for activity among young people in congested centers, as well as in dull country towns. They promote health and right living among people of all ages."

REMARKS ON ACUTE INTESTINAL OBSTRUCTION WITH ESPECIAL REFERENCE TO INTUSSUSCEPTION.*

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Aside from acute gastric and intestinal perforations, there is no condition in the whole field of abdominal medicine and surgery, fraught with such real danger to the patient, and attended with such grave responsibility to the physician, as acute intestinal obstruction. If the fecal current is arrested suddenly from any cause there develops immediately a plight which is incompatible with life. The great abdominal nerve plexuses are thrown into a state of violent disorder; putrefactive changes in the intestinal fluids rapidly follow. If in addition to obstruction there exists strangulation of the blood supply to the gut—then we have an affection which, unless mechanically relieved, is rapidly and invariably followed by dissolution and death.

Etiology.—Anything which suddenly blocks the passage of the intestinal contents, must be considered as a cause of acute intestinal obstruction; for this reason the following classification is used:

- I. Congenital Obstruction
  1. Imperforate anus.
  2. Intestinal occlusion or stenosis.
  3. Volvulus due to torsion of the umbilical cord and to inflammation of the mesentery.
  4. Bands.
- II. Acquired Obstruction
  1. Intussusception.
  2. Strangulation...
     - *a.* Hernia, external or internal.
     - *b.* Omphalomesenteric remains.
     - *c.* Bands.
     - *d.* Adhesions.
  3. Volvulus.
  4. Obturation.....
     - *a.* Gallstones.
     - *b.* Enteroliths.
     - *c.* Tumors.
     - *d.* Foreign substances.
  5. Pressure obstruction, *e.g.* by displaced organs, tumors, etc.
  6. Intestinal paralysis.
  7. Infarction of the mesenteric vessels.

A detailed description of the different varieties above mentioned will not be attempted, for such can be found in any of the standard works on surgery.

Symptoms.—The cardinal symptoms of acute obstruction are pain, vomiting, and persistent constipation. The general picture is one of shock, accompanied by marked restlessness. The face is pinched and anxious and the eyes are sunken. There is more or less cyanosis, due to impeded respiration. Respiration is accelerated and shallow, and even the tone of the voice may be altered. The skin is clammy, the extremities cold, and the temperature is often subnormal. When the temperature is elevated, it is due either to the absorption of the toxins or to the presence of peritonitis. Thirst is extreme and the tongue is dry. Hiccough is often distressing. The pulse is small, weak, and rapid. The urine is scanty, high colored, or may be suppressed; usually it contains an excess of indican, indicanuria being especially marked when the seat of the obstruction is high. Abdominal tympany usually develops late and varies greatly, according to the nature and site of the obstruction. The lower the occlusion in the intestinal tract, the more pronounced is this symptom; when the trouble is high up, tympany is either slight or absent altogether.

The presence and constancy of the symptoms enumerated will depend, of course, upon the location of the occlusion and upon the degree of ob-

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struction and strangulation. It is well to analyze further the prominent symptoms.

Pain in some degree is uniformly present. It is due (1) to the mechanical injury to the bowel and mesentery by the constriction; (2) to the violent peristaltic efforts of the intestines to break past the obstructing barrier; (3) to gaseous over-distention of the bowel above the point of stricture. The character of the pain varies; it may be intermittent and colicky, or continuous and intense. It is usually severest at the point where the obstruction exists. This rule, however, is not invariable. In internal strangulation it comes on abruptly, is agonizing in character, and continues with but slight remissions. In volvulus, and especially in intussusception, the pain is at first paroxysmal, with intervals of comparative comfort, but later there is an increase in the frequency and intensity of the spasms. The sudden cessation of pain means either the relief of the occlusion, or the presence of gangrene or perforation. In the common varieties of obstruction (intussusception and volvulus being exceptions) abdominal tenderness is usually absent or slight during the first few hours. In fact, pressure will often give considerable relief to the discomfort. Later, tenderness is apt to develop.

Vomiting, as a rule, appears early; the higher the occlusion, the more frequent and distressing is this symptom. The vomitus consists first of the stomach contents, then of a greenish fluid containing bile, and finally of a dark fluid with fecal odor. The presence of actual feces in the vomitus is rare, and occurs only when the occlusion is low.

Constipation is a constant symptom; it is absolute and persistent in every type of acute obstruction, after evacuation of the intestinal contents below the point of constriction. Constant desire to go to stool, with the passage of mucus and blood, unmixed with feces and unaccompanied by flatus, is pathognomonic of intussusception.

Diagnosis.—As prompt radical treatment constitutes the essential element of success, it is of the most importance that an early diagnosis be made in acute obstruction. It would seem that the recognition of this condition would be comparatively easy, and it is so in most instances, but the following affections may cause confusion, *viz.*, phlegmon of the abdominal wall, inflammation of a retained testicle, fulminating appendicitis, acute pancreatitis, perforating gastric or intestinal ulcer, the twisting of the pedicle of a tumor or viscus, etc. In these affections there may be pseudo-obstruction reflexly caused by temporary intestinal paralysis. The remarks of Dr. Bar, before the Liverpool Medical Institution, very strikingly illustrate the necessity of discriminating between the true and false types. Dr. Bar said: "If you look upon all cases where you have got severe pain in the abdomen, constipation, and vomiting, with perhaps more or less shock, as cases of intestinal obstruction, then, no matter what line of palliative treatment you adopt, you ought to have a very good percentage of recoveries; but if you belong to a more exclusive school, and in your anxiety for accurate diagnosis, eliminate all cases of colic, constipation, enteralgia, etc., then you will find you have a terrible disease left, which tends more frequently toward a fatal issue than to recovery."

A carefully elicited history and painstaking physical examination will enable one to differentiate between the inflammatory diseases mentioned and mechanical obstruction. To take up in detail the points of differentiation is unnecessary and would consume too much time. In any doubtful case an examination of the blood, especially a differential leucocyte count, with regard to the percentage of polymorphonuclear cells, will be of material assistance. After a diagnosis has been made, one should try to ascertain the nature and site of the obstruction, as this knowledge will be of material help in carrying out the measures of relief. Generally speaking, the part affected in acute obstruction is the small intestine.

Internal strangulation is a cause in about forty per cent. of all cases. It is most common in young adults, comes on abruptly, with agonizing and continuous colicky pain and with early and distressing vomiting. Shock and collapse develop more quickly in this than in any other variety of obstruction.

Volvulus occurs almost exclusively in middle or advanced life and is much more frequent in men than women. The sigmoid is usually involved, and distinct tumefaction and tenderness can be felt with the palpating hand. Tympany develops early and increases rapidly. Vomiting is a late and unimportant symptom. Tenesmus may be present, but there is no discharge of blood from the rectum.

Intussusception is probably the most frequent cause of acute obstruction. While it may occur at any age, it is preeminently a disease of infancy and childhood. Fully seventy per cent. of all cases occur during the first year of life.

Treatment of acute obstruction.—No class of cases are more habitually mismanaged and conscientiously maltreated than the ones under consideration. Where palliative measures are depended upon, recovery is the exception, death is the rule.

Will distended gut ever burst a constructing band? Can a volvulus become untwisted? Does an internal strangulation ever undergo spontaneous reduction? Can an intussusception become disinvaginated, and recovery follow the sloughing and discharge of the intussusceptum? Yes, these things do happen occasionally, but if one awaits or expects such results, ninety to ninety-five per cent. of the cases so treated will die.

As a general rule, the distention of the colon by hydrostatic pressure, the insufflation of the bowel with gas, abdominal taxis, massage, etc., are not only unscientific and useless, but in some instances are positively dangerous. Puncture of the intestine through the abdominal wall for the relief of tympany is mentioned for condemnation only. Inversion and violent shaking of the patient are apt to do more harm than good. The administration of shot or metallic mercury, employed in olden times, is mentioned merely as a curiosity in the way of treatment.

Do not give purgatives, as they increase the pain and vomiting, and add to the risk of gangrene, perforation, and peritonitis. They can accomplish no possible good. Use opium very cautiously, for this drug so masks the symptoms and obscures the general picture, that it leads too often to fatal delay in the employment of radical treatment. Do not employ stomach lavage, except for diagnostic purposes or until a diagnosis has been settled, for this measure has almost the same sedative effect as opium, and is apt to give the attending physician a feeling of false security. After a diagnosis is determined, lavage of the stomach and colon should be carried out, for it lessens the vomiting, the pain, and the absorption of toxins, and also renders safer the administration of an anesthetic.

Generally speaking, a prompt laparotomy, quickly performed, is by all odds the safest, the simplest, and the surest method of accomplishing a cure. The operation itself, if performed early, is not more diffi-

cult or dangerous than laparotomy for the other intraabdominal lesions. A general anesthetic is contraindicated in cases seen late, where shock and collapse are pronounced, for in such a state, a narcotized patient is in danger of drowning in his own vomitus. Here the operation should be performed under local anesthesia, with, perhaps, the addition of morphine and hyoscine.

There is no single measure so useful in combating the shock of intestinal obstruction cases in general as the intravenous infusion of normal salt solution. It strengthens the heart, allays the extreme thirst, and stimulates the urinary flow. Of drugs, the most valuable is sparteine sulphate, administered hypodermically; it slows and strengthens the heart and has decided diuretic action.

After an obstruction has been relieved there are one or two practical points which will add greatly to the comfort of the patient. The stomach should be washed out immediately, and as often thereafter as indicated. Eserine salicylate should be started at once. This drug will aid in reestablishing normal peristalsis and by its action will lessen or prevent tympanites. Hot saline solution should be given by rectum, at frequent intervals, or, if necessary, it can be given continuously. The bowels should be moved by enema when they do not act spontaneously, rather than by drugs per mouth.

Each case of intestinal obstruction is a law unto itself, and must be managed in accordance with the principles of good surgery and with regard to the experience of the individual operator. The management of intussusception alone will be considered in detail. In this variety of obstruction, the diagnosis is easy and the indications for treatment are quite definite. Formerly, operation was considered only as a last resort; to-day laparotomy, with manual reduction, is the method of choice. Bouchut, in 1855, says, "The diagnosis of intussusception is uncertain and treatment powerless." Tanner (1871) after discussing taxis, etc., says, "Supposing these means fail, without absolutely recommending such a procedure, an exploratory incision into the abdomen would appear to be perfectly justifiable in an apparently hopeless case." Ashhurst (1881) says, "Past experience gives no encouragement to operative interference in cases of intussusception in infants less than one year old." Monyhan quotes Barker as saying that "He had never seen recovery after resection in gangrenous cases and never expected to see it." (These quotations have been borrowed from the interesting articles of Rushmore and Coffey.)

The writer, in a series of intestinal obstruction cases, has had five of intussusception in infants under one year of age. There were three recoveries and two deaths. In three of the cases gangrene had already set in, necessitating resection of the gangrenous intestine in two, and enterostomy in the third. The histories of these will be given later.

Unless acute intussusception is recognized early and treated promptly, the result is almost always fatal. Spontaneous reduction has been known to take place. Cases have recovered after sloughing of the intussusceptum, firm adhesions forming at the neck of the intussuscipiens. Such results are, however, never to be awaited or expected. If a case is seen early, say not later than six or eight hours after a diagnosis is possible, an attempt should be made by means of posture, gentle manipulations, and enemata to reduce the invagination. Such measures might succeed in "colonic" intussusception, are of doubtful value in the "ileocecal" variety, and are useless in the "enteric" type. The sooner we come to regard intussusception in the light that we look upon strangulated hernia and fulminating appendicitis, that is, as a condition demanding immediate operative interference, the more lives will we save.

Early laparotomy is the least dangerous and the most successful method of treatment.

There are points about the operation itself which deserve attention. The work should be performed quickly, or rather with "speedy deliberation." As three-fourths of all cases originate in the ileocecal region, the incision should be made through or to the outer margin of the right rectus muscle. In relieving the intussusception, it is best to commence at the apex of the intussusceptum, and carefully "back up" to the point where the invagination started. If traction is made on the proximal end of the invagination, the gut is apt to be torn at the neck of the intussuscipiens. If gangrene has occurred or if reduction is impossible, resection and intestinal anastomosis should be performed. Removal of the appendix is positively indicated in nearly all cases of "ileocecal" invagination, and it is a good point to make appendectomy a step of the operation. In closing the wound, one should reinforce the catgut sutures, with through-and-through tension sutures, as the abdominal wall is subjected to a considerable strain.

The postoperative treatment is of great importance. The immediate danger is death from shock, and free stimulation is indicated to overcome this condition. The next danger is from the secondary enteritis and toxemia, which are present to a greater or lesser degree in all cases of intussusception. If opium is systematically employed, the enteritis is aggravated, and the toxemia accentuated. It is better to give a mild laxative, and to follow it with astringent intestinal antiseptics and bowel irrigations. Under such management the condition will improve.

Case I.—Ida A., aged 4 months and 20 days, of German-American parentage, breast-fed, well nourished, and healthy. Had never previously been sick. September 28, 1904, was somewhat restless and fretful, and the following day suddenly became very ill. After one large fecal movement, she began to have frequent discharges of blood and mucus, without the passage of gas or feces, also paroxysms of colicky pains and tenesmus, and occasionally spells of vomiting. A physician, who was called in, diagnosed the case as "bloody dysentery." The mother, becoming alarmed at the increasing severity of the symptoms, brought the child to the hospital on the afternoon of September 30.

On admission the infant was very restless, constantly whining or crying out; facial expression anxious and uneasy; eyes "tired looking" and somewhat sunken; tongue dry; abdomen slightly distended, but no visible tumor present; thighs flexed on abdomen. The extremities were cool, the abdomen hot, somewhat rigid, and tender on pressure. An elongated tumor could be felt running across in the direction of the transverse colon, and then downward into the left iliac region. Rectal examination revealed a softened cylindrical tumor about two inches above the anus; the examining finger when withdrawn from the bowel was covered with bloody mucus. The temperature was 102° F., pulse 146, and respiration 40. A diagnosis was made of acute intussusception, of probably not less than thirty hours' duration, and preparation for immediate laparotomy was ordered. At this stage any other measure was deemed not only useless, but dangerous.

Operation.—A two and one-half inch incision was made through the right rectus muscle; a small

amount of serous fluid escaped when the peritoneum was opened. Examination of the tumor confirmed the diagnosis of intussusception. Beginning at the distal end, or at the apex of the intussusceptum, with great care the reduction was attempted. The gut was acutely congested and edematous, and the serous coat readily tore. Firm adhesions between the last inch of ileum and cecum, with beginning gangrene, rendered impossible the complete and successful reduction of the invagination. Removal of the gangrenous gut was decided upon. Four inches of the ileum, the cecum, and an inch of the ascending colon were resected, the mesentery having first been ligated. Then an end-to-end anastomosis, by means of a small Murphy button, was made. After attending to the gap in the mesentery, the abdominal incision was closed in layers with catgut, and reinforced by three sutures of silkworm gut, through all the layers except the peritoneum. Dressings and bandage were applied, and the patient was returned to bed in a profound state of shock. Respirations were exceedingly rapid and temperature high, immediately following the operation. The pulse, while very weak, did not show depression corresponding to respiration and temperature. Stimulants were freely used to combat the shock. Vomiting was frequent and annoying for the first fifteen hours, after which time it gradually abated. Only one dose of opium (5 minims of paregoric) was given, and that not until vomiting had ceased. The bowels moved spontaneously on the afternoon following the operation. A moderately severe secondary enteritis soon developed; this was treated with astringent intestinal antiseptics and bowel irrigations. On the fourth day the temperature went up, and the child seemed to be in great pain. In looking for a cause for this, the examination revealed the fact that the button had passed down to the anus and was there lodged. The removal of the button was followed by an immediate improvement in the symptoms. The abdominal wound was dressed on the fifth day, and the lower end of the incision was found to be infected. This infection promptly cleared up, and the wound was entirely healed by the fourteenth day. The patient was discharged cured on the fifteenth day after operation.

To review the history of this case: A healthy, well-nourished infant suddenly became very ill, with paroxysmal, colicky pains, tenesmus, bloody stools, vomiting, fever, and collapse. Examination of the abdomen by bimanual rectal touch showed a "sausage-shaped" tumor. It will be seen that this patient presented the classical symptoms and fulfilled in an ideal way the text-book requirements of acute intussusception. Operation confirmed the diagnosis. The ileum, appendix, and cecum were telescoped into the colon. On account of adhesions and gangrene the invagination could not be completely and successfully reduced, so a resection was made with an end-to-end anastomosis between the ileum and ascending colon. After operation, the severe shock, high temperature, and vomiting, enteritis, toxemia, etc., gradually disappeared, and recovery ultimately ensued. (An interesting feature of the case was the early passage of the Murphy button.)

Case II.—Elsie M., aged nine months. Referred by Dr. G. R. Pisek, June 2, 1905. For two days the child had been suffering with abdominal cramps and vomiting. There were frequent passages of blood and mucus, but no feces were expelled. An elongated tumor on the left side could be felt abdominally and by rectum. Upon operation a two and one-half-inch incision along the outer margin of the right rectus muscle was made and an intussusception of the ileocecal variety was readily produced. The appendix was amputated. A prompt recovery followed operation. The patient was discharged cured seven days later.

Case III.—Romeo M., aged four months, admitted to hospital July 5, 1906. Two days before admission the baby was suddenly taken ill with cramps and vomiting. Cathartics and enemata failed to relieve the symptoms. Discharges of mucus and blood appeared on the second day. A tumor on the left side could be felt abdominally and by rectum. Laparotomy about forty hours after onset of symptoms disclosed a gangrenous intussusception of the ileocecal variety, which could not be reduced; resection of the grangrenous gut; end-to-end anastomosis; death from shock three hours later.

Case IV.—Margaret H., aged five months, admitted to hospital July 10, 1906. Illness began one week before with cramps, vomiting, and diarrhea. At first there were eight or nine loose blood-tinged stools a day. Later the discharges consisted solely of mucus and blood. The baby did not care to nurse, and lost weight rapidly; the condition was critical. Upon examination, a tumor could be palpated in the left iliac region, also by rectal examination. Laparotomy under ether anesthesia revealed a double invagination in the ileocecal region; the cecum and ascending colon were gangrenous; the cecum ruptured during attempts at reduction; the gangrenous gut was then brought out of the abdominal wound and held up with a glass rod. Resection was out of the question in this instance, as the patient was almost dead at the time of admission to hospital. Death occurred on the following day.

Case V.—Baby Baker, aged five months, of Jewish parentage, was admitted to the Babies' Wards September 16, 1907. The infant was breast-fed and well nourished, and had never been ill previously. Two days before admission to the hospital he became very restless and fretful, and seemed to be suffering from abdominal cramps. Vomiting commenced early and continued at frequent intervals. The bowels, previously regular, did not act naturally, nor did enemata give relief. On the third day blood and mucus were expelled, unaccompanied by feces and flatus. Upon examination, the abdomen was found to be moderately distended and very rigid. On the left side an elongated tumor could be felt abdominally and by rectum. The examining finger, when withdrawn from the rectum, was covered with bloody mucus. A diagnosis of "acute intussusception" was made and preparation for operation ordered.

Operation.—A three-inch incision was made through the right rectus muscle. As soon as the peritoneum was opened the small intestines, much distended, crowded out. The diagnosis of intussusception was confirmed, the invagination being of the "ileocecal" variety. Beginning at the distal end, or at the apex of the intussusceptum, with great care the reduction was attempted. Owing to the edematous and friable condition of the gut, adhesions having formed at the neck of the intussuscipiens, it was very difficult to reduce the last two inches of the invagination. This was accomplished, however, with very little damage to the serous coat of the bowel. The abdomen was closed in layers with catgut and reinforced with three silkworm gut sutures through all the layers except the peritoneum. Following operation, the temperature rose to 107.8° F., then gradually subsided, reaching normal about the fifth day. Vomiting was persistent and annoying for the first few hours, after which time it

gradually stopped. The bowels acted naturally on the second day. The secondary enteritis, which is always present in intussusception cases, was not severe, and yielded readily to appropriate treatment. The patient was discharged cured on the seventh day.

In the foregoing remarks, no attempt has been made to treat the subject of intestinal obstruction in other than a superficial manner. An effort has been made, however, to emphasize certain practical points. With a better knowledge of the mechanics, and with a more thorough understanding of the pathology, of the affection under consideration, will come a realization of the futility, in most instances, of palliative measures. The keynote to success will bear reiteration—"Early diagnosis, prompt radical treatment."

57 West Fifty-eighth Street.

ABNORMAL MOTILITY OF THE STOMACH A VALUABLE FACTOR IN THE DIAGNOSIS OF GASTRIC LESIONS.

By MILTON R. BARKER, M.S., M.D.

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In this paper I shall deal only with those findings revealed by an examination of the stomach contents, due either directly or indirectly to an abnormal motility of the gastric walls, made long before the appearance of those familiar objective and subjective symptoms, which differentiate gastric lesions, but the advent of which is *prima facie* evidence that the time for rendering the best service in these cases has past. And should the dyspeptic symptoms be due to malignant invasion of the stomach, to wait to demonstrate the condition by its well-known symptomatology means, in a large majority of cases, the sacrifice of the patient's life.

Hence, if we are to render the best service in gastric lesions, especially in cancer, we must differentiate them early and by some other measures than that of their familiar symptomatology, comprehend easily, but usually so late that they convey more of despair than hope so far as successful treatment is concerned. Therefore, upon the presentation of a case complaining of that symptom-complex to which has been ascribed the name dyspepsia, which we know may be the expression of the early manifestations of many gastric lesions, we set about the task to discover with which of these we may have to deal.

Our knowledge is greatly enhanced regarding the early differentiation of these conditions by a proper interpretation and careful classification of the different elements constituting that portion of the gastric contents the presence of which in the stomach after a test meal is due to the abnormal motility of the gastric walls.

These findings may be positive or negative, each condition being, perhaps, equally important in building a differential diagnosis.

Should we find on examination of the stomach contents diminished hydrochloric acid, pepsin, and lab ferment, mucus being absent, we might suspect that malignant disease was active in the stomach; but from these findings alone we could not make even a probable diagnosis of cancer. However, should we find in addition a positive decrease in gastric motility shown by the abnormally long period of time required for the stomach to become emptied after a test meal, we would be justified in so strongly suspecting the influence of malignant disease, as to advise exploratory measures, provided the Oppler-Boas bacillus was not present; if it were present a positive diagnosis could be made without the aid of exploration. If the Oppler-Boas bacillus was not present (and we should not expect to find it in these early investigations); and if the gastric immotility was positive, and the stomach contents were free or nearly so, of mucus, we should question the wisdom of the postponement of exploratory measures, as the golden opportunity for rendering the best service might thus be lost, the Oppler-Boas bacillus frequently not appearing until the disease is so far advanced that operative measures are futile. In other words, we believe that, because of the fact that gastric immotility and dearth of mucus in the stomach contents are such universal conditions in gastric cancer, when these persistently prevail we should strongly suspect cancer, and institute exploratory diagnostic measures.

The abnormal findings that characterize gastric cancer are due to the profound vicious influence of this disease upon all the gastric tissues. Impairment of all gastric functions commences immediately upon the invasion of the stomach by cancer; as the disease develops all gastric functions diminish correspondingly, and when the disease is fully established all normal functions are destroyed, regardless of how limited a portion of the gastric wall is perceptibly involved. The above seems to be opposed by the fact that cancer has been demonstrated in stomachs in which the gastric glands were functioning. In other words, cancer has been found in stomachs in which there was also present hydrochloric acid, lab ferment, and pepsin. These, however, we believe belong to that class of cases in which gastric ulcer was the primary lesion, and which has become invaded by cancer, but which is not yet totally malignant, hence a lingering in the stomach of a constantly decreasing quantity of its normal secretions. In these cases our most valuable diagnostic aid is the progressive loss of the normal intrinsic motility of the stomach walls, characterized by constantly lengthening periods of stagnation of food in the stomach.

It is true that the cancer-invaded stomach is emptied of its contents, but it is emptied in a desultory way, and by extrinsic forces rather than by normal intrinsic motility. The cancer-stricken stomach is a functionally dead organ and the gross contents, together with the chemical and microscopical findings, are usually characteristic of such condition. Among the first of these functions to be sacrificed, and that which prevails most constantly and therefore is most characteristic of the disease, is the loss of the normal, intrinsic motility of the stomach walls, characterized as above stated by an increasing stagnation of the stomach contents after test meals. When the above condition increasingly prevails an exploratory laparotomy will in most cases confirm the suspicion that cancer has invaded the stomach. And at this time much hope may be entertained for the successful removal of the disease by surgical measures.

To make a differential diagnosis of chronic gastritis from the stomach contents is not always easy. Malignant disease of the stomach and chronic gastritis resemble each other in that all of the normal constituents of the gastric contents in fully developed cases are absent in both conditions, excepting mucus, and this constituent is abundant in chronic gastritis, but absent, or nearly so, in cancer. The destructive influence of gastric cancer is as marked upon the mucous glands of the stomach as upon all other gastric tissue, and in well-developed cases

the mucous glands of the stomach are functionless.

Chronic gastritis destroys all gastric functions except that of the mucous glands. The most characteristic finding in the gastric contents in chronic gastritis is the abundance of mucus; the walls of the stomach are covered with it like a blanket so that many times casts of large portions of the stomach walls are found after lavage. The ingested stomach contents are found covered with it, and often balls of mucus, in which are wrapped portions of food, are found among the stomach contents.

The normal motility of the stomach walls is largely destroyed in chronic gastritis. Hence in this respect it is also like cancer, and to this condition is undoubtedly due the abundance of mucus ever present in this condition. The mucus is poured into the stomach, but cannot escape because of the impaired motility of the stomach walls. The stomach is filled with it, its walls are coated by it, and its contents enveloped in it. Hence in chronic gastritis, an examination of the stomach contents is our most valuable diagnostic measure, and we may attribute in no inconsiderable degree the loss of gastric motility in this condition to the action of the superabundant mucus. Normal gastric motility is excited by the presence of ingested substances; coming in contact with the nervous mechanism in the stomach walls, at least it is partially so excited. If mucus so coats the stomach walls that the ingested contents are prevented from coming in contact with these nerve centers, so much of the gastric motility as is due to this is lost. Hence we have formed a vicious circle, the gathered mucus preventing gastric motility, and loss of motility causing large collections of mucus in the stomach.

The well-known beneficial effect of lavage in this condition is undoubtedly due, in a large degree, to the removal of the mucus from the gastric walls, thus rendering the contact between the ingested contents and the nerve centers possible, and by degrees restoring the normal motility of the stomach walls. We know there are cases in this condition in which lavage is ineffectual, but these are cases in which the nerve centers are so impaired by the disease that response to stimuli is impossible.

In gastric ulcer we are forced to recognize the exaggerated motility of the stomach walls as a prominent factor in the differential diagnosis. This is demonstrated by the entire absence in the stomach of any portion of a test meal, even, in many cases, a few moments after its ingestion, the abnormally exaggerated motility of the stomach walls in this condition, contrasting strikingly with the abnormally sluggish action in cancer or chronic gastritis. In hyperchlorhydria and gastric ulcer (the latter being a continuation or culmination of the former, the overactivity of the stomach walls is due to two conditions. First, the ingested gastric contents are quickly prepared for leaving the stomach by the vigorous action of the hyperacid secretion upon it. Second, the vicious action of the overacid and overabundant secretion upon the stomach walls themselves causes a constant and more or less exaggerated contraction of them. In other words, the vicious circle that is ever present in the stomach in this disease, due to the abnormal irritation of the hyperacid secretion upon it, and which in turn causes an outpouring of more secretion, also causes a constant activity of the stomach walls. A test meal deposited in such a stomach is hurriedly ejected from it for the reason that it is immediately emulsified and comes in contact with nerve centers that are on the *qui vive* because of constant irritation. The abnormal motility of the stomach walls thus produced forces the test meal from the stomach quickly in all cases and sometimes almost as soon as it is ingested. If, therefore, we should find the stomach empty an hour or so after a test meal we would be justified in strongly suspecting gastric ulcer, putting all other findings aside.

Mucus is never present in large quantities in this condition, for the reason that as rapidly as it is secreted it is attacked by the abnormal gastric secretion and digested, and it is then no longer mucus, and it is ejected from the stomach almost as quickly as it is deposited in it.

We may, as a rule, refuse a diagnosis of hyperchlorhydria or gastric ulcer if there is much gas fermentation in the stomach. The presence of normal or excessive amounts of hydrochloric acid in the stomach prevents fermentation or putrefaction, and so precludes gas fermentation; but more to the point in this paper is the fact that gas fermentation seldom prevails in a stomach the motility of the walls of which is normal or exaggerated. As the latter conditions universally prevail in these maladies we should not expect to find excessive gas fermentation. Leube says: "As gas fermentation is never found in normal energy of the stomach its demonstration may be considered as a sure proof of motor insufficiency." The above being true, we will seldom find gastric ulcer present in a stomach in which there is excessive gas fermentation.

It is true that we have pyrosis in these conditions which is due to spasmodic contractions of the stomach walls, with the ejection into the esophagus of the hyperacid secretion of the stomach, but this is an entirely different condition from gas fermentation. We believe, however, there is one notable exception to this rule, and that is the gastric neurosis or the so-called nervous dyspepsia. In this condition gas formation in the stomach is preeminently characteristic; whether it is due to fermentation or not may be a question. The diagnosis of this condition rests more firmly upon the fact that the normal motility of the stomach walls is not disturbed in this condition. This is shown by the stomach emptying itself of test meals within normal time limits, or within seven hours from the time of ingestion, and by the presence of large amounts of gas in the stomach.

To Recapitulate.—The loss of gastric motility characterized by long-continued stagnation of food in the stomach, and the partial or complete absence of mucus in the gastric contents, are characteristic of cancer, and when such conditions prevail careful search for the Oppler-Boas bacillus should be made. If this is found the diagnosis of cancer is positive; if it is not found the patient should not be allowed to pass into that stage of the disease in which operative measures are futile, by waiting for this more positive element in the diagnosis before exploratory measures are taken.

A large accumulation of mucus in the stomach is one of the important elements in the diagnosis of chronic gastritis. This is due, in a large degree, to faulty contact between the ingested materials and the nerve centers in the stomach walls causing gastric immotility, which, in turn, prevents the escape of the accumulated mucus into the intestines. The vicious circle being thus formed is broken up in certain cases by long-continued lavage; hence one of the beneficial effects of this treatment in chronic gastritis.

A prominent factor in the diagnosis of gastric ulcer is the exaggerated motility of the gastric walls. This is characterized by the absence of any portion of a test meal in the stomach a comparatively short time after its ingestion. Mucus is also almost or entirely absent from the stomach in this condition, being digested as quickly as deposited in the stomach by the ever-present overacid secretion, and being expelled from the stomach quickly because of the exaggerated motility of the gastric walls.

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LUPUS ERYTHEMATOSUS.

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Lupus erythematosus, the ulerythema centrifugum of Unna, is a chronic inflammation of the skin, characterized by scaly patches, usually rounded or oval in outline and reddish in color, which are generally followed by scars. These patches may be discrete or confluent, and the face, especially the nasal bridge and upper cheeks, is the region most frequently involved.

The clinical resemblance to lupus vulgaris is often confusing and it was probably for this reason that Cazenave, in 1850, christened the disease "lupus erythematosus." In America it forms about 0.3 per cent. of all skin affections, occurring with about the same frequency as true lupus.

There are two varieties, the local or circumscribed, and the general or disseminated. In the former the disease begins as a small, slightly elevated, flat-topped papule, the bright red color of which does not completely disappear on pressure. This lesion gradually enlarges peripherally until an infiltrated, scaly patch, varying from one to several centimeters in diameter, results, the slightly depressed center of which is studded with the openings of dilated follicles. The scales are of a light yellow or dirty gray color and can be removed by slight friction. The surface of the affected area is always dry, pinkish, or reddish in color, and never ulcerates. At times, after the disease has continued for several months or years, a tendency to spontaneous involution is manifested. In these cases a soft, flexible, permanent atrophic scar is left, the surface of which is marked by the patulous mouths of enlarged sebaceous ducts. A frequent clinical picture is the so-called "butterfly" or "bat's wing" marking. In this type the patches on the upper cheeks have become confluent, a narrow band extending over the bridge of the nose.

The scalp is quite often attacked, permanent loss of hair over the affected area resulting. In this locality the scaliness is less marked and the borders are more elevated than on other parts of the body.

The disseminated variety is seldom seen. The inflammation is more acute in character and is accompanied by constitutional symptoms similar in character to those of erythema multiforme. The lesions may be vesicular or bullous at times. The prognosis is serious, about fifty per cent. proving fatal.

The cause of lupus erythematosus is not known. It occurs most frequently in middle or early life. Several among our foremost authorities believe it to be a form of tuberculosis of the skin, while others, equally prominent, maintain that the two are separate and non-related diseases. Some recent opsonic statistics would seem to indicate that the latter are in the right. From a histopathological standpoint the disease process differs very materially from lupus vulgaris and the tubercle bacilli have never been found in the lesions.

The affection is to be differentiated from acne rosacea, chronic eczema, the syphilides, and true lupus.

In acne rosacea the surface is smooth and glistening, dilated capillaries are a prominent feature, the outline is irregular and ill defined, and the tip of the nose generally shows the greatest degree of involvement. Chronic eczema is seldom if ever dry at all times. Itching is more or less intense, the mouths of the sebaceous ducts are not patulous and do not contain the greasy plugs seen in lupus erythematosus, and there is no formation of cicatrices.

In the nonulcerating syphilide the nodular tubercles, together with the small, depressed, oval or circular, pigmented scars, the duration, the rapidity of evolution, and the absence of dilated follicles will serve for differentiation.

Lupus vulgaris frequently proves confusing. Here the presence of the "apple jelly" nodules, best seen when the areas are examined through a closely applied diascope; the rough, fibrous scars, and the extensive ulceration and tissue destruction are sufficient for recognition. In case of doubt the tuberculin reaction or a biopsy will serve to make clear the diagnosis.

The treatment varies with each particular case. A host of remedies have been recommended, none of which is specific and many seemingly useless. The milder methods and preparations should always receive the first trial. If there are considerable irritation and hyperemia, a soothing application, such as zinc oil (zinc oxide 60.0, olive oil 40.0), or calamine lotion, should be employed for several days, meanwhile administering salicin (commencing with 1.0 gram after each meal and gradually increasing) internally.

If the lesions are in the non-inflammatory, pale, and anemic, I at once paint them with a strong iodine preparation (Churchill's tincture), repeating it three times each week and administering the salicin internally. Here the latter may be alternated with quinine, or the cinchona salt substituted altogether.

Where the induration is marked and the condition notably sluggish, agents possessing marked stimulating power are indicated. I prefer salicylic or pyrogallic acid, suspended in collodion.

℞ Acid. salicylic..... 40.0
Acid. pyrogallic..... 10.0
Collodion 100.0
M. et sig. Shake and apply at night with a camel's hair brush.

If this causes too much irritation it should be temporarily discontinued and one of the soothing preparations substituted.

It is well to look to the general health of the patient. Alcohol, tobacco, tea, and coffee are to be avoided, and foods which have a tendency to increase cutaneous hyperemia should not be eaten. The parts should be kept clean and, unlike the inflamed areas in eczema, the local use of soap and water is not contraindicated. As regards measures other than hygienic and medicinal, the Roentgen ray is not nearly so valuable here as in true lupus and the arc lamp of Finsen has, in my experience, likewise proved disappointing. The liquid air treatment recommended by Fox, Dade, and others would seem an excellent procedure, and the use of carbon dioxide snow, recently suggested by Pusey,

even a better and more practicable course. The latter is certainly deserving of a thorough trial.

During the past eighteen months I have treated five cases of the localized type and seen one case in which the disease was disseminated over the face, trunk, and left arm.

Cases I and II.—Both were railroad men in the employ of the Missouri Pacific, and both have done extremely well under the iodine-quinine line of treatment. In No. 1 the disease was of five years' duration; No. 2 indefinite but had been present for several years. Both were of the typical butterfly type and presented slight scaring. Each case had repeatedly been diagnosed and treated as chronic eczema. At the present time there are no evidences of the disease other than the cicatrices.

Case III.—A married woman of 42, living in Great Bend, Kan. The lesions, which involved the face, forehead, and scalp, had appeared over twelve years prior to my seeing her. This case proved extremely rebellious to treatment. The patches reacted but slightly, even to the applications of Churchill's tincture, so the salicylic-pyrogallic preparation in collodion was substituted. Later, the *x*-ray was employed as an adjuvant measure, twelve minute exposure, with a soft tube, at a distance of 15 centimeters, being given. Internally, salicin was alternated with quinine. Under this regime improvement finally set in and a temporary cure ultimately resulted. Recently she wrote me that a new spot had appeared. I shall try the carbon dioxide snow in this case, although decided benefit resulted from the use of the *x*-ray.

Case IV.—A married woman, 32 years old, living in Kansas City. The disease was of three years' duration and involved both upper cheeks, with an oval patch, about 8x10 centimeters, just below the left temple. In this case the stronger tincture of iodine and the *x*-ray locally, with quinine internally, gave most excellent results. Only a few exposures were given, so the iodine-quinine combination deserves the credit for the splendid and lasting effect secured.

Case V.—A married woman, aged 40, living in Martin City, Mo. The condition had been present for two and one-half years. There was a large oval patch (measuring 8x10 centimeters) over the right eye, an irregular lesion extending across the lower part of the nose, an area about the size of a dime in the interpalpebral space, and slight bilateral involvement of the surfaces lying just above the nasolabial folds. The lesions responded promptly to the iodine applications, although soothing lotions had to be substituted a few times when the inflammation became too intense. Internally, quinine sulphate was alternated with salicin each week. In the course of four months the patches were practically obliterated, and when I last saw the patient, in February, there remained only a slight involvement of the patch over the eye.

Case VI.—This was the case in which the disease was of the diffused or disseminated type. I first saw the patient, a woman, aged 34, in consultation last December, and I have examined her only once or twice since then. The disease commenced on the cheeks; later the left upper arm became involved, and this was followed, a few weeks afterward, by a lesion on the right side of the trunk. The mucous membranes were not affected and the constitutional symptoms were less severe than is usual in this type of the disease. The patient has been receiving only internal treatment, quinine, with phosphorus and other tonics, and appears to be doing well.

Conclusions.—The iodine-quinine, or iodine-salicin, method of treatment, while not infallible, gives excellent results in a considerable percentage of cases of lupus erythematosus, especially if employed early in the disease.

In those cases where the pathological condition has been present for many years these agents will oftentimes have to be supplemented by more vigorous measures. Of these the salicylic-pyrogallic-collodion preparations are cleanly, efficient, cheap, and easily obtained.

The *x*-ray, while not so valuable here as in true lupus, is undoubtedly of assistance at times.

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PREPARATION FOR A GENITOURINARY DIAGNOSIS.*

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A thorough search of literature shows that even the most eminent authors attribute to general practitioners, a familiarity with the preliminary steps necessary to the satisfactory examination of a patient with a genitourinary disease. If this familiarity existed, consultations with the specialist as regards diagnosis would not be needed save in exceptional cases. It would, however, be expecting too much of the general practitioner that he add to his other onerous duties a study of every specialty; moreover, for precision in diagnosis, quite an array of special instruments are required, many of which the general practitioner might need perhaps but once in a life-time. This is particularly the case in the diagnosis of genitourinary diseases. Aside from the expense such aids to diagnosis entail, dexterity in their employment can be acquired only by continuous use.

Another matter which adds importance to the consideration of the patient's preliminary preparation is the fact that the patient usually asks the specialist or his assistants questions regarding diagnosis, prognosis and treatment. It requires exceeding adroitness to avoid specific replies which the layman's unfamiliarity with technical terms may not construe into a variance from his attendant's views. This may engender dissatisfaction with the family physician's conduct of the case, and lead to a general lack of confidence in the medical profession. One example may suffice: If the patient's physician has made a diagnosis of seminal vesiculitis and the specialist, not being aware of the choice of this unfortunate term, calls the disease spermatocystitis, it may be difficult to convince the patient that both are used to designate inflammation of the seminal vesicles. These apparent, not real, differences, are utilized by quacks and advocates of phantastic alleged systems of medicine, to shake the respect due the regular profession. The patient, then, especially one with a chronic genitourinary ailment, is very apt to grasp a to him apparent difference of opinion as evidence of unreliability on part of both attendant and consultant. Indeed, if familiar with German he may then mentally or orally quite ". . . es will mir dünken, als wenn sie alle beide stinken."

The preceding, very coarse outlines seem to justify a recital of the principal steps that are advisable as preparatory to the genitourinary specialist's work.

*Read before the Alumni Association of Internes of the German Hospital in Brooklyn, April 3, 1908.

Conjoint Consultation.—Whenever within the range of possibility, it is desirable that the family physician accompany the patient. Individual idiosyncrasies are then easily explained, important points of general and special history, that might escape the patient's mind, are more easily recalled by his medical attendant in the patient's presence; matters of technique in examination and treatment with which the physician may not be familiar can be demonstrated to him far better than possible in a written report alone.

The family physician's presence is further important in what may appear a minor matter, namely that of language. It is true that the cosmopolitan population of our large cities has necessarily made the majority of genitourinary specialists at least conversational masters of several languages. They were prepared therefor by their studies of German and French text-books on the specialty. But without the family physician's presence the patient's expressions may lead, not infrequently, to serious misapprehensions. For demonstration the following will serve: A patient reports frequent "night-sweats" when he means seminal emissions; another speaks of pain in his "molar," when he means the penis; still another asks for relief from his "reflexes," alluding to the discomfort in the glans due to prostatism. One patient astounded our entire staff by asserting, so far in advance of the times, that he had been treated by the surgeon of a "Luftballon." His physician, who was present, explained that an ambulance was meant. The misemployment of terms, technical or other, is not confined, however, to the ignorant classes. Thus one educated gentleman, giving his history, calmly reported an escape of prostatic juice "every time I remove my bowels." In this case, naturally, the presence of his physician was not needed to make clear the patient's meaning.

The History of the Case.—Many general practitioners, appreciating its value in the study of the case, send with their patients a record of the genitourinary history. For as great perfection as may be possible, a general family and personal history is almost equally important. It may reveal, in perhaps a patient with apparently superior resistance, a tuberculous, neurotic or rheumatic trend, against whose possibilities he must be safeguarded as much as may be in the physician's power.

Some physicians, attributing to the specialist abilities far greater than human, write, if they write at all, "please examine Mr. ———" and thus leave the consultant exposed to all the possible errors due to the patient's defective memory, and the embarrassment natural to many on reciting their genitourinary ailments to a stranger.

The Time of Consultation.—The patient and the specialist are often equally inconvenienced by the former being sent for consultation without a previously-made appointment. Assuming, for illustration, that the specialist has only ten appointments for a given day, and that a patient arrives for examination at 9 A. M. on that day, without an appointment. Each genitourinary patient requires no less than 45 minutes when under treatment; new cases to be examined must be given at least one and a half to two hours each. When, however, a case presents tight, tortuous strictures that must be explored, or there is a cystoscopy to be performed, or ureters catheterized, the examination may be protracted to three hours or more. As these cases, however, are usually deferred to the days which the specialist reserves for such purposes, the basis of only ten appointments may be used to illustrate the more ordinary conditions. The patient, let us call him Mr. A., arrives at 9:15 A. M., with perhaps nothing but his physician's card as a guide. Mr. A. is a very busy man and has been told, quite correctly, that his physician is a personal friend of the specialist. Mr. A. then naturally expects that he will receive very prompt attention. The specialist, however, is bound by his appointments, only ten for that day, each one requiring an average of 45 minutes. Mr. A.'s turn would arrive in nine hours, provided the specialist took no time for luncheon and was not interrupted in his work by from fifteen to thirty telephone calls or other urgent communications during that time. Even if Mr. A. is not an irritable or even impatient gentleman, he is not likely to await his turn. He may not even be willing to defer his examination to the appointment that can be made for him, but may inform his physician that he will find another medical man to attend him who will refer him to a specialist from whom he will receive prompt attention. Mr. A. may be an important man in his community and consequently have a following that is professionally useful and lucrative to his physician. The physician, not unnaturally, will resent the loss of the patient. It is thus that lifelong friendships between general practitioner and specialist are sometimes broken, merely by the omission of the former to arrange an appointment for his patient.

Emergencies, of course, such as retention of urine, as occur with the strictured and prostatics; vesical or renal hemorrhages, passage of kidney stones; or cases requiring immediate capital operations, must take precedence over all others, and consequently do not come within the above category.

Preliminary Instructions to the Patient.—The patient should be directed to pass no urine for three or four hours before visiting the specialist. Then only, can the amount and character of the discharge, if there is any, be studied to the fullest advantage, and specimens for microscopy and culture be secured. The macroscopic character of the urine can then be studied, and the specimens therefrom saved in suitable condition for chemical and microscopical examination.

Naturally this restriction does not apply in acute cystitis, posterior urethritis, the genitourinary neuroses, or other conditions that make frequent or excessive urination imperative. The object in view can in such cases be best attained by asking the patient to present himself an hour or two before the time for his examination, during which the urine can be gathered in tubes and other valuable observations made under the consultant's directions, while the time is given to other patients.

The ideal appointment for examination of a patient with chronic gonorrhea is before he has passed his first urine in the morning. The reason therefor lies in the fact that the morning drop or filament or two in the first urine may be the only manifestation of disease, in some cases. No gonococci may be discoverable except in that drop or filament.

Unfortunately the patient who can come for consultation before he has urinated, is exceptional; the only exception being in those cases that are sent from a distance for examination. These will generally be found able to cooperate with the consultant in this respect. These may often have been sent for an opinion as to the permissibility or otherwise of marriage, because of a gonorrhea which has left no vestiges externally evident.

While it is not absolutely necessary that a patient be brought for consultation with an empty rec-

tum, it is advisable that he be instructed to relieve himself not more remotely than several hours before the time appointed for his examination. Then the inevitably unesthetic character of digital exploration of the prostate and seminal vesicles will not be exaggerated by the presence of fecal masses, and the attention of the finger in the rectum will not be diverted from its purpose.

The exceedingly rudimentary character of this paper finds its justification in practice. Therefore no apology is offered except for the crudities of presentation. In the hope that this effort may be made useful through the discussion with which it may be favored, the following summary is submitted:

1. The general practitioner cannot be expected to incur the expense of the large number of instruments required for genitourinary diagnosis.
2. To use special instruments effectively, continuous practice is essential.
3. The average layman's unfamiliarity with technical terms may lead to an assumption of error in diagnosis on part of his attending physican, if the specialist's designation for the same condition should be a different one.
4. Conjoint examination by the physician and specialist is always desirable.
5. The history of the case presented by the physician is always of more assistance than that given by the patient.
6. Appointments for consultation should always be made as many days in advance as possible, so that the time set aside for the purpose can be devoted entirely to that patient.
7. The patient should be instructed to refrain from urinating for as long a time as possible before the hour of consultation.
8. The patient should be advised to empty his bowels as shortly before consultation as possible.

171 West Seventy-first Street.

A KERATOPLASTY.

By HENRY R. LESSER, M. D.,

NEW YORK.

The transplantation of the cornea of a rabbit to the human eye, with retention of transparency, is a procedure about which the literature is exceedingly meager. I have been able to find but one article published recently, that of Dr. Francis Valk, in the *American Journal of Surgery*, January, 1908, and I am indebted to Dr. L. W. Fox for a reprint of his report, published in the *Medical and Surgical Reporter*, July 21, 1888.

The case I have to submit is my first, and the results are so extremely gratifying I am determined to perform the operation as often as I can find suitable material.

The patient is a young man of 24 years, blinded through measles at the age of 9. The right eye is entirely useless; the left eye presented a dense leucoma, covering almost the entire cornea, but densest in the center.

Vision, none; light perception and projection good.

When the patient applied to me for relief, I explained the possibilities of the operation to him and immediately obtained his consent. I placed him on one grain of mercury with chalk three times a day for two days prior to the operation, and bandaged the eye with a 1/2000 bichloride dressing the night before. The rabbit used was 8 months old.

The eye having been irrigated and cocainized, a von Hippel trephine was adjusted and an incision made down to Descemet's membrane. The disc was then carefully dissected off. For this purpose I used a curved iris forceps and an angular keratome. The membrane of Descemet was found to be transparent.

The trephine was then applied to the rabbit's eye, and a disc removed from the cornea, including Descemet's membrane. This was swiftly carried to the patient's eye, and inserted into place by a delicate glass rod passed through the tube of the trephine.

When the graft was nicely fitted, the lids were closed and a pressure bandage adjusted. This was allowed to remain for forty-eight hours, when the eye was opened, and the graft found to be solidly in place and slightly hazy. I then inserted a glass conform between the lids and eyeball, preventing undue pressure and minimizing the danger of disturbing the graft when separating the lids subsequently.

This was removed on the sixth day, when it was found that there were two small blood-vessels extending over the cornea and graft. These subsequently disappeared of their own accord, and at the present writing, three months after the operation, the graft is in perfect apposition. The vision is improved to the extent of counting fingers at twelve inches. Patient distinguishes objects well enough to get around with little or no trouble, and he tells me he is beginning to "learn colors again."

The graft is only slightly hazy, and seems gradually to be clearing. Whether this will retain its comparative transparency, or gradually become opaque, remains to be seen. But, in the words of the patient, "even if it only lasts a few months, it will have been worth while."

From the results of this one case I am convinced of the possibilities for this operation, and I shall, I repeat, continue to perform it on all available cases, hoping in the future to be able to render a fuller and more comprehensive report.

14 West Ninety-third Street.

Relation of Mycosis Fungoides to Infection and Malignancy.—F. G. Bushnell and A. W. Williams note that the relation of mycosis fungoides to the infectious granulomata is seen in (1) the diffuseness and absence of capsule formation of the growth; (2) the presence of lymphoid cells which resemble the proliferating cells and lymph follicles, of plasma cells, and of mast cells, as seen in the granulomata; (3) the numerous thin-walled vessels; (4) the necrosis of large areas of growth. The relation of mycosis fungoides to sarcomatosis is seen in (1) the rapidly fatal course, when once evolutionary tumor formation supervenes (the duration of the disease being ten or twelve years in our case, and the evolutionary stage four months—a "malignant granuloma"); (2) the bulk of the tumors, and the arrangement of cells and fibers as in lymphosarcoma; (3) the presence of metastases in brain, kidneys, adrenals, retroperitoneal glands, dura mater, liver, and spleen in recorded cases; (4) the close relation that exists between leucorrhea, infectious follicular vaginitis, balanitis, and lymphoid sarcomata of bitches, and its parallel in this disease and the diffuse character and malignant course of the lymphomata (lymphocythemia). Here it may be noted that persistent dermatitis is the precursor of "Paget's disease" (carcinoma of breast, scrotum, vulva and umbilicus), and that lobulated warty condylomata of dogs arise from irritation. There is a clear resemblance of mycosis fungoides, despite its inflammatory structure, to "infectious sarcoma" of dogs. The latter is characterized by the presence of uniformly large, round, pale staining mononucleated cells with nucleoli, not arranged as alveoli, but in cords or diffuse areas; the blood-vessels are moderately developed. The surrounding tissue is displaced outwards, and is free from signs of inflammation. Large areas may necrose. It is highly infectious, produces metastases, and the transference of living cells is necessary to secure growth.—*British Medical Journal.*

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NEW DATA IN THE STUDY OF DIABETES.

THE modern study of the pathogenesis of diabetes may be dated from the experiments of Minkowksi who showed that the loss of the pancreas in dogs leads to the appearance of a hyperglykemia and a glycosuria. Immediately there was postulated the theory of the internal secretion of the pancreas which had to do with sugar metabolism and therefore played an important rôle in the pathogenesis of human diabetes. Ever since, research workers have endeavored to discover this hypothetical internal secretion with the hope of thus explaining the mystery of a frequent and serious disease of metabolism. Lepine thought he had obtained a glycolitic ferment from the pancreas and lately Cohnheim has described a similar substance obtained by the union of the juice of muscles with an extract of the pancreas. Neither experimenter could wholly substantiate his claims and other workers have continued the search for the supposed internal secretion of the organ. F. Blum has shown that hyperglykemia as well as glycosuria follows the injection of the active substances of the adrenal gland into animals, and G. Zuelzer in company with Dohrn and Marxer has used this observation as a starting point in his experimental study of diabetes (*Deutsche medizinische Wochenschrift*, August 6, 1908). The latter showed that transfusion through the liver of a dog killed at the height of the "adrenalin diabetes" leads to a marked rise in the sugar content of the transfused blood. These results led to the hypothesis that the liver is the organ in which the adrenalin and the mysterious internal secretion normally meet, their union preventing the excretion of sugar in the urine. It had seemed as if the adrenal substances were capable of "mobilizing" the sugar from the liver or from other organs or perhaps could lead to an increased formation of sugar from the elements contained in the protoplasm of the parenchymal cells of these organs. Further evidence in favor of the view of the combined action of pancreas extract and adrenal substances was given when Zuelzer succeeded in preventing the appearance of an "adrenal diabetes" by a simultaneous injection of the two substances.

Starling has lately developed the theory of "hormones" or substances which upon reaching an organ act as stimulants to its secretory activity, thus connecting the functions of one set of organs with another and producing harmony in the results of their various activities. Such a hormone is *secretin* which stimulates the secretory activity of the pancreas when it reaches that organ by way of the blood. It is possible that some similar substances may be obtained from animal organs that will stimulate the internal secretion of the pancreas concerned with the production of sugar and thus the course of diabetes may be influenced. Zuelzer has endeavored to follow this suggestion of the English physiologist and has obtained a pancreas extract which is capable of diminishing or preventing the specific effect of adrenalin upon the sugar production as well as of affecting quite favorably the diabetes of depancreatized dogs. Still more interesting results were obtained in several cases of actual or threatening diabetic coma in human beings, the injection of the new preparation showing that it is capable of affecting the symptoms of this serious complication of diabetes in a manner which leaves little doubt of the specificity of its action.

It is probable that the group of symptoms which we classify under the one name "diabetes" has a varied etiology. That organic or functional disease of the pancreas is responsible for a great many cases of this affection can no longer be doubted and the results obtained by Zuelzer and his collaborators encourage the hope that not only the explanation of the relation between disease of the pancreas and the origin of diabetes will soon be discovered but in addition the therapy of this special form of the disturbance of carbohydrate metabolism will be put upon a rational scientific basis.

THE PSYCHOLOGY OF SUCCESS.

THE problem of the underlying factors making for success or failure in life is one that has puzzled the sociologist, the theologian, and the common man for ages and promises to give food for cogitation for ages yet to come. The belief in Divine favor is a flattering one to the man who has succeeded, though many such a one, if he would accept this theory, must in his inmost soul confess that the Lord "moves in a mysterious way His wonders to perform." Neither does hard, conscientious work always bring the reward of success. Many a man of good average ability has spent his soul in faithful work, never rising above mediocrity and a meager salary. Brilliancy akin to genius is often surpassed by mediocrity, if not actual stupidity. Of course, in a discussion of success, the term must first be defined. Many an obscure toiler is content with his lot and accounts himself happy. Such a man may have achieved success in his own estimation but not in the eyes of the world. In a lecture on the "Psychology of Success" delivered on June 30 by Dr. Thomas Claye Shaw, a British alienist, before the Medical Graduates' College and Polyclinic of London, the speaker defined success as "the accomplishment, the realization, of what has been willed or wanted, the ripe fruition of the well tended tree," but in his development of the argument as to what works for "success" he showed that this was not a complete definition of what he had in mind. What he really meant was the achievement of fame or fortune, and this is what the world in general regards as success.

In the first instance the speaker declared that he was not a believer in what is known as luck, al-

though perhaps he defined luck somewhat ambiguously. He said that "Nobody wins when he ought not to do so, but he may win when he did not expect to do so. To be lucky is to succeed when you did not expect to succeed, and should not have succeeded, when you have unconsciously tumbled into the path which leads to success. To be unlucky is to find yourself placed in circumstances which are against a favorable issue, but which are a necessary result of the 'content' of causes, some of which were either ignored or were not valid for your consciousness."

It is acknowledged, he said, that some of the most important parts of the mental content that make for success are cruelty, sacrifice of others, and deceit. Dr. Shaw thinks that this cannot be avoided and that a strong man is generally a ruthless man who tramples his way to the goal of his endeavor. Although every one professes to admire virtue, charity, and courtesy towards others, these very qualities are often the outward and visible signs of incapacity. Again, some individuals are constitutionally and by temperament virtuous, that is to say they have no temptation to err, and such are not the successful ones. Courage is also an essential factor in the achievement of success in any undertaking. The modern tendency towards advertising is regarded with lenient eyes by this authority, who argues as follows: "How can recognition of merit be expected unless it is known to exist and the public be made to believe in it? So, practically, the arbiter of success is the public; therefore, the only way to get at the public is to advertise. But this has to be done carefully, and the legitimate paths for it are few and very jealously guarded. Perhaps there is more laxity in considering the bounds of legitimate advertising than was permitted some time ago, and much is to be said for the propriety of taking the public into professional confidence."

Dr. Shaw seems to be somewhat in favor of the view that so generally prevails—succeed honestly if possible, but at any rate, succeed. This is not a pleasant conception of the mental and moral make-up of the successful man, and it is more comforting to believe that there are many successful men in the world who would gladly have foregone "success" rather than purchase it at such cost.

THE NEED FOR NEW HOSPITALS IN NEW YORK CITY.

An interesting summary and report on the present condition and future needs of hospitals in Greater New York has been published by the Standing Committee on Hospitals of the State Charities Aid Association. As the population of the city has increased there has been a growing demand for more complete and accurate knowledge of the work and needs of those institutions charged with caring for the sick. This is now furnished in pamphlet form and is calculated as far ahead as 1920. The number of sick in a given district has been estimated from the records obtained by the police and the hospitals themselves, and an attempt has been made to show how well such district is served. While this is satisfactory enough, perhaps, for determining the number of people who are using a given hospital, it by no means covers the number who are being treated at home, who are ill but without treatment, or who might make use of a hospital if it was more accessible or if they were confident of a high quality of service.

It may be said that the need is not for more hospitals, but for better organization and systematization of what we now have. For instance, on March 1 a certain institution with 216 beds accommodated only 161 patients, but 7 extra cots were in the surgical wards while 20 patients were clamoring for admission to the surgical service. This shows not a lack of beds, but that something is vitally wrong with the system. A level-headed business man would clean out a medical ward or two and put into it the surgical convalescents and those not seriously ill or not infected with pus organisms. By this means it would be possible to use the institution to pretty nearly its full capacity. In many hospitals the barrier between the medical and surgical sides is impassable. This is always undesirable and usually unnecessary. A house divided against itself cannot stand.

The modern hospital is becoming a business enterprise with a set purpose of making it pay. There is the same competition, jealousy of district boundaries, of quality and quantity of work done that there would be in a purely money-making institution. Every superintendent must make a good showing, and is obliged from the day of his incumbency to stare at the specter of annual report and statistical summary with misgivings lest it may not look quite as well as that of last year. Consequently there is a constant temptation to see to it that as few patients as possible die in the house. Bellevue is the place for patients fatally ill, and there he must send them.

Any recommendations for the building of new hospitals must take into account that the general practitioner is likely to be adversely affected thereby. People are coming to find out that the best and cheapest doctors have hospital connections. A dollar a day in a ward with Professor So-and-so as their adviser appeals to their economic sense. The professor cannot stop to reflect that it is a hardship for the youthful physician to lose control of his case because he is not on the attending staff of the hospital.

The abuse of dispensary privileges, concerning which so much has been written, will probably always obtain. It is not possible to keep the original purposes of a hospital within bounds, viz., to care for the sick poor primarily, for the well-to-do incidentally, and for both well-to-do and poor upon any sudden necessary demand. The time may yet come when all patients who can get there by any means will go to hospitals for treatment, and house to house practice will be largely a thing of the past. This would be a distinct advantage to the physician, who could have most of his patients under one roof, but a very different matter for the physician who cannot, who, without any organization behind him, must depend upon the vagaries of a shifting population for the earning and the payment of his fees. How to distribute the greatest amount of good among the greatest number, both of laymen and physicians, will always be the chief problem of hospital construction and management.

TOXIC TUBERCULIDS—PARATUBERCULOSIS.

The well-known fact that in many skin and glandular lesions of tuberculosis it is not always possible to demonstrate the bacilli of the disease has usually been explained by the assumption that very few bacilli were responsible for the appearance of these lesions; the negative result of the inoculation of animals with such material was explained by supposing that the bacilli causing the local disease had either perished or had become almost nonvirulent after their struggle with the local defenses of the organism. In the *Münchener medizinische Wochenschrift* for August 11, 1908, Dr. Karl Zieler revives another explanation for these facts, namely, that the lesions in question are caused by soluble and diffusible products of the tubercle bacilli, that is, by true toxins and not necessarily by the endotoxins of the bacterial bodies. This causation which, of course, is well proved for such diseases as diphtheria, in which the toxins of the disease can produce all the lesions and the general symptoms of the affection, has been questioned so far as tuberculosis is concerned because of the accepted notion that the poisons produced by the tubercle bacilli are not to be ranked with the true toxins such as those of tetanus or of diphtheria.

Zieler has experimented with a tuberculin which was conclusively proved to have been free from any dead bacilli or particles of their bodies, centrifuging experiments and ultramicroscopic examinations being negative. Substances obtained by dialyzing cultures of tubercle bacilli were also used, and in several cases in which it was possible to examine microscopically the lesions produced by the injection of these tuberculins the picture was similar to those of the usual classical descriptions of tuberculous lesions. The infiltration of the tissues with epithelioid cells, the presence of the giant cells of the Langhans type, the areas of necrosis or caseation, were all there to make up the complete structure of a tubercle.

These results are not in agreement with the views of such workers as Wolff-Eisner and von Pirquet who look upon the action of tuberculin as due wholly to the bacterial *débris* contained in it, that is to the endotoxins liberated by the destruction of the bacilli in their growth or in the process of preparing the substance. The experimental evidence adduced by Zieler seems strong enough, however, to prove the correctness of his standpoint; the truth one way or the other can have presumably little practical significance, but the understanding of the development of tuberculous lesions is much furthered by the findings reported above.

Lateral Curvature Among School Children.

The treatment of scoliosis has run the gamut from the time when these unfortunate persons were placed in a rigid support, which still further weakened their already flaccid muscles, through the various forms of exercises used for developing the spinal muscles, to the present day when Fernand Lagrange, writing in the *Archives de Médecine et des Enfants*, for July, 1908, tells us that the first principle in treatment should be rest for the spinal muscles, and that the exercises that are initiated later should be only such as shall be educative of the muscles, and not at all violent. Lagrange shows that scoliosis is very frequent among French school children, who are obliged to sit for many hours each day on benches that have no support for the back or arms. He also finds the difficulty present among young men and women who work in factories for long hours in a sitting position. Such a position keeps the muscles of the back continually on the stretch, and in one position. The young individual is less able than the grown man to maintain the same position for a long time, while he is better able to make repeated rapid movements. The result on the young patient of the strain of sitting is that he tries to rest his muscles in some way. If standing he rests on one foot, if sitting he rests on one hip. In this way he produces and maintains the position of scoliosis as a position of rest, and the muscles of one side become weakened in proportion. This, Lagrange maintains, is the principal factor in the production of scoliosis in young subjects. The strong are not affected, while the weak or predisposed acquire a permanent curvature of the spine. This matter has received considerable attention in connection with Medical School Inspection in our own city, and a systematic examination of the spines of all school children has been made for several years, the proper treatment being urged upon the parents. Exercises have also been introduced into the schools to vary the monotony of the long periods of sitting. It should not be forgotten, however, that an occasional, according to Gould the usual, cause of lateral curvature of the spine is some defect in refraction which forces the child to hold the head to one side in order to see clearly.

The Cause of Whooping-cough.

That whooping-cough is an infectious disease caused by some specific microorganism has been the common belief among physicians ever since the microbic theory of diseases was firmly established. None of the many germs, however, that have been described by various observers, could be finally proved as the specific excitant of the infection in question, until Bordet and Gengou published their report on the bacteriology of pertussis in the year 1906 (*Annales de l'Institut Pasteur*, page 731, 1906). They found a rod-like organism, that was Gram-negative in staining properties, required blood elements in the culture media, and could be easily differentiated from the influenza bacillus and other common inhabitants of the pharynx. Many bacteriologists have since corroborated the findings of Bordet and Gengou, among them C. Fraenkel, who reports his work in the *Münchener medizinische Wochenschrift* for August 11, 1908. He has succeeded in cultivating the organism described in eight cases, failing to do so in thirty others: this large percentage of failures is explained, however, by the fact observel by Bordet and Gengou that the bacterium of pertussis is present in large numbers and almost in pure culture in the early stages of the disease, and is very hard to find or identify later, when the mouth and throat become the seat of mixed infection with a great many other bacteria. The organism proved pathogenic for animals, producing death in guinea pigs and rabbits. Of especial interest were the results obtained with apes: when exposed to germ-bearing dust the animals fell sick in five or six days, the disease closely simulating in symptomatology the usual picture of

whooping-cough in human beings. Dr. Fraenkel declares that personally he is quite persuaded that the organism discovered by Bordet and Gengou is the excitant of pertussis; he urges other workers, however, to take up the study of the bacteriology of pertussis, so that the germ may be surely identified, and the diagnosis of the disease in early stages be put upon a firm scientific basis.

Parenchymatous Injections of Protiodide of Mercury in Syphilis.

The methods of administration of mercury for syphilis have been much improved of late years over the old uncleanly mercurial inunctions. The use of intramuscular injections of insoluble salts of mercury gives much more rapid results, besides avoiding the symptoms of gastrointestinal irritation and salivation that have been the great drawbacks to the use of this drug as a specific, and have rendered necessary considerable periods of intermission in its administration. The protiodide has always been a popular form of the drug for administration by mouth. In 1902 Levy-Bing reported six cases of syphilis treated by intramuscular injections of this salt, recommending it as well tolerated, producing no bad effects and no pain after injection, while its therapeutic action against the secondary and tertiary lesions was rapid and marked. Pietro Stanconelli reports in the *Giornale Internazionale delle Scienze Mediche*, June 15, 1908, a new series of cases of severe forms of syphilis that had been rebellious to other mercurial salts, treated with marked success by intramuscular injections of the protiodide in suspension in sterile vaseline, in the proportion of one to ten. Of this suspension the dose contains ten centigrams of the protiodide, and the injection is repeated every fifth day. He confirms the statements of Levy-Bing that the salt is well tolerated, acts rapidly, and is especially effective in the secondary stage of the disease. From two to six injections will cause complete regression of the eruptions.

News of the Week.

Tuberculosis in Chicago Hospital.—The contract for the erection of the new hospital for tuberculosis on the grounds of the Cook County Hospital (Illinois) has been let and awarded for $222,900 to the lowest bidder. This new building will be five stories in height, 162 feet long, with three wings, each 128 feet long, and will accommodate 320 patients.

Rules for Tuberculous Travelers.—According to orders issued by the Lehigh Valley Railroad Company all consumptives traveling on its trains must provide themselves with sputum receptacles and private drinking cups. This order was issued in response to a request of the Pennsylvania Society for the Prevention of Tuberculosis that the railroad companies aid in stamping out tuberculosis by protecting travelers from danger of infection by the carelessness of known victims of the disease.

Summer Care of Babies.—Dr. Walter Bensel, chairman of the conference on summer care of babies, has sent a letter to each of the fifty public and private agencies that belong to the conference summarizing the work of the three summer months. The largest number of nurses employed was 83, of inspectors, 20. All told, 26,075 mothers were interviewed and instructed in their homes; 8,747 revisits were made; 4,926 instructions were given to mothers on piers; 318 lectures were given in ninety-two schools; instructions were given to mothers attending 318 school lectures, for which an attendance of 10,878 is recorded; sick babies received 1,372 visits at their homes; 1,071 treatments were given sick babies on piers, while 361 treatments were given to sick babies brought to school lectures.

Labor Unions Fighting Tuberculosis.—A pavilion for the care of patients with tuberculosis was formally dedicated, on August 29, on McCarthy avenue and Brown street, on the outskirts of Albany. The pavilion was built by the Albany Federation of Labor to aid those interested in the campaign that is being waged in this State against tuberculosis. Among those who participated in the ceremonies were Governor Hughes, Secretary of State John S. Whalen, and Homer Folk, Secretary of the State Charities Aid Association.

Bequests to Charities.—By the will of the late Levi Mayer of Philadelphia, the following bequests are made: Jewish Hospital Association, $2,000; United Hebrew Charities, $1,000; Jewish Maternity Association, $200; Pennsylvania Hospital, $100. In addition to a bequest of $2,000,000 to the New York Post-Graduate School and $500,000 to Yale University, Mr. Frederick Cooper Hewitt of Owego, N. Y., left $200,000 to the Little Missionary Day Nursery, New York; $100,000 to the Free School for Crippled Children, New York; $100,000 to the Netherwood (N. J.) Fresh Air Home; $10,000 to the American Society for the Prevention of Cruelty to Animals, New York; $10,000 to the Sheltering Arms Society, New York.

Death of a Centenarian.—Mrs. Una Carr died at Pottsville, Pa., on August 25, at the age of 105 years. She was born in Ireland and came to the United States when the only means of conveyance between Philadelphia and Pottsville was a stage-coach.

The International Congress on Tuberculosis will be held, as previously announced, in Washington, D. C., from September 21 to October 12, 1908. The actual scientific work of the sections and the general sessions will occupy the week from September 28 to October 3. Every physician interested in the subject is urged to become a member of the congress and to send his name and address together with the fee of five dollars for active membership, or three dollars for associate membership, to the Secretary-General, Dr. John S. Fulton, Washington, D. C. Dr. Charles Wood Fassett, of St. Joseph, Mo., is organizing a party of members or associates of the Missouri Valley Medical Association, who will leave St. Louis on September 26 in a special train.

Dr. S. Weir Mitchell of Philadelphia has been elected a foreign Fellow of the Royal Society of England. Benjamin Franklin was the first American to be elected a member. Only three Americans are now carried on its roll—Alexander Agassiz, George W. Hill, and Simon Newcomb.

Tabitha Hospital, Lincoln, Neb., was dedicated with appropriate ceremonies on Friday of last week. The hospital is under the control of the Evangelical Lutheran Church of the United States. The hospital will accommodate one hundred patients.

Trinidad Declared Free from Plague.—On the receipt of a telegram from the Dutch Consul at

Port of Spain, Trinidad, declaring that the sanitary situation at Port of Spain was excellent, the Government of Curacao recently removed the quarantine that was declared against Trinidad some time ago because of the bubonic plague. This step was taken in spite of the receipt of private letters from Port of Spain declaring that a bacteriological examination of rats there showed the existence of the plague among the animals.

Porto Rico Anemia Commission.—The House of Delegates of Porto Rico was called to meet in extra session on September 8 to consider, among other things, the recommendations of the Governor for the continuance of the Anemia Commission which has done such effective work looking to the supression of uncinariasis.

New York State Veterinary Medical Society.—At the annual meeting of this society, held in Utica last week, the following officers were elected: *President,* Dr. Robert Ellis of New York; *Vice-President,* Dr. Walter C. Hollingsworth of Utica; *Secretary-Treasurer,* Dr. J. Devine of Goshen; *Censors,* Dr. G. H. Berns of Brooklyn, Dr. W. L. Williams of Ithaca, Dr. F. D. Holford of Sidney, Dr. W. H. Phyfe of Chatham, and Dr. R. C. Reed of Elmira. The next annual meeting will be held in Ithaca.

A Plague Conference on the Pacific Coast.—Invitations have been issued by Dr. Spiro Sargentich, Health Commissioner of Tacoma, Wash., to all the health officers of the Pacific Coast cities to attend a conference in Tacoma for a discussion of the bubonic plague and of the means for combating it. A number of physicians of the coast cities as well as the health officers have signified their desire to attend the conference. It is believed the conference will result in the boards of health in all coast cities uniting in a vigorous campaign against rats, and will recommend the adoption of more stringent sanitary measures.

American Public Health Association.—At the meeting of this association at Winnipeg the last week in August, the following officers were elected: *President,* Dr. Gardner T. Swarts of Providence, R. I.; *Vice-Presidents,* Dr. R. I. Simpson of Winnipeg, Jesus Chico of Mexico City, and Charles F. Mason, U. S. A.; *Secretary,* Dr. Charles O. Probst of Columbus, Ohio; *Treasurer,* Dr. Frank W. Wright of New Haven, Conn. The next meeting will be held in Richmond, Va., in 1909.

New York Dispensary.—Plans for the new building of this dispensary have been filed. The new edifice, which is to cost $25,000, will be 50 feet front and 96½ feet deep, one-story and basement, in the style of the Italian Renaissance palaces, with a large central doorway finished with a decorated arch of marble and terra-cotta, supported by Cornithian columns and flanked with windows similarly arched and adorned. The building will be lighted by a dome ceiling of paneled glass. The façade will be of brick trimmed with bluestone and terra-cotta, and having an ornate cornice of terra-cotta work.

Superintendent Wanted for Craig Colony.—The Civil Service Commission of New York State announces an examination to be held on September 26 for the position, among others, of Medical Superintendent of Craig Colony for Epileptics at Sonyea. The salary attached to the position is from $3,500 to $4,500 per annum and maintenance. The vacancy has been created by the resignation of Dr. Spratling who is going to Baltimore to become a member of the Faculty of the College of Physicians and Surgeons in that city.

Phonograph Lectures on Tuberculosis.—At each of the New York county fairs visited by one of the tuberculosis exhibitions of the State Charities Aid Association a large talking machine is to be used in connection with the exhibition. The people will hear a voice telling them in solemn tones that in this country every day throughout the year over 400 lives are yielded up in tribute to the great white plague, more than were lost at the Iroquois Theater fire several years ago, and it will tell them that most of these deaths from the disease were unnecessary. The voice will tell them how the disease spreads, under what conditions it is most prevalent. It will warn the inhabitants of the rural districts that to nail their window shut is to drive a nail into their coffin. They will be asked to throw open the close, shut up parlor which is used only for an occasion like a wedding or a funeral—to let in the fresh air and blessed sunshine even though it does fade the carpets. They will be reminded that it is much better to let the carpets become faded than to allow the bloom to fade on the cheeks of their children. They will be told how the disease may be cured, how it may be prevented. Selections from comic operas and popular airs will be interspersed to amuse the visitors to the exhibition and tempt them to stay to listen to the serious talk.

The National Medical Association, an organization of negro physicians, dentists, and pharmacists, held its annual meeting in this city during the last week of August. Dr. P. A. Johnson of New York was elected president for the coming year. The next meeting will be held in Boston in the summer of 1909.

Gift to the Post-Graduate Hospital.—Mr. Frederick Cooper Hewitt, who died in Owego, N. Y., on August 30, left by his will $2,000,000 to the New York Post-Graduate Hospital and Medical School.

Public School for the Deaf and Dumb.—The first school for the instruction of deaf mutes in the New York public school system will be opened on September 14 at 225 East Twenty-third street, the building until recently given over to the Stuyvesant High School. The institution, which will comprise twenty-five classes, is intended for mute children from all the boroughs. The object of the school is to prepare children with a three-year course, so that at the end of that time they may be able to enter the regular classes of the schools and in spite of their physical handicap benefit by the general instruction.

Guaranteed Oysters.—The new section of the Sanitary Code provides that oysters that have been fattened in polluted waters cannot be sold in this city, a direct trip of the oyster from ocean to market being demanded. The new law requires that every person who sells oysters in this city must have a written permit from the Board of Health. All applicants are required to give the names of the growers from whom they buy their stock and the location of the beds. The permits are revocable on proof that a dealer is selling "drinked" oysters, as the oystermen call them—that is, oysters that have been fattened in polluted waters. During the summer officials of the Health Department have inspected all the oyster beds from this city to New Haven and down the New Jersey coast as far as Manasquan, and, according to the assurance of the health

officials, New Yorkers may consume the city's supply without the slightest fear that the oysters may have come from contaminated beds.

Alcohol and Climate.—In an address before the Anthropological Section of the British Association for the Advancement of Science, meeting in Dublin last week, Professor Ridgeway asseverated that no attempt to eradicate the tendency to imbibe alcohol in northern latitudes could succeed, because the universal love of strong drink there was not the mere outcome of vicious desires but of climatic law. Philanthropists and legislators could not do any more than control it.

Obituary Notes.—Dr. William Baer Woods of Somers, Mass., died on August 25 at the age of 89 years. He was born in Belchertown and was graduated from the Berkshire Medical College in 1841. He served for a time during the Civil War as surgeon to a Connecticut volunteer regiment.

Dr. James Clifford Kennedy of Pittsburg, Pa., died on August 25 at the age of 75 years. He was originally connected with the Pennsylvania Canal, and later served in the Civil War in the 63d Pennsylvania Volunteers. At the close of the war he studied medicine, graduating from the Hahnemann Medical College of Philadelphia in 1871.

Dr. Elbert F. Nebecker of Danville, Ill., died on August 29 at the age of 38 years. He was born in Covington, Ind., and was graduated in medicine in Chicago in 1906.

Dr. Josiah Fisher Day, a retired physician of Malden, Mass., died in Everett on August 22 at the age of 75 years.

Dr. Titus Albright of Norristown, Pa., died of typhoid fever on August 30, at the age of 48 years. He was born at Hilltown, Berks County, Pa., and was a graduate of the Medical Department of the University of Pennsylvania.

Dr. Jacob Farnum Holt of Philadelphia died on August 30. He was born in 1831 at Greenfield, N. H., and received his preparatory education at Philips Andover College. He graduated from Harvard in 1857 and from the medical department of the University of Pennsylvania in 1859. After that he was a member of the faculty of the Philadelphia Polytechnic College and served as a surgeon in the Union army from 1862 until the close of the war. In 1867 he was elected Professor of Anatomy, Physiology, and Hygiene, and later of Biology, at the Central High School, where he taught continuously until compelled recently to retire on account of ill-health. In 1891 he accompanied Commander Robert E. Peary on his expedition to the Arctic regions.

Dr. Edgar L. Phillips died at his home in Goshen, N. Y. He was born at Phillipsburg in 1827. In 1858 he joined the gold rush to Pike's Peak, traveling overland with an outfit of drugs and medicines, and driving a big herd of cattle from the Missouri River to Pike's Peak. At the outbreak of the Civil War he became the surgeon of an Illinois regiment.

Dr. A. C. Andrews of Vineland, N. J., died on August 31 at the age of ninety-three years. He was born in Bethany, Conn. He was very prominent among those who labored for the success of Vineland, and was one of the founders of Holly Beach. Dr. Andrews' mother died at the age of ninety-nine years, and he was one of twelve children, one of whom is alive at the age of eighty years, and none died under seventy.

Dr. Edward Harris Johnson of Troy, Ala., was run over by a railway train and killed on August 27. He was a graduate of the Washington University Medical School, St. Louis, in the class of 1869.

Dr. W. Reid Thompson of Mackville, Ky., died on August 29. He was graduated from the Kentucky University Medical School, Louisville, in 1905.

Dr. L. P. Barclay, formerly representing Bausch & Lomb Optical Co., died on September 1 at the Loomis Sanatorium, Liberty, N. Y.

Dr. Staats Van Duzen Clark of New Brunswick, N. J., died in that city of locomotor ataxia after two years' illness. He was 60 years of age, and was formerly city physician, and also formerly a Freeholder. He was graduated from the New York College of Physicians and Surgeons in 1870. He is survived by his wife and two sons.

Dr. Frederick T. Rustin of Omaha, Neb., was shot and killed by an unknown assailant as he was entering his home on September 2. He was a graduate of the New York University Medical School in 1897, and served an interneship in the Presbyterian Hospital in this city.

Dr. John D. Holt of Berlin, N. H., died August 20, at his home in that city, after a long illness. He was born in Rumford, Me., in 1847, and was graduated from the Bowdoin Medical School in 1878.

Dr. Henry A. Tobey of Toledo, Ohio, died in Canada on August 21, at the age of 56. He was a graduate of the Miami Medical College, Cincinnati, in the class of 1875, and was for a number of years superintendent of the Toledo State Hospital for the Insane.

Dr. Edgar L. Phillips of Goshen, N. Y., died on August 30, at the age of 81 years. He was born in Phillipsburg, Orange County, N. Y., and was graduated in medicine from the Cleveland, Ohio, Medical College in 1851. He practised for a time in Ohio, then went to California for three years. During the Civil War he served as surgeon in an Illinois regiment. After the war he practised for a number of years in Galesbury, Ill., and upon his retirement removed to Goshen where he resided up to the time of his death. He was one of the early members of the Military Tract Medical Society, and was also a prominent Mason. He is survived by his widow, two sons, and two daughters.

Correspondence.

SOME REMARKS ON ATONIA GASTRICA.

To the Editor of the Medical Record:

Sir:—Statistics have shown that diseases among the present generation are on the increase although the mortality figure has come down somewhat, that is, the average duration of life of man is longer. Czerny has pointed out some causes, as for instance overtaxation of all the mental and bodily forces which is required to meet the greater demands of life, and wasting of these forces early in life without sufficient pauses for recuperation. He enumerates further the enormous proportion of increasing city population to which may be due the fact that the young of our generation are of less resisting power, the limited sojourn in free nature being unfavorable to the development of bodily strength. The better understanding of taking care of sick children may be the reason why numerous weaklings are kept alive who formerly would have succumbed and accounts also for increase of morbidity and decrease of mortality. The main cause of the weakness of the present generation is to be found, according to Czerny, in the prevailing disability or disinclination ot mothers to nurse their children; this fact explains the existing lack of resistance and greater inclination to diseases, especially of the intestinal tract. The administration of amylaceous substitutes makes much greater demands on the infantile intestinal tract than the natural mother's milk. Adynamy acquired through unsuitable nutrition during early childhood, be it in animals or in man, is never sufficiently compensated for in later life, however

generous the diet and care may be. From this lack of resistance in infancy, pointed out by Czerny, dates the inclination to atonia gastrica, that is, the relaxation of the abdominal muscles, the ptosis of the viscera, namely the stomach, the liver, the spleen, the kidney, the intestine, and also deviations of the uterus. There can be no doubt that the prevalence of perityphlitis may be explained by the prevalence of atonia gastrica in consequence of intestinal displacement acquired through improper nutrition during infancy. These many years I have called attention to the significance of abdominal relaxation, atonia gastrica, gastroptosia, splanchnoptosia, enteroptosia—all these are synonyms—in its relation to gastroenteritis, to neurasthenia, to chololithiasis, enteric and uterine hemorrhages, and to diarrhea, and I have demonstrated that the abdominal plaster belt, suggested by me, is the most effective of all the means known in the treatment of atonia gastrica provided the belt is of the best material and is skilfully applied.

On the occasion of the Congress on Tuberculosis I wish to emphasize that the treatment of atonia gastrica by means of the adhesive plaster belt is one of the most important therapeutic measures in cases of tuberculosis. By this method consumptives suffering, as most of them do, from abdominal relaxation, will be relieved from reflex cough and reflex vomiting and their circulation, nutrition, metabolism, and general condition will be decidedly benefited.

A. Rose, M.D.
New York.

OUR LONDON LETTER.

(From Our Special Correspondent.)

PLAGUE—THE ANTIVERMIN CRUSADE—NURSES FOR THE TERRITORIALS—HOSPITAL WORK—AMBIDEXTERITY—HONORARY FELLOWS R.C.S.—POLLUTED MUSSELS—MORTALITY OF LAST QUARTER—OBITUARY.

London, August 21, 1908.

The outbreak of plague in the Gold Coast Colony, which lasted from the beginning of January until May, was met with commendable enterprise. Of the cases admitted to the hospital at Acera 50 per cent. recovered. Professor W. J. R. Simpson was engaged to investigate and advise, his previous experience as Medical Officer of Health for Calcutta and as Government Commissioner to inquire into the disease in Hong Kong pointing him out as well qualified for the work. His report has been issued in the *Gazette* of the colony, and shows the measures adopted. To suppress the disease in Acera itself they were: (1) Removal of the sick to hospital; (2) establishment of isolation camps; (3) fumigation of infected dwellings and in some cases their destruction; (4) destruction of rats, as there was an epizootic of plague among them; (5) inoculation with Haffkine's prophylactic. This last was the most popular measure, and over 15,000 of the inhabitants were inoculated. The eagerness of the natives to submit to this prophylactic was such that they struggled and even fought to be the first for the treatment. Professor Simpson is inclined to think that the inoculation did more than anything to save the situation, especially as the sanitary state of Acera was exceptionally bad. Outside the city the natives were equally eager to submit to the treatment, so that altogether over 31,000 persons in the colony were inoculated.

The measures adopted to prevent the spread of plague beyond Acera were: (1) The establishment round the town of a land cordon through which no native was permitted to pass without a passport, verified by a thumb mark and showing that inoculation had been undergone a week previously; (2) inoculation of all those leaving by sea and fumigation of their clothing, etc.; (3) inspection of all cargo and fumigation of all coverings. The infection of some localities emphasizes the value of these precautions, everything going to show that the land cordon and passports were most effectual. After the system was in force there was no instance of a sick person infecting villages beyond the cordon, as had previously occurred. The regulations raised no serious opposition, and nearly 4,000 passports were issued. As to sea passages, there was objection by the captains of vessels to receive passengers and sometimes even cargo. Professor Simpson thinks much of the inconvenience to trade was due to captains having their own notions. Considering that there are no ports and harbors, but the ships remain a mile or two from the shore, he does not believe infection is carried to them by the surf boats. Indeed, he says that with regulations such as those enforced at Acera there is no danger of infection by passengers, by cargo, or by rats. One cannot, however, be surprised that many captains were rather mistrustful.

To prevent future outbreaks a special staff has been appointed for cleansing and fumigating houses and destroying rats. Further arrangements have been made for the regular examination of rats so as to detect the first sign of plague among them.

The defect in the registration of deaths is pointed out as calling for removal since medical officers need the data about mortality to enable them to learn the existence of infective disease in the colony as soon as it appears in order to cope with it at once.

Naturalists as well as bacteriologists are in favor of the war on vermin. The society for their destruction, which is now only "incorporated," has among its supporters such authorities as the Duke of Bedford, the Earl of Dalkeith, Lord Ansbury and other eminent naturalists, as well as, of course, a long list of distinguished doctors. Rats claim the first attention of the new organization, but mice, mosquitos, sparrows, house flies and in fact all pestiferous insects and parasites will be included in its operations. It is hoped the war on these pests will be vigorously waged in other countries also. In Denmark there is an association for the extermination of rats which has been instrumental in passing an act enabling a small rate to be levied for the furtherance of its objects. Here we have to depend on voluntary work and the new "incorporated society" may serve to advise and reinforce the spasmodic efforts made by the many rural and district clubs scattered over the country which deal with the rat and the sparrow. No doubt the house fly, which is so annoying in the summer here, often carries the germs of typhoid and other diseases and is especially responsible for the many deaths of children from summer diarrhea. In Colombo at this moment we hear that enteric is raging and that its dissemination is due to the myriads of flies swarming in heaps of refuse which, in spite of all efforts, abound in the native quarters.

As supplementary to the arrangements for the medical service of the Territorial force, which I have previously described, I may add a note on the provision of nurses proposed by the Director General. It is too soon to say to what extent volunteers will come forward and Surgeon General Keogh does not anticipate any lack of patriotic response to the call. A matron will be required to join the administrative staff of each general hospital and control an establishment of thirty sisters and eighty-eight nurses. Every two years she will be given the opportunity of studying for one week the administrative duties of matrons in large military hospitals. These ninety-one nurses required for each hospital in time of war will be enrolled by local committees at each of the twenty-three hospital centers which county associations will take part in establishing.

As regards voluntary aid societies, the British Red Cross Society has already organized itself on a plan corresponding somewhat to that of county associations so as to focus county efforts. Last year the War Minister held a conference with the committee of the society; as a result of that meeting the army council after full deliberation has approved the proposals made by the Director General of the Army and Medical Service, Surgeon General Alfred Keogh.

Some statistics have been published as to the work of the hospitals and charities assisted by the Sunday Fund. It appears that the total number of beds in thirty-four general hospitals was 6,126; the average number occupied daily was 5,106. The total number of in-patients in the year 75,417; attendances of out-patients 3,236,499. The payments by patients amounted to £16,829; income, £706,757 (the average of three years); expenditure, £723,200 for the same period, but including investments of legacies—an item one would think should be afforded a separate entry.

At the London Hospital there are now 922 beds and the average daily number occupied was 792. In-patients numbered 13,532, out-patients' attendances 570,375. Payments by patients £2,202. Gross annual income and expenditure £94,469 and £127,328, respectively (three years' average). Approximate cost of an in-patient £1 18s 2½d per week, of an out-patient 8½d per head.

Sir J. Crichton-Browne, in an address at Cambridge, denounced as faddism the attempts of some people to urge the cultivation of ambidexterity. He said it was flying in the face of evolution, and there was no instance of any tribe which had grown out of it finding salvation in a return to it. The Japanese Ambassador had assured him that there was no truth in the statement of a lately published book that his countrymen were by law or practice ambidexterous. Left-handedness and ambidexterity, Sir James averred, was common only among idiots, and thought it might be of use in some special employments, on a large scale it tended to confusion and if pushed as far as its ardent advocates were clamoring for it, would necessitate the enlargement of our overcrowded lunatic asylums. You will perhaps remark on this that Sir James

displays as usual very positive opinions. I asked an eminent surgeon what he thought of the recent disputation on the subject, and he answered that he rather preferred "one right hand to two left ones."

On Tuesday Dr. Lucas Championniere went to the Royal College of Surgeons and signed the Roll of Honorary Fellows. This order of Fellows dates from 1900, and was instituted to celebrate the centenary. The King, the late Marquis of Salisbury, Earl Roberts, the Earl of Rosebery and of course many distinguished surgeons have been placed on the Roll.

Dr. Duchan, Assistant M. O. H. for Birmingham, has prepared a report on the consumption of mussels in reference to typhoid. In 62 out of 74 cases of typhoid noticed in four years, the onset occurred in the height of the mussel season. Twenty-five samples of raw mussels from fifteen markets were examined and many of them gave evidence that they had been exposed to pollution.

The registration returns show that during the second quarter of the year the death-rate for England and Wales was 13.8 annually per 1,000 persons living. This shows a fall of 1.8 per 1,000 below the mean rate in the ten preceding second quarters. It is, moreover, the lowest death-rate recorded in any second quarter since civil registration was established.

Harold L. Barnard, F.R.C.S., M.S. (Lond.), died on the 13th inst., at the age of 40. He had attained the position of Surgeon to the London Hospital, and had been teacher of anatomy and of physiology in the hospital college, as well as surgical tutor and surgical registrar. He had also been on the staff of the Metropolitan Hospital. He took his M.B. and B.S. with first-class honors in 1895, and the F.R.C.S. the same year, and the next proceeded to M.S. His health had been indifferent for some time, but he was able to get through much anxious work. He was recognized by his colleagues as a most skillful surgeon and original investigator. He wrote the article in Allbutt's System on Intestinal Obstruction and various contributions to the journals, particularly on abdominal surgery.

Sir Charles Gage Brown, K.C.M.G., M.D., LL.D., died on the 13th inst., aged 82. He was son of the late Commander Charles Brown, R.N., was physician and medical adviser to the Colonial Office and to the Crown Agents for the Colonies from 1874 to 1897, and latterly to some departments of the Foreign Office and the Audit office. He was made K.C.M.G. in 1897. He qualified in 1847, took M.D., St. And., in 1851 was elected F.R.C.P. (Edin.), 1870, and was President of the St. Andrew Graduates' Association from 1874 to 1897.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

CHOLERA—SEGREGATION OF LEPERS—A NEW MATERNITY HOSPITAL—SANITATION OF THE IWAHIG PENAL COLONY—PERSONAL.

MANILA, P. I., July 18, 1908.

THE present outbreak of cholera in the Philippine Islands is still giving cause for considerable alarm. While the number of cases has decreased in the province of Capiz and no further spread in the island of Panay has taken place, yet in the province of Pangasinan it does not show much evidence of coming under control. The disease has been spreading steadily and now involves the provinces of Tarlac, Nueva Ecija, Union, and Ilocos Norte, and so far the measures which have been taken to check this spread have not been rewarded with any great success. An average of about 200 cases per day is occurring now in the provinces mentioned above. Among these the mortality is reported as being about 50 per cent.

The plan of allowing the different municipalities to combat the cholera themselves has not proven very satisfactory from the standpoint of immediate results, and the present cholera outbreak is fairly conclusive evidence that the provincial districts are not yet ready for that share of local autonomy for which they have been constantly clamoring. At the time the more experienced cholera force of the Insular Bureau of Health was sent into the field, the disease had already assumed such proportions that it could scarcely be expected that it could be brought promptly under control. The municipal experiment was much of the same nature as if a house were set on fire in order to ascertain whether an untried volunteer fire company could put it out, and after it had failed, and the flames were becoming uncontrollable, then to call upon the regular fire department to battle with the situation.

In addition to the cholera previously reported, the disease has also made its appearance in ports of the province of Misamis, on the island of Mindanao; an average of about thirty cases per day is being reported. There are two towns so far reported as being infected, Balingasan and Cagayan. From the first appearance of the disease in that province up to the present time there have been 378 cases and 119 deaths reported. In spite of the fact, however, that the conditions in Pangasinan are not as encouraging as they might be, yet they are better than in 1902. The strenuous measures which were adopted at that time did much to arouse passive resistance in the people of the provinces, and the opposition which was engendered is still felt, and, no doubt, is largely responsible for the opposition which is made to sanitary measures. In many of the towns which the officials visit for the purpose of combating cholera, they find the people in fear and trembling lest their houses are to be burned down; but when they learn that such radical measures are not to be taken, and that the health authorities are really working for the material benefit of the inhabitants, in many instances their cooperation and help are secured.

In the report of the Bureau of Health for the quarter ended June 30, 1908, it is stated: "It is believed that sanitarians of experience will all agree that the best hope of completely eradicating the disease from the islands lies in the education of the masses with regard to the manner in which the disease spreads and the introduction of good water supplies. Both of these conditions are being met as rapidly as possible; the press, the schools, the churches, and the Government officials are all aiding in this work, and with the appropriation of $150,000 made by the Legislature, artesian wells are being bored as rapidly as the facilities of the Government will permit." Doubtless at a no very distant future the disease will be entirely suppressed, or at least be entirely under control by the sanitary authorities.

The work of segregating the lepers of the Philippines is still being steadily carried on. It is estimated that there are from twelve to fifteen hundred yet to be transferred to Culion. Less than two years ago there were more than three thousand five hundred at large in the islands. At the present time the provinces of Mindoro, Basbate, Romblon, Capiz, Iloilo, Antique, Oriental and Occidental Negros, Samar, and Leyte have been gone over a number of times, and, with the exception of a few isolated cases, it is believed that these districts are now free from lepers. The provinces of Cebu, Bohol, Ambos Camarines, Batangas, Tayabas, Albay, Sorsogon, Benguet, Lepanto-Bontoc, and Ilocos Sur have been gone over once, but experience shows that even with the best of care a considerable number remain after the first collection is made, and it is therefore expected that these provinces will be gone over several times more before the work can be considered as completed.

Another charity hospital has lately been added to the number which are gradually being established in the city of Manila. The present hospital is a maternity hospital and is located on Calle Quesada, in the district of Tondo, in a section which is well known for its poverty and ignorance. The building was donated by Mr. D. S. B. Johnston, of St. Paul, Minn., and the land, furnishings, and equipment were supplied by the Foreign Mission Society of the Methodist Episcopal Church, under the auspices of which the new hospital is being conducted. The institution, when completed, will have a capacity of upward of twenty beds.

The sanitation of the Iwahig Penal Colony, which colony, it may be remarked, had to be abandoned entirely by the Spanish Government on account of pernicious malarial fever which was encountered there, and which was responsible for the death rate of 200 per 1,000 per annum among the inmates of the institution at the beginning of the American administration, is still being successfully carried out. During the past year the death rate has been less than 10 per 1,000 per annum. The average number of persons confined to the hospital daily is about ten, and the total number of prisoners is about 500, so that it may be seen that the morbidity is very small and will compare most favorably with that in any similar penal institution in the United States.

Major William Stevenson, the senior surgeon at Fort McKinley, and Major William C. Borden, the surgeon in charge of the Division Hospital, Manila, both of the Medical Corps of the United States Army, have been directed to proceed to Washington for examination for promotion, and will leave the Philippines on the transport which is due to sail from Manila, August 15, 1908.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 27, 1908.

Gastromyxorrhea.—Julius Friedenwald says that Kuttner considers the evidence of more than 5 c.c. of mucus in the fasting stomach as abnormal and when over 25 c.c. in amount as indicative of the condition which he terms gastromyxorrhea. Intermittent gastromyxorrhea occurs but rarely; the chronic or continuous form is more frequent. Kuttner was unable to find any evidence of locomtor ataxia in the cases of intermittent gastromyxorrhea that he investigated, though the sudden onset of the attacks as well as the sudden disappearance reminds one very much of a gastric crisis. The attacks may begin with prodromal symptoms, headache, loss of appetite, nausea, etc., and more usually begins in the midst of perfect health, often early in the morning soon after awakening. The most striking symptom of this paroxysmal attack is severe vomiting of large quantities of tough, slimy liquid, then of bile and intestinal juices, but it contains no food remains. During the attack the stomach refuses to retain food, drink, or medicine. The abdomen is retracted, the pulse small, the tongue dry, and the quantity of urine is much diminished. The attack may last from one to even twelve days, and ceases suddenly. In the beginning of an attack Kuttner advises a thorough lavage of the stomach, which he believes may terminate the attack. Morphine often gives temporary relief, and in cases of extreme exhaustion and weakness, normal salt solution enemata or infusions may be indicated. A careful investigation should be made as to the primary disorder, which, if possible, should be relieved. Chronic or continuous gastromyxorrhea may be associated with hypersecretion of acid or with various organic diseases, or may exist as an independent functional neurosis. The condition seems to be favored by the ingestion of starchy food. There are no characteristic symptoms. The diagnosis is established by the discovery of large quantities of mucus in the fasting stomach. Lavage should be practised for the removal of the mucus, provided there are no contraindications. Instead of this, Kuttner advises the administration of mineral waters.

Renal Insufficiency; the Importance of Its Early Recognition.—G. M. Randall suggests a definition for renal insufficiency as a criterion by which we may recognize certain constitutional diseases and disturbances of other organs and functions which tend to progress to organic renal lesions, chiefly spoken of as parenchymatous and interstitial nephritis. An interstitial nephritis cannot exist without involving the parenchyma. He considers the prophylactic treatment of the various forms of nephritis. The most conspicuous means of hereditary transmission are through syphilis and diabetes. The only effective line of defense is the everyday life. The daily diet is the greatest evil. The nitrogenous intake is generally far in excess of all demands, and it is beyond the physiological power of the kidney to eliminate the products of this excess without harm. There is no one more potent factor in the causation of diseases of the kidneys than an excess of the uric acid in the blood. A diet containing all necessary food principles may be selected that entirely eliminates the flesh of animals. Likewise, other common articles of diet which are rich in purin bodies may be dispensed with. Alcoholic beverages have no place in the dietary of the person desiring to live an efficient life.

New York Medical Journal, August 29, 1908.

The Treatment of Tuberculosis by the Administration of Mercury.—Barton Lisle Wright, U. S. N., says that six months ago they began the deep muscular injections of mercury in cases of tuberculosis, during which time two reports have been published. In the latter report appeared the results of forty cases then under treatment, showing 70 per cent. of improvements. Since this report appeared the percentage of improvements among these forty cases has risen to 85. They now had sixty-five patients taking the treatment, and from present indications the percentage of improvements will equal, if not surpass, that obtained from the forty already reported. Of the forty-one patients not taking the treatment but a few are improving.

An Experimental Study of the Trypsin Treatment in Cancer.—J. W. Weinstein, in order to test the efficacy of trypsin treatment in cancer, experimented in ten cases, and concludes that the trypsin cure is a total failure in his hands, even after a series of careful trials and painstaking labors, and, in his opinion, this new cure should be relegated to the vast legion of other so-called cures for cancer that have preceded it, and that the cancer problem so far remains unsolved.

Properly Constructed Filtering Beds.—Paul F. Bussman believes that instead of placing conducting pipes having broken joints on the bottom of a reservoir, they place them on the bottom of the river, lake, or whatever may be the source of the water supply, and cover them with successive layers of broken stone of large size, and then stone of a smaller size, upon this gravel, followed by coarse sand. Then all the pure water will pass to an unlimited amount and the foreign matter held in suspension will not be deposited on the filter, provided the flow through the filtering bed is not greater than the flow over the same. Foreign matter held in suspension in a liquid will follow the lines of least resistance. If for every million gallons of water used in a day a filtering bed of one acre in size was used, the flow through the filter would be at the rate of one yard a day. A body of water flowing at the rate of one mile a day would be a very slow natural current; still the flow would be one thousand seven hundred times faster over the filtering bed than through the same, and where this is the case there will be no deposit of foreign matter to clog the filter.

Observations on Open Air Treatment.—John Carling says that, admitting that a maximum amount of pure air to the lungs is the main consideration in the treatment of bone tuberculosis as well as pulmonary, it follows that dry inland air, which encourages deep breathing, is to be preferred to the humid atmosphere of the seashore. Another important advantage is the matter of shade. His own experience in the tropics, where the sunlight is intense, and his further observations on the effect of strong sunlight upon patients undergoing open air treatment, convince him that it is decidedly harmful. The firm nature of the soil is another reason for preferring the country to the seashore in bone tuberculosis. The yielding nature of the seashore makes locomotion difficult for children wearing apparatus, and is a constant strain on the weakened and diseased joints. For rickets and cases of general malnutrition, where there is no actual disability, and sea bathing can be indulged in, a residence at the seashore may be beneficial. But for bone and joint tuberculosis a dry inland climate is to be preferred. Patients undergoing open-air treatment do much better in winter than in summer. This may be due to (1) the diminished amount of strong sunlight; (2) the cold air, which contains more oxygen than the warmer and more rarified air of summer; (3) the stimulating effect of the cold on the functions of respiration, resulting in deeper and more frequent breathing, and consequently a greater supply of oxygen to the tissues. He says that in spite of the success met with in treating all classes of diseases with an abundance of pure air, the large city hospitals are doing practically nothing to give the patients the benefits of open-air treatment. Every large city hospital should have a country branch. With a well-equipped hospital car in charge of a member of the house staff, patients could be transferred from the city institutions to the country, not only without injury, but with comfort.

Journal of the American Medical Association, August 29, 1908.

Salt Metabolism and Diabetes.—E. P. Joslin and Harry W. Goodall have studied the question whether the withdrawal of salts from the diet might lead, as a rule, to the production of an acidosis in a healthy person or to the aggravation of such a condition already existing in a diabetic patient. The result of their experiments indicate that such is not the case. They have also investigated the occurrence of edema in diabetes, which is, they say, not infrequent in cases presenting marked acidosis and occurs coincidently with restrictions of the carbohydrates. These patients were given sodium bicarbonate, but the authors do not recognize this latter as a factor and they have never seen it cause edema in a mild case of diabetes. They consider the edema as probably due to the increased production of acids causing injury to the kidneys, thereby leading to retention of salt (not salts). This view appears to be supported by the history of some of their patients in whom the ingestion and excretion of chlorin was observed. Patients in diabetic coma rarely, if ever, show signs of edema, and show diminished chlorin in the urine if alkalies are given. If the withdrawal of salt from the diet in a severe case of diabetes prevents the occurrence of edema, as was observed, the administration of salt should lead to salt retention and gain in weight. This was found to occur. In patients with deficient chlorin in the body, edema is not likely to occur, but they are more prone to coma because of the greater concentration of the acids in the system. The authors, therefore, advise the careful administration of salt along with sodium bicarbonate in the prophylactic and actual treatment of diabetic coma.

Obstetrical and Surgical Toxemias.—H. G. Wetherill concludes from his study and observation that: 1. Toxemias of pregnancy, sepsis, sapremia, late chloroform

poisoning, etc., may have many characteristics in common, and from the clinician's standpoint may be grouped together for purposes of study, prevention, and treatment. 2. Chloroform may cause such toxemia and liver lesion *de novo*. 3 It also aggravates toxemias already existing of the hepatic type. 4. Pregnancy, retained blood, and clots of concealed hemorrhage, the sapremia from decomposing placental and fetal debris, sepsis, and the autointoxication of overfeeding and drinking and of coprastasis predispose patients to such liver lesions. 5. Urinary insufficiency with acidosis and a high ammonia coefficient, retinal hemorrhages and neuroretinitis, regurgitant vomiting of the mucous, grumous, and bilious type, with or without slight jaundice, and with or without albuminuria, constitute the syndrome of such toxemias. 6. Albuminuria, when it occurs, may be, and often is, late in developing and should be regarded as secondary rather than primary—as a result, not a cause of the condition. 7. In such toxemias of pregnancy with or without pernicious vomiting, the uterus should be promptly emptied, but without the use of chloroform and, if possible, without any other anesthetic. 8. Fasting and forced elimination by the skin, kidneys, and bowels offer the best prosepects of cure after, as well as before, the removal of the cause.

New Sign of Malingering.—C. F. Hoover describes a test of malingering which he has used in fever cases with good results. It is applicable in case of feigned paralysis of the lower limbs and consists in watching for the counteraction of the opposite leg when an attempt is made to raise one leg by the subject when in a dorsal position. In the normal individual there is always an opposite action in the unused leg unless it is inhibited, and in case of hemiplegia it appears whether there is any muscular action in the paralyzed limb or not. In two cases in which paresis of one leg was claimed to exist, when the patient was asked to lift his well leg off the couch, the other was pressed strongly against the surface when resistance was offered to his raising it. When, however, he was requested to lift the alleged paretic leg no downward pressure was observed in the other. The absolute lack of complemental resistance in the normal leg was also observed in a case of hysterical hemiplegia and in a case of hysterical paraparesis inferior, with abasia, in which the patient could bow himself into opisthotonos, this sign was observed. The sign appears to Hoover to be of special value as depending on the exhibition of a function from the normal leg which must always be present if the patient does not inhibit the impulses to the lower extremities.

Venesection.—J. Daland remarks on the present neglect of the therapeutic use of venesection, which he attributes to the prejudice caused by its former overuse, the fear of weakening already enfeebled persons, the prejudice on the part of the laity, the failure of many physicians to recognize its indications and limitations and, lastly, to the belief that a small weak pulse is an absolute contraindication to blood-letting. Usually it is resorted to as a palliative or life-saving measure, but he points out that it is indicated in certain cases of valvular disease with well-marked failure of compensation, in which there is extreme orthopnea, cyanosis, tumultuous cardiac action, small rapid pulse, distention of veins of head and neck, weak apex beat displaced to the left and seen and felt over a larger area than normal; increase in area of cardiac dullness to the left and right, and not infrequently accentuation of the pulmonic second sound. Blood-letting is especially indicated if these symptoms and signs are progressive in spite of the ordinary cardiovascular remedies. In such cases twenty ounces of blood may be taken slowly from the median cephalic vein, and if myocardial degeneration is not excessive the relief is prompt. Here the small weak pulse is due to venous congestion and overdistention of the right side of the heart. The relief may be only temporary, but it gives ordinary remedies a chance to act which was before impossible. The above symptoms may occur late in the disease affecting the mitral and aortic valves. In well-marked myocardial degeneration, bleeding is useless. Venesection is of great value in mitral stenosis with extreme right ventricular dilatation with failure of compensation and also frequently in such failure of compensation as described occurring in the course of arteriosclerosis. It may also be useful in acute pulmonary edema from right heart dilatation, and in aneurysm of the arch of the aorta the abstraction of eight or nine ounces can temporarily relieve dyspnea or pain. In all cases of failure of compensation of the kind described, exudates in any of the serous cavities should be removed before resorting to venesection. Lastly, Daland speaks of blood-letting in case of extremely dilated right heart from pulmonary obstruction in pneumonia, in which the abstraction of from 20 to 24 ounces may save life. Certain deaths following venesection in pneumonia are due to a prior formed thrombus, others to previous myocardial disease. The bleeding should, therefore, be not too long delayed to prevent thrombosis or excessive toxemia. The good results of bleeding in uremic hypertension and in certain cases of apoplexy are also mentioned.

Nasal Analgesia.—Dunbar Roy calls attention to the symptom of nasal analgesia, understanding by this term an insensitiveness of the nasal mucosa, making it possible to perform all kinds of instrumental manipulations in these cavities without discomfort to the patient or the use of any local anesthetic. He finds no mention of it in the literature and apparently it has not been considered by the majority of surgeons, judging by the replies received from a number of them. Roy is convinced that the present teachings are largely wrong as regards the cause of the progressive deafness that comes on insidiously in young adults and those of advancing age who have previously shown no symptoms of nose or throat derangement, and he thinks that this symptom of nasal analgesia may prove a valuable point in the future management of the conditions. He is convinced that this form of progressive deafness is a disease *sui generis* and that the aural and nasal musoca undergo the same pathological changes. The more advanced these changes the less favorable the prospect of the improvement of hearing. The same changes finally occur also in the auditory nerve. He thinks lack of sensibility in the nasal cavities in these cases has a bad prognostic significance. The symptom, he thinks, may aid us in directing the treatment to measures that will increase the vitality of the nasal and aural tissues and their nerve supply. Hence the value of potassium iodide in these cases.

The Lancet, August 22, 1908.

The Alleged Discovery of Syphilis in Prehistoric Egyptians.—G. Elliot Smith takes issue with the statements of Professor Lortet and Dr. Fouquet that certain lesions found in the bones of prehistoric Egyptians are due to syphilis. He points out that "ulcers" presenting the closest resemblance to those described by these men are of very frequent occurrence in Egyptian bones of every age when they are actually buried in contact with the soil. Bodies buried in rock-cut tombs or in coffins are exempt from such injuries. When such mutilated bones are removed from the soil the burrows of small animals can be seen leading to the "ulcer." Fragments from the walls of these burrows, and also those taken from the damaged surfaces of bones, were found to contain fragments of the elytra of beetles. He does not think there is any doubt but that the injuries described by Professor Lortet and Dr. Fouquet as the result of syphilis were produced really long after death and burial and that the damage was done by small beetles. They were bound to admit that, so far as they knew at present, syphilis did not occur in Egypt before the time when intimate communication with Europe was established.

Generalized Edema of the Fetus.—W. W. Kling reports two cases of generalized edema of the fetus, a condition which has frequently been observed both in man and in animals. The main conclusions to be drawn appear to be that edematous children are usually born of women of about the ages of 30 to 35 years who have had previous abortions or premature stillbirths. The mother's health is rarely good, but there is no specific disease associated with the condition. Evidences of syphilis have only been found in a few instances. The labor is usually premature but the large size of the child often causes obstruction during labor and the friability of the tissues when present renders artificial aid difficult. While the maternal prognosis is good the children are either stillborn or only live a few hours. Subsequent pregnancies may end either normally or with premature stillbirths or, in a few cases, with more edematous children. The causation of this condition is very obscure.

A Case of Congenital Hypertrophic Stenosis of the Pylorus Treated Medically.—Norton B. Clowes reports the case of a baby weighing eleven pounds at birth in whom artificial feeding was begun on the second day. The child failed to gain in weight and various foods were tried. Finally on deep palpation an indurated pylorus could be felt, about the size of the end of the thumb. It was situated one inch above and to the right of the umbilicus. For over two months he continued to lose in weight and developed the typical expression,

hollow eyed, emaciated face, extreme transverse wrinkling of the forehead, etc. Each time the tube was passed into the stomach, even when not directly after a feeding, it contained from two to three ounces and sometimes more of food and slimy mucus. Five months after birth he had just gained two ounces over the birth weight, *i. e.* he then weighed eleven pounds and two ounces. He then gradually began to improve and soon weighed what a child of his age should weigh. He continued to improve and was soon looked upon as being a well child.

A Case of Ipecacuanha Poisoning.—Such a case is reported by R. T. Harrison because of its rarity as a (supposed) cause of death. The boy, a negro, was in the habit of stealing alcoholic mixtures from the dispensary and, by mistake, drank a considerable portion of vinum ipecacuanhæ. He apparently chose his drinks by smell. He had violent vomiting and retched considerably. The extremities were cold and clammy. The pulse was rapid. He complained of pain in the abdomen and had slight abdominal cramps. He was given large quantities of water and a little brandy. The first portion of the vomit had been thrown away before his arrival but he managed to secure about half an ounce from the bottom of the chamber. It showed nothing distinctive in smell or appearance. As his condition was not improving under such treatment as could be applied at the time and place, he hurried to the surgery to prepare for him. Five minutes later the messenger reported that he was much worse; he died one and a half hours after the first symptom. At the post mortem, fourteen hours after death, they found subacute congestion of the stomach and first two feet of the intestine. It was decided that an analysis of the stomach contents and vomit was unnecessary and a verdict was returned of death through misadventure.

Münchener medizinische Wochenschrift, August 18, 1908.

Motility of the Stomach.—Kaestle says that the examination with the .r-rays is the best means for studying the motility of the stomach as well as its position, form and size. He has made over two hundred observations on eighty persons with healthy stomachs using various bismuth salts in the technique of the procedure. The parts of the mixture first introduced remain for a short time in the upper pole of the stomach and then descend to the deepest part of the organ; the further additions do not cause the lower pole to descend. The ingesta begin to be emptied very soon after their entrance, peristaltic waves running across the organ and periodically shutting off the pyloric antrum. After about one hour's time the lower pole, which has remained stationary, rises to a considerable distance, and this moves the pylorus to the left and upward. This rising of the stomach allows the escape of the last remains of the food, the closing contraction of the organ driving it toward the exit. In two of the persons examined the stomach was empty in two hours; at the end of three hours this result was reached in the great majority of the subjects, especially in men; most of the women required three and one-half hours for attaining this result. The normal time required for emptying the stomach ranges, therefore, from two to three and a half hours. Two to three hours are taken up by the stay in the small intestine, while the motion of the shadow in colon is very slow and quite different for different individuals.

Serum Diagnosis of Syphilis.—Taege gives a detailed account of the Wassermann reaction for syphilis. Its purpose is to decide whether a general infection with the virus in question has already taken place or in other cases whether an old infection is still present. The reaction depends upon the presence in the organism of an antibody to the syphilitic toxin or antigen, which in this case is the *Spirochæta pallida* or its products. As this germ has not yet been grown in the laboratory the extract of an organ of a syphilitic fetus is used as the source of the antigen. The antibody is sought for in the blood of the patient, a complement being necessary to produce the binding of the antigen to the antibody. It is the using up of such complement present in every serum by the interaction between the two specific products of syphilis that is looked upon as the indication that such bodies are present in the serum examined. To demonstrate this disappearance of complement a hemolytic serum is obtained by gradually immunizing a rabbit to the red blood cells of a sheep; the serum of such a rabbit contains a hemolysin which is a compound substance consisting of the normal complement and of an amboceptor. The serum loses its hemolytic property on warming to 56°, for this temperature destroys the complement. The addition of the serum of a guinea pig brings back the hemolytic property, for such serum provides the necessary complement for the hemolysin. But if the red cells of the sheep are mixed with the hemolytic serum of a rabbit, the serum of a guinea-pig and, in addition, with the syphilitic antigen and the serum of a patient suffering from syphilis no hemolysis takes place, because the complement necessary for the hemolysin has been used to bind the syphilitic antigen with the antibody of the syphilitic serum. The inhibition of the hemolysis is accordingly the indication that a specific antibody exists in the blood of the patient examined and that, therefore, he is suffering from a syphilitic infection. The occurrence of hemolysis, on the other hand, speaks for the absence of such infection, the complement of a guinea-pig's serum being used to produce a hemolysin and not to effect the interaction between the antigen added to the mixture and an antibody, the latter being absent from the serum examined.

Paratyphoid Infection.—Bingel says that the infection of the organism with the paratyphoid bacilli may produce a clinical picture similar to that of typhoid fever. Quite frequently, however, the infection produces a different symptom-complex which has most in common with acute gastroenteritis. The paratyphoid infection is, therefore, not to be looked upon clinically as an irregular typhoid fever, but as a gastroenteritis differing from the usual types of that disease by the presence of a specific excitant. The name "paratyphoid fever" is quite misleading as far as the bedside picture of the disease is concerned, however applicable the word "paratyphoid" may be to the bacilli causing the disease.

Local Anesthesia in Operations for Hernia.—Nast-Kolb says that local anesthesia is used in the Heidelberg Surgical Clinic for almost all operations on hernia and is preferred to lumbar narcosis; only in the case of very anxious patients inhalation anesthesia is used as an auxiliary measure. Local anesthesia, however, is never used in children under 10 years. Both reducible and irreducible inguinal and femoral herniæ can be operated upon under such anesthesia, but in handling the intestines any unnecessary pulling upon the mesentery is to be avoided. Many adhesions between the sac and the contents are a contraindication to local anesthesia. In some cases morphine or scopolamine is administered one half hour before the operation. The sense of touch is retained by the patient while pain is deadened in the anesthetized portions of the tissues, and gentleness is called for in the technique of operating. Primary union of the wound has been the rule and no bad effect upon the postoperative course could be discovered, with the exception of marked pain that is felt for several hours after the operation. The few disadvantages of local anesthesia such as the necessity of waiting for the action of the narcotic and the changes produced in the anatomy of the parts by the infiltrating fluid are more than made up by the small degree of danger, by the absence of vomiting, the possibility of asking the patient to help the operator by coughing, straining, etc., the possibility of operating without an anesthetizer, and the absence of the necessity to watch the patient for some time after the operation which of course must be done in inhalation narcosis. The above data were gathered in the course of 92 operations for hernia performed in the period of seventeen months.

Deutsche medizinische Wochenschrift, August 13, 1908.

Time of Conception.—Schaefer had opportunity to examine four aborted fetuses and obtain full data as to the time of intercourse preceding the conceptions. He concludes that the views of Sigismund and Loewenhardt according to which the impregnated ovum belongs to the first missed mentsrual period are probably correct. Menstruation consists of the phenomena accompanying the abortion of the unimpregnated ovum. Ovulation and impregnation probably precede the date of the first missed menstrual period by a few days; rarely they may coincide with it. Spermatozoa are capable of remaining alive in the genital tract of the female during the whole period elapsing between two menstruations and thus preserve their impregnating function. A fruitful intercourse can take place at any time, but the postmenstrual period is most favorable for conception. Subjective symptoms of pregnancy may appear very soon after the impregnated ovum is embedded in the uterine mucosa. In reckoning the time of pregnancy, the type of menstruation, the beginning of the last menstruation and its character, the date of the last intercourse between the last menstrual period and the first missed period, and the appearance of subjective symptoms must be taken into consideration. In regular types of menstruation the probable time of impregnation may be obtained by the addition of the number of days intervening between menstruations minus three to the beginning of the last period.

Book Reviews.

Sprachstörungen und Sprachheilkunde. Beiträge zur Kenntnis der Physiologie, Pathologie, und Therapie der Sprache. Herausgegeben von Dr. Med. H. Gutzman, Privatdozent an der Universität Berlin. Mit 15 Abbildungen im Text und einem Porträt. Berlin: Verlag von S. Karger, 1908.

In the preparation of this manual of disturbances of speech and therapy therefor the editor has had the co-operation of some twenty-two colleagues in the European cities and of one American, Dr. G. Hudson Makuen, of Philadelphia, who writes on "The Speech of the Feeble Minded." The book is not a systematic text-book in the ordinary sense of the term, but rather a collection of essays by the various collaborators on topics suggested by the title. Most of these essays are short, and all of them are practical. Some have already appeared in the journals. Each author has been allowed to print in his own language. Consequently the chapters are variously in English, French, and German.

An Abridgement of Practical Medicine and Allied Sciences. Arranged in Alphabetical Order, with Definitions of Principal Medical Terms. By J. Candor McLaughlin, M.D., Kansas City, Mo.

The author of this tiny pocket volume announces that it is especially valuable to the physician who has to take a State Board medical examination, as by reading this one book he will have no need to obtain and read other numerous and larger volumes. In the face of this announcement we find it stated that the external carotid artery supplies the anterior part of the brain, eye, forehead, and nose; the branches of this artery are also incorrectly given. The author's bacteriology is no better than his anatomy, as witness the following: "*Bacteria-Malaria*—Bacillus, aerobic, rods in filaments with spores at each end." The chemistry is of about the same calibre, but we have no room for further illustrations.

Text-Book of Ophthalmology. By Dr. Ernst Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized Translation from the Eleventh Revised and Greatly Enlarged German Edition with Numerous Additions, by Alexander Duane, M.D., Surgeon Ophthalmic and Aural Institute, New York. Third Edition. Philadelphia and London: J. B. Lippincott Company, 1907.

The third edition of Fuchs' work, based on the eleventh German edition, greatly added to by the translator and editor, Dr. Duane, is now on the market. The text occupies 877 pages. The book is well printed and fully illustrated. The matter of primary importance is printed in larger, the matter of secondary importance in small, type.

The first forty-seven pages comprise Part I. They are devoted to the objective examination of the eye and to functional testing of the eye. The diseases of the eye are taken up in Part II. and considered in logical order. The anatomy of the individual parts is given at the beginning of each chapter. The consideration of clinical conditions is very comprehensive. The symptoms, pathological changes, and phenomena of every character are discussed in detail in a masterly manner, born of the exceptionally extensive experience and close, exact observation of the very able author. Illustrations and statements of writers other than the author are employed wherever they can be utilized to increase the sum total of the information given on any of the subjects discussed. There are no marked departures from the methods of classification employed in former editions. The operations peculiar to various parts of the eye are given consideration in the chapter devoted to each part, but a chapter on "Eye Operations in General" is found at the end of the book. Chapters on "Disturbance of Motility of the Eye" and "Anomalies of Refraction and Accommodation" follow those treating of diseases of the eye. The relation of diseases of the eye to general diseases is not given consideration in a separate chapter, but is briefly discussed in the chapters devoted to the different parts of the eye.

The treatise is one of the best in any language. It is of value, not only as a text-book, but as a book of reference and of guidance to all who have to do with the clinical problems of ophthalmology.

Hermaphroditismus beim Menschen. Von Franz von Neugebauer, Vorstand der Gynäkologischen Abteilung des Evangelischen Hospitals in Warschau. Leipzig: Verlag von Dr. Werner Klinkhardt, 1908.

The author devoted fifteen years to researches for this work of 748 large quarto pages. The 1,891 cases from literature and personal observation which he presents and carefully analyzes show that the time and study he devoted to the subject were well employed. Von Neugebauer modestly offers his enormous work as a mere handbook to aid such colleagues as may institute investigations regarding any of the questions in connection with hermaphrodism. While as a literary aid the book certainly fulfills the author's promises, it does far more. It enters deeply into genital embryology; it studies historical facts as to doubtful sex-determination; it investigates the legal and sociological questions that relate to or have arisen regarding such errors as may be due to lack of definite recognition of the sexual organs. In a most admirably condensed classification of the reported cases the author presents 109 divisions of his subject, enabling prompt reference to any of the circumstances in which differentiation of sex is required for literary, forensic, or sociological purposes. The author has shown marked ability in avoiding even the boundary lines of pornography, with which literature on sexual subjects abounds. He presents scientific facts as only a careful, conscientious scientist can. The fact that his list of quoted authors contains over 1,500 names gives an idea of the extent of his literary researches. The book is well illustrated.

Righthandedness and Lefthandedness, with Chapters Treating of the Writing Posture, the Rule of the Road, etc. By George M. Gould, M.D. Philadelphia and London: J. B. Lippincott Company, 1908.

In this collection of essays, previously published for the most part in the *Popular Science Monthly* and various medical journals, Dr. Gould deals in his usual interesting way with the causes and the consequences of righthandedness. The origin of righthandedness is referred to the dominance of the right eye in vision. The preference of the right hand in operations requiring special skill is shown to be due to the fact that such operations at first must be directed by the eye, and if the right eye is the stronger it must insist upon the more delicate movements being made by the hand under its direct guidance. Further, the development of sign language and of written language, the first chiefly and the second entirely carried out by means of the right hand, under the control of the dominant right eye, determined the location of the speech center in the left brain, and in consequence the acts performed in response to a command are naturally controlled by the brain centers nearest to the speech center. Even the apparent exceptions to this dependence of righthandedness upon righteyedness really prove the rule. In violin playing, for example, the more difficult fingering is done by the left hand, but this is because the right eye can guide the fingers of the learner better, for if the fingering was done with the right hand, the foreshortening occurring as the right eye glanced along the neck of the instrument would handicap one seriously. This is the theory briefly stated, but one must read the argument as developed by the author in order to follow it understandingly. It is the most satisfactory explanation of the dominance of the right hand that has ever been offered. Other essays are on the Rule of the Road, Two-handed Synchronous Writing, the Writing Posture, Righteyedness and Lefteyedness, all more or less related to the title subject. Dr. Gould is an original thinker and one who can express his thoughts in a forcible manner, and whether or not one agrees with him, his writings stimulate thought and furnish exercise for the mind. The volume under consideration offers no exception to the rule.

The Development of Ophthalmology in America, 1800 to 1870. A Contribution to Ophthalmologic History and Biography. An Address Delivered in Abstract for the Section of Ophthalmology of the American Medical Association, June 4, 1907. Revised and Enlarged. Illustrated by Selected Portraits and Cuts. By Alvin H. Hubbell, M.D., Ph.D., Professor of Clinical Ophthalmology in the University of Buffalo. Chicago: W. T. Keener & Company, 1908.

Hubbell's booklet is one of much interest to American ophthalmic surgeons, since it presents in one volume the historical facts in regard to the development of ophthalmology in America. The volume contains 197 pages. It is very entertainingly written and fully illustrated. There are portraits of twenty-eight distinguished ophthalmic surgeons, two of whom are now living, and, in addition, cuts of various ophthalmic hospital buildings that have passed out of existence. A short history of the founding of the various large eye and ear clinics in America is given; also a biographical sketch of many of the prominent surgeons who have served to advance this branch of medicine in America. The principal works on ophthalmology that appeared before 1870 are reviewed briefly and the advances in ophthalmology originating with Americans during that period are enumerated. The work should be in the library of every American ophthalmic surgeon.

Hospital Training-School Methods and the Head Nurse. By Charlotte A. Aikens, late Director of Sibley Memorial Hospital, Washington, D. C.; late Superintendent of Iowa Methodist Hospital, Des Moines, and of Columbia Hospital, Pittsburg; Associate Editor of the National Hospital Record. Philadelphia and London: W. B. Saunders Company, 1907.

This book differs from others on nursing in that it discusses the problems that have to be faced and solved by the various training schools for nurses, and also, in a lesser degree, by head nurses. The writer seems to draw her material from an extended experience and much observation, and she has some very decided opinions on many topics in connection with nursing. The book is original, breezy, and healthy. As a sample of the author's style, and also of the sanity of her views, we append an extract: "What possible good it can do for nurses to spend time in learning how to apply the flame test for sodium, potassium, calcium, strontium, by borax head and Bunsen burner, is a question too deep for the average mind to answer. What practical benefit can it be to the average patient or satisfaction to a doctor to have a nurse who knows the deep mysteries of sugar, and can make a comparison of sucrose, glucose, levulose, lactose, or who can explain their preparation, composition, properties, digestion, and food value? Just how much further probationers and pupil nurses will be asked to go in the study of chemistry, pharmacy, bacteriology, and pathology in the next ten years—where we may expect to stop in our attempt to teach nursing—is a matter for speculation. A good many people believe we have reached a time when it is necessary to draw the line and popularize the slogan 'Back to Nursing!'" Many of the lecturers in our training schools might read the first part of this book with considerable discomfort to themselves, and much subsequent benefit to the rest of mankind. "Back to Nursing!" is the aim of the book, and it has our entire approval.

Surgery. Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. Volume III. With 562 Text Illustrations and 10 Colored Plates. Philadelphia and London: W. B. Saunders Company, 1908.

The third volume of this system is devoted to an important and interesting series of topics. The opening chapter is an exceedingly fine treatise on the surgery of the head by Harvey Cushing, and covers over two hundred and fifty pages. The eminence of its author in this field lends unusual authority to the very detailed discussion he gives of the diagnostic and operative measures concerned, and the illustrations are worthy concommitants of the text. The operative technique of cranial surgery, which has been so much amplified of recent years, is amply described, and the operator will find here mention of many new devices and methods. The surgery of the neck is discussed by E. Wyllys Andrews, and here also there is much that is new in the way of technique, including Crile's method of temporary clamping of the carotoids and block dissection of the neck. The following chapter is by Albert Kocher on the diseases of the thyroid gland, and contains interesting material in the sections on the parathyroids. For the symptom complex known as Graves' disease he suggests the term thyrotoxicosis as a comprehensive appellation for the various types encountered. After referring to the various other therapeutic measures available for this disorder, he says of surgical treatment that, "To say that this is still the best is not enough. It has proved itself superior to any other form of treatment." The paragraphs on the technique of goiter operations are somewhat disappointingly brief; for example, while it is stated that general anesthesia should be avoided as much as possible, only three lines are given to the description of the application of local anesthetics. A valuable chapter on the nose and its accessory sinuses is contributed by Harmon Smith, and the two following ones on the larynx and trochea and the surgery of the thorax are by George E. Brewer. In the former of these Dr. Brewer describes and illustrates the procedure of bronchoscopy, and in the latter several new operative methods, including the application of Sauerbruch's pneumatic cabinet, are discussed. The chapter on the surgery of the breast by John M. T. Finney is fully worthy of the importance of this subject, the sections on the prognosis and treatment of carcinoma being especially admirable. The chapter on the surgery of the mouth, teeth, and jaws has been allotted to Edmund Owen, and that on the tongue to John C. Da Costa. The subject of abdominal surgery is broached by John C. Munro in three chapters on the technique of abdominal surgery, surgery of the abdominal wall, and surgery of the peritoneum, respectively. George Gottstein, of Breslau, is the author of a copiously illustrated chapter on the surgery of the esophagus, in which esophogoscopy is dealt with at great length. The volume closes with chapters on the surgery of the stomach by A. W. Mayo Robson, on the liver and bile passages by William J. Mayo and Charles H. Mayo, and on the pancreas and spleen by B. G. A. Moynihan.

Confessio Medici. By The Writer of "The Young People." New York: The Macmillan Company, 1908.

This is a volume that is at once both unpretending and charming. From the title-page, through the preface, the ten essays which the book contains, and right down to the last line of the epilogue the author in a most delightful way discourses on the philosophy of the physician's life. Ambrose Paré is really the subject of the essay on a "Good Example," and the author does well to rescue Paré from present day forgetfulness. Throughout the volume much sage advice is given to the young practitioner, and the shrewd observations of the author and the delightful language in which they are conveyed both make the book one which every educated reader will enjoy. There is a timely and somewhat incisive essay on psychology, and an interesting application of the three caskets of Portia to the physician's pursuit of practice. The book is, of course, written by a cultured man, for cultured readers, but yet we are reminded that culture has its limitations, and should be put in its proper perspective in the scheme of daily life and practice: "The proper field for culture seems to be among them who, not having much the matter with them, enjoy talking. But not all even of them enjoy listening. I know of one, who said to a friend, 'I don't want my doctor to talk to me about the National Gallery,' which is a shrewd saying, and has taught me to avoid all such dangerous topics. Anyhow, people who are seriously ill care no more for preciosity in us than for gold-dust in beef-tea. What they want is a man who has just had and cured a case exactly like theirs, and he need not be a judge of anything outside their insides. It is poor comfort to them to know that he is very fond of really good poetry." It is an open secret that Mr. Stephen Paget is the author of this charming book.

Diseases of the Breast. With Special Reference to Cancer. By William L. Rodman, M.D., LL.D., Professor of Surgery in the Medico-Chirurgical College of Philadelphia; Professor of Surgery in the Woman's Medical College of Pennsylvania; Surgeon to the Medico-Chirurgical Hospital, etc. With 69 Plates, of which 12 are printed in colors, and 42 other Illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

Tumors of the breast are so frequent and their early diagnosis and treatment are so important that the subject affords ample material for a special volume. The author's clinical experience has been wide enough to enable him to speak with authority, and the reader finds here a thoroughly satisfactory and modern discussion of this group of affections. All of the diseases of the breast are considered, including the inflammatory conditions, though, as is natural, over one-half of the volume is devoted to carcinoma. In the chapters on the various aspects of this disease the theories of etiology are discussed with thoroughness and judgment, the description of the symptomatology and diagnostic guides is complete and helpful, and the views on treatment are eminently sound. It is the author's belief that surgery should cure one-half of the cases if resorted to early in the disease, while his opinion of the value of radiotherapy and the other methods of treatment is not very high. A considerable number of well selected and executed illustrations contributes materially to the value of this most admirable work.

Applied Physiology. A Manual Showing Functions of the Various Organs in Disease. By Frederick A. Rhodes, M.D., Professor of Physiology and Embryology, Medical and Dental Departments of the Western University of Pennsylvania; late Physician-in-Charge to the Reineman Hospital and the Kaufman Clinic; formerly Assistant to the Chair of Clinical Medicine, West Penn Medical College, etc. Pittsburg, Pa.: Medical Press, 1907.

The subject of pathological physiology has received but scant attention at the hands of American writers, and the present is a praiseworthy attempt to fill in this gap. While the matter is treated very largely in a synoptical manner and the outlines furnished could well bear a little more filling in, the volume should prove a useful guide to students, and also be of value to more experienced readers desirous of reviewing the mode of causation of the symptoms of disease. The volume is in many ways so excellent that it is a pity the proofreading was not more carefully done.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting, Held at Montreal May 11, 12, and 13, 1908.

(Special Report to the MEDICAL RECORD.)

DR. HERBERT S. BIRKETT OF MONTREAL, PRESIDENT.

Monday, May 11—First Day.

President's Address.—DR. BIRKETT delivered this address, taking as his subject, "The History of Medicine in the Province of Quebec" (see page 129).

Removal of Foreign Body from the Trachea.—Dr. J. H. BRYAN reported a case of a grain of corn removed from the trachea of a six-year old child. Several days before admission to the hospital he had inhaled the grain with the usual suffocative symptoms following, but these all quieted down and it was supposed that the body had escaped the air passages. Returning attacks of dyspnea seemed to disprove this assumption, but after admission to the hospital, a careful examination and a radiograph failed to reveal anything definite. Later respiratory signs were absent over the right lung but in a few hours air seemed to be entering freely on this side. Several ineffectual attempts were made to introduce a tracheal tube through the larynx but the swollen condition of the mucosa prevented. Just at this moment the child became cyanotic and stopped breathing. The trachea was immediately opened and the grain of corn was seen to pass the opening on its way to the lower trachea. It made several excursions to and fro before the operator was able to grasp it. The patient rallied well from the operation and the tube was removed on the fourth day. Some laryngeal stridor remained for a day or two longer. The grain of corn was a large one and had increased in size from absorption of moisture. Dr. Bryan said that the case showed that it was not always advisable to persist in passing a tracheal tube through a swollen larynx after several ineffectual attempts had been made. Irreparable injury might be done to the soft parts.

Personal Experience with the Bronchoscope, Esophagoscope, and Gastroscope.—Dr. THOMAS H. HALSTEAD of Syracuse, N. Y., read this paper. He had performed eighteen operations or examinations on fourteen patients, fourteen times under general anesthesia, and one without any anesthetic. Age varied from a newborn babe of two hours to a woman of seventy years. In four instances the operations were for the removal of foreign bodies; viz., penny in the esophagus of a five-year-old boy, bone in the bronchus of a woman, fish-fin in the trachea of an eight-months infant, spicule of glass in the larynx of an eight-months old infant, all being removed but the last. Of the remaining cases fourteen operations and examinations were for laryngeal papilloma, laryngeal stricture, papilloma of the lower pharynx, spasmodic stricture, suspected foreign body in the esophagus, three times on one patient for stricture and ulceration in the bronchus, once for relief of asphyxia in a newborn infant caused by pressure of enlarged thymus and thyroid glands, and four times for examination of the stomach for gastric ulcer or other lesions. The author referred to the pioneer work of Jackson through whose devices the stomach had been added to the organs capable of being examined directly by the eye.

Dr. EMIL MEYER of New York submitted specimens of foreign bodies he had removed during the last month by the bronchoscopic method. One was a grain of corn and the other the reed from a tin whistle. He laid stress on the point that vegetable bodies should be removed immediately whether symptoms were threatening or not. Delay caused such bodies to swell and might produce a local edema. He used cocaine in addition to a general anesthetic. Dr. Halsted's case was of special interest because it was probably the youngest on record. It was necessary in such work to have well-trained assistants.

Dr. H. L. SWAIN of New Haven reported two cases, one that of two false teeth from a portion of a dental plate swallowed by an epileptic. They had lodged in the upper part of the trachea for twelve hours and the consequent edema was so great that an immediate tracheotomy was necessary. The plate was finally removed through a Killian tube. A second case was that of a tin whistle which had gone down into the larynx and lodged in the trachea. It was readily removed by a Jackson's forceps.

Dr. E. FLETCHER INGALS of Chicago said that if a patient was suffering from severe dyspnea due to a foreign body one ought not to try upper bronchoscopy owing to the danger from the anesthetic. Tracheotomy should be done first and the body would often be coughed out, but if it should not be, bronchoscopy would be much easier through the glottis. Chloroform seemed to the speaker a better anesthetic than ether in this condition. He regarded the use of the galvanocautery in the bronchial tubes as dangerous. Bronchoscopy had a brilliant future, but it was not devoid of danger, and should always be done with the greatest caution.

Dr. W. E. CASSELBERRY of Chicago said it was possible to train patients to stand removal of papillomata through laryngoscopic methods. As to an anesthetic, ether should be supplemented with a hypodermic of morphine in order to control the laryngeal reflex. If the morphine was not used, he would prefer chloroform. He had never seen any bad results from the use of cocaine in addition to the general anesthetic.

Dr. A. COOLIDGE, Jr., of Boston said that in most cases a foreign body in the bronchus could be reached by upper bronchoscopy provided the necessary instruments and ability to use them were available; otherwise tracheotomy and lower bronchoscopy were indicated. The value of the upper operation for diagnostic purposes should not be overlooked.

Dr. H. P. MOSHER of Boston showed the following instruments: an esophageal speculum, an oval esophageal tube, a mechanical dilator for strictures of the esophagus, and a triangular laryngeal tube.

Dr. J. P. CLARK described a device he had employed for detecting the exact site of esophageal stricture. Before passing the esophagoscope, he had the patient take a glass of water in which was a silk thread, one end being fastened to the patient's face by a bit of adhesive plaster. On passing the tube, the thread could be followed down the gullet until it disappeared into a small opening of a pouch into which the tube went, thus showing the exact site of the stricture.

Dr. H. L. WAGNER of San Francisco spoke of the value of chloroform in these cases as administered per rectum.

Dr. J. M. INGERSOL of Cleveland had found the *x*-ray of value in preventing the recurrence of laryngeal papillomata.

Dr. HALSTED, in closing, said that in several instances his only assistant had been his office nurse. He believed that there was a great future for the investigation of the interior of the stomach by means of tubes. He had seen scars in the stomachs of two patients, had been able to detect inflammatory areas which he believed to be ulcers, and in one case had been able to see the pyloric opening, and even beyond.

The Form of the Hard Palate.—Dr. HARRIS P. MOSHER of Boston discussed the formation of the hard palate under the following scheme: (1) The four types of the hard palate: (*a*) well-rounded dental arch; the distance in a straight line from the center of the second molar on one side to a corresponding point on the other was about equal to the distance from either of these points to a point in the median line between the central incisors; the side lines formed a right-angled triangle. (*b*) Narrower than the above and shaped more like the three

sides of a parallelogram. (*c*) Angular, in which the sides of the arch were straight lines, not curved or bowed, and almost met in a point in front. (*d*) Much like (*a*) except that it was wider and larger. (2) The normal form of the palate. (3) The part played by the alveolar process in making the normal arch. (4) The causes of variation from the normal form which were (*a*) malocclusion of the teeth, (*b*) unequal growth between the parts of the septum, (*c*) low descent of the antra, (*d*) faulty shrinkage and readjustment of the premaxillæ, and (*e*) asymmetry of the halves of the palate. The central idea of the paper was that asymmetry between the halves of the palate was due not always to asymmetry of the head as a whole, but nearly as often to asymmetry confined to the bones of the face. The author believed that an explanation of fully one-half of the cases of asymmetry of the hard palate was to be found in the faulty eruption of the teeth, the anterior teeth as well as the posterior, and in their faulty occlusion. We should therefore look after the proper eruption and spacing of the teeth and should call the dentist to our aid.

Dr. D. Bryson Delavan of New York said he had never been able to understand why we found the high arch palate so early in life. Occasionally it was present at birth, certainly often before dentition, and before we were able in any way to prevent it.

Dr. A. Coolidge, Jr., said that the face contained three sets of cavities: the mouth, orbits, and nasal fossæ. The functions of these cavities demanded accurate adjustment of their parts. The cavities were so closely packed together that deformity of one tended to cause deformities in the others. Asymmetrical accessory sinuses he believed to be often a secondary effect rather than a primary cause of deformity, a correcting rather than a deforming factor. Whatever departures from typical growth we might prove or guess to be due to this factor or that, we could often trace the counteracting asymmetrical growth, attempting to minimize the disturbance of function which deformed jaws or deviated septum or a flattened orbit would cause.

Dr. B. Alexander Randall of Philadelphia thought that the element of heredity was a prominent factor in many of these cases.

Dr. John O. Roe of Rochester called attention to recent views expressed on this subject by various dentists. He said that the effect produced by the open mouth was a narrowing of the jaws by the lateral pressure of the muscles of the face that were drawn more or less tense. There was also the absence of the opposing pressure of the teeth against each other which greatly assisted in maintaining their regularity during the period of their eruption. In the closed mouth the tongue also played an important part in keeping the jaws, particularly the upper jaw, properly expanded.

Dr. D. Braden Kyle of Philadelphia said that irregularity in development seemed to be largely confined to the upper jaw. This would indicate that nutrition played an important part in the development of these two structures. The blood and nerve supply of the upper jaw came largely through bony foramina. Might it not be possible that until a certain age these bony openings were sufficiently large to permit sufficient blood and nerve supply and that then from some slight injury or malformation their size was interfered with and they became relatively too small for the proper nutrition?

Dr. Mosher, in closing the discussion, stated that the probable explanation of the high arch before the second dentition was the faulty shrinkage of the premaxillæ. They might swing down into proper position but did not shrink. Owing to this their vertical diameter was greater than normal. Therefore in order for the posterior teeth to attain the level set for them by the anterior teeth, they must grow downward farther than usual. For these reasons the arch was high from the start.

Cyst of the Frontal Sinus Communicating with the Frontal Lobe.—Dr. Clement F. Theisen of Albany, N. Y., reported a case of this nature occurring in a woman of 34 years who had had, following a severe fall in childhood, severe head pains on the left side with a discharge from the corresponding naris. There were pressure and fullness over the eyes, some ptosis of the left lid, but no displacement of the globus. Transillumination seemed to justify an opening of the left frontal sinus, when a fluctuating tumor suggesting a cyst presented at the opening. Much thin mucus escaped when it was opened, but this unfortunately was not examined. A considerable portion of the posterior wall of the sinus was missing and the cyst appeared to extend through to the frontal lobe. Pulsation of the meningeal vessels could be seen. The patient made a good recovery and ten months after operation she was well and free from headaches. The author referred to similar cases reported by Logan Turner and other writers. The literature on the subject was scanty.

Notes on Two Interesting Cases of Frontal Sinus Disease.—Dr. J. Price-Brown of Toronto reported the cases. The first patient was a girl with right frontal abscess on whom a previous operation had been done leaving an open fistula which discharged from time to time. Dr. Brown opened the sinus and chiselled out a rectangular piece of bone from the outer table, curetted the cavity, and made a free opening down into the nose external to the septum and in the region of the anterior end of the middle turbinal. A gold tube was then inserted from above and the wound was closed. Healing was satisfactory but it was found impossible to irrigate the sinus through the tube. The discharge from the old fistula did not entirely cease, consequently twenty days later another operation was done embracing the area of the fistulous discharge. Some bits of dead bone were removed, and a rubber tube was substituted for the gold one, the outer incision being closed as before. Healing was satisfactory and the discharge entirely ceased. The author thinks that the wearing of the gold tube for the interval between the two operations secured a dilatation of the passage into the nose which afforded permanent and effectual drainage. The second case was one of frontal sinus disease occurring in a man and following an injury. Several months later evidences of sinus involvement were evident and he came under observation with symptoms of acute trouble calling for immediate relief. Intranasal treatment failed to give the desired benefit so the sinus was opened into above the superciliary ridge and the anterior cells of the ethmoid were destroyed by drilling, a rubber drainage tube was introduced as before, after the sinus cavity had been thoroughly curetted. The outer wound was closed and intranasal irrigation practised. Examination of the sinus contents revealed a pure pneumococcus infection. The wound did not heal by first intention and it was necessary to open it. Granulation commenced and irrigation was carried out through a small rubber tube inserted down into the nose. This tube was eventually removed and healing was in the end satisfactory. Much benefit resulted from the use of the reversed Valsalva procedure in removing discharge during healing, from the frontonasal passage. While in both cases the anterior ethmoid cells were engorged and the middle turbinal pressed tightly against the septum, in neither case was there any indication whatever of involvement of the maxillary antra.

Sinusitis Pyemia; Severe Cerebral Symptoms Relieved by Operation; Death; Autopsy.—Dr. Lewis A. Coffin of New York reported a case in which the sequence of events was expressed by the title of his paper. His patient was a woman of 33 years who was admitted to hospital with unconsciousness, delirium, and convulsions. There was an orbital cellulitis on the right side of the head with swelling of this entire side, and it was believed

that there was an empyema of the frontal and ethmoidal sinuses; furthermore that there was a commencing right-sided meningitis. It was later learned that she had been ill about a week. A Killian operation was done without incident except that the pus was found under high pressure. The bone of the posterior sinus wall appeared healthy. She did well for a few days but her temperature continued elevated and a radical Caldwell-Luc operation was done on the right antrum which was found filled with polypi. About this time the woman aborted with a three months fetus. Later, infection spread from the uterus, and various small swellings appeared on different parts of the body. These were opened and finally the patient seemed in fairly good condition. Later hemiplegia developed and brain abscess was suspected. Puncture just back of the frontal sinus at the roots of the hair evacuated considerable pus. Convulsions followed and she died two months after entering hospital. Autopsy revealed the entire right hemisphere covered with a thick purulent exudate on the inner surface of the dura which was firmly adherent to the pia-arachnoid. The opening of the abscess cavity, which extended down into the white matter, was on the superior surface of the right frontal lobe about midway between the anterior pole and the fissure of Rolando, lying in the superior frontal fissure, and involving the contiguous parts of the superior and middle frontal convolutions. The author thought that the bone was infected when the patient entered the hospital and that an osteomyelitis and pyemia had already begun.

Dr. W. E. Casselberry referred to the difficulty in such cases as that of Dr. Theisen of making a differential diagnosis between true serous disease and serous exudate into a bony cavity. There was also great confusion in the nomenclature, as some writers used the term serous cyst, and others mucocele. Perhaps this was of greater importance in the antrum than in the frontal sinus. We had there the connection between dental cysts which were more common in the antrum than the similar cystic formation in the nose.

Dr. H. P. Mosher noted that sinus cases fell into two classes of chronic retention and chronic suppuration. There were many grades of mucocele, from the case in which but few of the mucous glands were diseased and but little mucus was poured into the sinus, to that in which all the glands were diseased and the cavity was completely filled with secretion. The larger the amount of blood in such a cavity, the more easily would it become infected. Many a case of chronic suppuration was originally one of mucocele complicated with partial or complete hematocele. He would regard Dr. Theisen's case as one of uninfected mucocele.

Dr. H. L. Swain thought that sinus conditions were exactly similar in their pathological significance to aural conditions and that the use of the terms serous, mucous, and purulent would be sufficient for a clear terminology.

Dr. C. P. Grayson of Philadelphia questioned the advisability in such cases as had been reported by Dr. Price-Brown of introducing tubes to secure permanent drainage. If Laurens' method was followed by the opening of the frontal sinus and the removal of the anterior wall with thorough curettage of the cavity and breaking down of all the anterior and posterior ethmoidal cells, gauze could be carried down into the nose and the external wound closed. Packing could be removed in 36 or 48 hours. He himself had not observed any great tendency to contraction of the drainage channel.

Dr. J. H. Bryan believed that there was a very great tendency to closure of the channel between the frontal sinus and the nose.

Dr. T. P. Berens of New York said that the whole proposition could be expressed in the statement that the success of any operation upon the frontal sinus depended upon complete drainage and this could be secured only by complete removal of the anterior ethmoidal cells.

Dr. L. A. Coffin referred to a case of large retention cyst causing exophthalmos. On opening the anterior ethmoid cells by resection of the frontal process of the superior maxillary bone, he found a cavity as large as an English walnut the contents of which were sponged out in one gelatinous mass. The orbital wall was necrotic and the cavity connected with the orbit. As to drainage tubes, they were unnecessary in the Killian operation. He had been called on to do a secondary operation but once and that was owing to the overlooking, in the primary intervention, of a very narrow supraorbital recess.

Hyperplasia Lateralis Linguæ; Papillitis Atrophicans Bilateralis Linguæ.—Dr. Henry L. Wagner of San Francisco reported these two cases. The first was that of a man of forty years, an inveterate cigarette smoker with some dental defects and a narrowed lateral diameter of the lower jaw. There was a hyperplasia of the superficial structures of the side of the tongue with similar pathological conditions of both lower turbinals. The patient particularly complained of a lancinating pain caused by a very small ulcer in the center of the hyperplastic lingual tissue. A thorough extirpation of the area complained of relieved all symptoms. Microscopical examination of the tissue removed showed a true hyperplasia of all the layers of the mucosa.

The second case was that of a woman of 54 years with small whitish vesicles similar to herpes, on the left side of the tongue, recurring at regular intervals and accompanied by general malaise. A few days subsequent to each attack a subacute inflammation followed. Bilateral atrophy gradually set in, but a prolonged iodide treatment had prevented recurrence for nearly a year. The microscope showed a thinned but dense epithelial layer, a deeper layer corresponding to the rete mucosum and a loose fibrous structure of the corium with almost complete obliteration of the secondary papillæ. Few mucous glands remained. No lump or nodule appeared in the tongue. The condition suggested, but for the atrophy, the parenchymatous hemiglossitis described by Butlin.

Dr. J. P. Clark asked how Dr. Wagner would rule out pemphigus of the tongue as a possible diagnosis in his second case.

Dr. J. H. Bryan thought that one did not get atrophy with pemphigus in this situation.

Dr. J. W. Farlow had seen several cases of pemphigus of the mouth, but in that disease the eruption is bullous and not vesicular as in Dr. Wagner's case. He had not seen atrophy follow bullæ and would not consider this case as one of pemphigus.

Dr. Wagner admitted that the examination made at the time of eruption did not coincide with all the desiderata for a diagnosis of pemphigus and he had simply left this question open, being glad to have light thrown on the matter.

Sarcoma of the Tonsil.—Dr. J. Edwin Rhodes of Chicago reported a case in a man of 35 years whose symptoms had begun some six months previously with pain at the angle of the jaw. He had lost flesh, retained his appetite, but had some difficulty in swallowing on account of the size of the growth. Recently he had had attacks of dyspnea, also slight bleeding from the mouth. No external glandular enlargement could be made out, but a growth ran from the left tonsil two-thirds of the way across the fauces. It was pinkish, lobulated, easily penetrated by a smooth flat probe and showed blood-vessels indistinctly over its surface. Removal was determined on and the external carotid artery was first tied on the left side, local anesthesia being used. This was a difficult operation as in order to breathe the patient had to keep his head flexed and chin lowered. Following this, cocaine and adrenalin were injected freely into the base of the tumor through the anterior pillar. The mass was gradually enucleated but owing to the patient's retching it had to be removed in fragments in several attempts.

Recovery was without incident except that a small ligature abscess occurred. The microscopist reported round-celled sarcoma of the alveolar type. One month after operation the patient had a small mass in a new site on the lateral wall of the pharynx behind the posterior pillar. No second operation was deemed immediately necessary and as the patient was leaving for his home city, he was advised to use the *x*-ray treatment and if possible to take the Coley toxins. He was reported as doing well, but in view of the laboratory findings, Dr. Rhodes did not feel optimistic as to the eventual cure.

Dr. D. Bryson Delavan of New York referred to the starvation treatment of such growths as elaborated by Dawbarn. It was quite possible that ligation of the carotid would be an advisable procedure before the extirpation of such tumors as the one described by Dr. Rhodes. Even if it did not result in cure, we would still have the alternative of the more extensive operation.

Dr. Rhodes replied that he would not expect much from such a procedure as ligation of the carotid as owing to the quick reestablishment of the collateral circulation, the inhibition of the growth would not result. The call for immediate operation in his own case was on account of the size of the tumor.

Dr. B. Alex. Randall of Philadelphia had noted in a ligation such as that described by Dr. Rhodes, entire absence of pulsation in the temporal artery for sixteen days. This would give some idea as to the time required for the reestablishment of collateral circulation.

The Influence of Adrenalin in the Causation of Arteriosclerosis.—Dr. Frederic E. Hopkins of Springfield, Mass., gave a review of the literature of the last four years. He found that the unreliability of animal experimentation vitiated many of the conclusions drawn as to the deleterious effects of the remedy on the vascular system. Moreover it had been shown that large doses could be given continuously to patients without causing arteriosclerosis. He therefore felt that there was ample ground for reassurance in the reasonable use of the remedy.

Dr. C. F. Theisen of Albany said that recent experiments had shown that atheroma of the vessels was usual only when the adrenalin was injected intravenously.

Dr. Harris P. Mosher had made some experiments on guinea pigs, but in no instance did adrenalin applied to mucous membranes in the nose have any effect on the aorta.

Dr. B. Alex. Randall of Philadelphia had used adrenalin with benefit on cases of exophthalmic goiter and in otitic vertigo. He had never seen any result on the vessels. He preferred for the conditions named the dessicated adrenals in doses of two or three grains, using the adrenalin chloride only as an emergency preparation which could be taken instantly at the first threat of trouble.

Recurrent and Abductor Paralysis.—In the symposium on this subject Dr. J. W. Gleitsmann of New York read a paper on the Etiology from Central Causes (see p. 12); Dr. D. Bryson Delavan of New York one on the Etiology from Peripheral Causes (see p. 92); Dr. Clarence C. Rice of New York a paper on the Symptomatology (see p. 220), and Dr. W. E. Casselberry of Chicago one on the Diagnosis and Treatment (see p. 303).

Dr. E. Fletcher Ingals said he had found some difficulty in making a diagnosis of aneurysm in this form of paralysis in so far as the *x*-ray plate was concerned. He had noted invariably on the plates a darkened area just at the left side of the esophagus due presumably to the large arteries. In two instances he had seen distinctly a small tumor just at the left side. He had thought that these swellings might be small aneurysms, but autopsy in one case had failed to show any such condition. He would like to inquire of those present if they had had any such experience.

Dr. G. Hudson Makuen said the interesting point was to determine the exact location of the lesion causing the paralysis. Three possible locations had been suggested in the papers presented, (1) in connection with peripheral organs, (2) in the medulla, and (3) in the cerebral cortex. He was sceptical in regard to the last named for he did not recall an authentic case of abductor or adductor paralysis due to cortical disease. The fact that stimulation of the cortical centers would cause to-and-fro movements of the cords did not prove to his mind that a lesion in such a center would cause true cord paralysis. It merely meant that stimulation of those cortical segments might incite the bulbar motor centers to action and thus cause the to-and-fro movements. In over 2,000 cases of patients with gross defects of speech he recalled only one paralysis of a bulbar origin and it was a case of unilateral abductor paralysis.

Dr. B. Alex. Randall had had under observation a man with total cord paralysis from a cortical tumor, the removal of which had been successfully accomplished, but as yet with only slight return of power in the cord. A more perfect demonstration of a cortical lesion as the cause of the paralysis could hardly be seen.

Dr. H. L. Swain had seen three cases with inspiratory dyspnea due to paralysis of the abductor muscles, but in all a local lesion had been found. In two it was a syphilitic immobilization of the cricoarytenoid joint and in one, which eventually came to autopsy, it was due to a complete necrosis of the cricoid cartilage.

Dr. J. O. Roe referred to a case of laryngeal paralysis due to a fusiform enlargement of the aortic arch. He had seen a number of cases of left side paralysis due to tuberculous deposit at the pulmonary apex.

Dr. C. P. Grayson referred to a case under his care during the past winter, that of a man with dyspnea and noisy stridor. Examination by every known method was without result as to the discovery of a cause, but the dyspnea became so great that a tracheotomy was called for. Later it was learned that he had had two or three attacks of peritonsillitis the year previous. Whether such a lesion might be the cause of a peripheral neuritis or not, he could not say. The lesion in the larynx was a double abductor paralysis which might have resulted from a toxic neuritis in connection with the quinsies.

Dr. C. F. Theisen said that the *x*-ray was often of no service so far as a conclusion as to the cause for compression of the recurrent laxyngeal was concerned. In one instance sudden death had resulted from compression not only of this nerve but also of the pneumogastric in a mass of enlarged glands, although the diagnosis of aortic aneurysm had been made.

Dr. Gleitsmann, in closing, wished to point out certain interesting facts. It was highly desirable that we should be more definite in our expressions and discussions when referring to laryngeal paralysis. As to the existence of cortical paralysis he would say that bilateral adductor paralysis in hysteria, etc., was of the cortical type. He agreed that the presence of a recurrent or abductor paralysis did not in many cases assist us in the diagnosis of the lesion which produced it. Patients might recover from laryngeal paralysis though this was very uncommon. Of recovery from bilateral recurrent paralysis, but one case was known. Here the paralysis had been caused by large pericardial exudates on both recurrent nerves and had disappeared with the absorption of the fluid.

Dr. Delavan stated, in closing, that very few of us realized the varieties of causes which might produce this form of paralysis by pressure. Aneurysm was always thought of, but other possible causes were overlooked. The *x*-ray had proven of very great value, and no obscure case should be dismissed without recourse to it. Cricoid ankylosis was often mistaken for paralysis.

Dr. Casselberry believed that the larynx had been neglected of late years and that such discussions as the one now taking place were of the utmost benefit. He was disposed to place high value on the *x*-ray picture as an aid in the diagnosis of aneurysm. When one saw a projection on

the plate and a pulsation with the fluoroscope a diagnosis was reasonably positive. As to diagnosis *intra vitam* of degeneration inside of the medulla we could only make it by observing similar cases which ultimately came to post mortem and in which degenerated areas were found in this particular place. He was opposed to intubation in cases of abductor paralysis because he thought it was dangerous to teach the patient to rely upon the tube. If the tube was expelled the patient might die before it could be reinserted. Cures reported of laryngeal paralysis might be cures of only ankylosis.

(To be continued.)

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-third Annual Meeting, Held at Philadelphia, Pa., May 26, 27, 28, 1908.

The President, Dr. J. Montgomery Baldy of Philadelphia in the Chair.

After an Address of Welcome by Dr. Edward L. Duer of Philadelphia, which was responded to by Dr. William M. Polk of New York, the scientific work was begun.

Immediate Versus Deferred Operation for Intra-abdominal Hemorrhage Due to Tubal Pregnancy.—Dr. Florian Krug of New York said that whenever there were opinions diametrically opposed to each other on mooted points in surgery, the truth as well as the best interests of the patient would not be found at either extreme, but in the middle. It could not be conceded that in any case of ectopic gestation operation should be deferred for as long a period as it recntly had been recommended by some, nor should the patient be subjected to a hasty operation in every case even when the diagnosis had been established beyond a reasonable doubt. The severity of shock was not always proportionate to the amount of blood lost. Comparatively few patients died from actual hemorrhage. In most cases termed "tragic" or "cataclysmic," the hemorrhage had been seriously aggravated by trauma (curettage), too vigorous bimanual palpation, etc. Some patients would die before surgical aid could reach them, others would die in spite of it, and some had died because of it, surgical interference having taken place too hurriedly, without proper preparations.

Dr. F. F. Simpson of Pittsburg said that the first hemorrhage was rarely severe. This was the time for diagnosis and for operation as early as elective conditions could be brought about. The teaching that death was imminent when rupture occurred, made the inexperienced treat the affection lightly until the occurrence of a second or third hemorrhage, which might indeed be alarming. If the patient was almost exsanguinated, very little additional depression would wipe out her margin of reserve strength. With simple, prompt, and proper treatment such as any practitioner should be able to give, hemorrhage from rupture should rarely cause death. The decision for immediate operation should rest upon a low mortality for such operations in the individual operator's hands rather than on an essentially high mortality which the disease had been supposed to have.

Dr. Hiram N. Vineberg of New York said that the amount of intraperitoneal hemorrhage varied within wide bounds. In the majority of cases it was not so great as to be a direct menace to life. Operative treatment might be as early as was feasible or deferred a few days to suit the convenience of the operator and the exigencies of the surroundings. In a very small percentage of cases the hemorrhage was so great as to be a direct menace to life from anemia and from pressure upon the diaphragm and consequent crowding of the heart and lungs. These had been termed by the writer "cataclysmic" cases from the sudden onset and from the rapid inundation of the abdominal cavity with blood. Immediate operation in this class of cases was imperative and, if aided by intravenous saline infusion, expeditiously and skilfully administered, would save an otherwise doomed life. The accompanying shock formed no contraindication to surgical intervention for the purpose of arresting any further bleeding and to relieve the great intraabdominal pressure upon the heart and lungs. In cases of postoperative hemorrhage one would not be deterred from intervention because the patient was in shock from having just undergone a serious operation, and the same would apply to the shock attending a very copious intraperitoneal hemorrhage from rupture or abortion of tubal pregnancy.

Dr. C. C. Frederick of Buffalo said that the necessity for a decision to be made between immediate and deferred operation for intraabdominal hemorrhage due to tubal pregnancy was quite rare, or had been in the writer's experience, owing to the fact that diagnosis of the existence of ruptured tubal pregnancy by the family physician had been made late, seldom within the first three or four days after primary rupture, and often as many weeks thereafter. Out of about 125 cases of ruptured tubal pregnancy the writer had seen, in only six cases the hemorrhage immediately following rupture was large enough to endanger the life of the individual. Three were *in extremis* when first seen and were immediately operated upon, every possible means of stimulation being used meanwhile to tide them over the operation. Operation was rapidly done, but all died from shock. In the fourth case he decided to stimulate and wait. This woman also was *in extremis*, almost pulseless, ten hours after rupture. She did not rally and died three hours after he first saw her. The fifth case was seen about two hours after rupture; patient's pulse was countable at 120; both heart sounds were quite clear, but the patient was much shocked. He advised stimulation and normal salt solution subcutaneously. The patient rallied for a time, but began to fail in another hour and, the speaker being busy with other work, another surgeon was called in and at once operated, saving the woman's life. A sixth case, operated upon about five hours after rupture, while suffering much from shock, made a good recovery. It therefore appeared, from his experience, that only about five per cent. of ectopic pregnancies were accompanied by a dangerous hemorrhage at time of rupture. In the remaining 95 per cent., as the result of shock and lowered vascular tension, together with the small size of the vessels torn, the bleeding was normally controlled, at least temporariiy, by coagulation. Later, when vascular tension again arose and the patient began to move about, the hemorrhage might and generally did recur. When we were brought face to face with a rupture it was necessary to decide whether this specific case was one of the 95 per cent. which would be self-limited or one of the five which would kill the woman. The condition was much like acute appendicitis; we never knew at the beginning what was going to happen. It had always seemed to the writer that bleeding, whenever endangering a patient's life, should be controlled, if possible. It was a surgical principle from which it was difficult to get away. It therefore had always appealed to the writer to be a good principle to open the abdomen in these cases as soon as seen, using all possible known means of stimulation during the operation, that is, if the patient's condition was one of danger; otherwise, if the patient did not show profound shock from hemorrhage, he should advise waiting till she rallied.

Dr. E. E. Montgomery of Philadelphia said that the one ever-dreaded termination was that of internal hemorrhage, which might be slow and small in amount, or so profuse as to threaten life and even cause the death of the patient. Hemorrhage might occur in one of four ways: (1) It might be the result of rupture of the tube, either into the peritoneal cavity, when it was free and might be excessive, or into the broad ligament and was necessarily limited in quantity; (2) the development of the embryo within the

tube might so thin its walls that the chorionic villi would project through pinhole perforations and cause dangerous and continuous hemorrhage; (3) a partial separation of the embryonic sac might occur and hemorrhage fill the tube escaping from its abdominal end and through the uterine end into the uterus. In this form the clotting took place early in the tube and the quantity of blood lost was slight; (4) the fetus and its envelope might be forced through the abdominal end of the tube into the peritoneal cavity—a tubal abortion. This accident was not infrequently associated with very profuse bleeding. In the majority of cases of ectopic gestation, the hemorrhage if untreated would not prove fatal. Very rarely, in the cases formerly supposed to have been cured by the systematic employment of the galvanic or faradic current, was the fetus alive at the time of the application, the fetus having already met death through the rupture of the sac. The symptoms regarded as diagnostic of ectopic gestation were those incident to rupture, as diagnosis prior to rupture was not then regarded as possible. The electrical treatment, consequently, was applied to the pelvic collection of blood resulting from the rupture and the cure consisted in the removal or absorption of the clots. It was doubtful whether the absorption under the treatment was any more expeditious than it would have been had no treatment been employed. With the shock and diminished arterial tension incident to the rupture of a tubal gestation-sac, and the tendency to the formation of a clot, the probability of the arrest of hemorrhage was increased. In many cases this arrest occurred before a hemorrhage of any severity had ensued, and the patient so rapidly recovered from the indications of an internal hemorrhage as to leave the diagnosis in doubt. That fatal hemorrhage occurred from ectopic gestation had been too well demonstrated to admit of denial. The records of the coroners' physicians of all of our large cities and the experience of many physicians had abundantly proven this. In such cases prompt action would prove the sheet-anchor. It was just as important that the bleeding tubal vessel should be secured as if a vessel of equal size upon the surface were the cause of the hemorrhage.

Dr. Egbert H. Grandin of New York gave a résumé of his personal experience. He believed that the abdominal route was the only rational, logical, and safe one except in the formation of hematocele, or for the purpose of diagnosis, when the vaginal route should obtain. He looked upon ectopic pregnancy as the most malignant disease to which woman was subjected, posibly excepting carcinoma, and the malignancy increased in proportion as the surgeon sat on the fence and waited. When the woman was in deep shock, the active hemorrhage had ceased, and we should therefore wait until she had rallied, and then go in, always by the abdomen. When bleeding was going on he did not believe one should stimulate the patient until the abdomen had been opened and the source of the hemorrhage checked. Stimulation, especially intravenous, simply heightened blood pressure and made the woman bleed more. In hematocele formation he believed the surgeon should operate by the vagina and clean out. If the condition of the patient permitted, he would open the abdomen and exsect the damaged broad ligament.

Dr. A. Lapthorn Smith of Montreal said that there was only one treatment for tubal pregnancy, and that was early removal. If rupture had taken place the case became an emergency one. Even if the patient was unconscious from shock (hemorrhage), he would not wait until she had rallied, for this would mean a fresh hemorrhage, but he advised cutting down and tying the bleeding vessel, replacing the blood that was lost with normal salt solution.

Dr. B. F. Baer of Philadelphia said it was always imperative to act at once, secure and close an open bleeding vessel, and this held true in hemorrhage from a ruptured tubal pregnancy. But there may be a doubt in a certain case of very profound collapse whether the vessel was still open and whether it might not be wise to spend a few hours in restorative measures.

Dr. August Martin of Berlin said there was no necessity for operating on these cases hastily if hemorrhage had ceased, but if bleeding was still going on we should follow the surgical rule to operate with a view to stopping the hemorrhage. As to whether the operation should be done at the residence of the patient or not depended on circumstancs, but preferably the surgery should be done at a hospital. If the case was urgent, operation should be done immediately and by the abdominal route, but in less severe cases the vaginal route could be selected.

Dr. Seth C. Gordon of Portland, Me., quoted the dictum of Lawson Tait that "no man living ever made a diagnosis of extrauterine pregnancy before rupture." In 1887 a pupil of the speaker telegraphed him to the effect that he had a case of extrauterine pregnancy and desired Dr. Gordon to be ready to come and see the patient at a moment's notice. Two hours later rupture took place, but it was twelve hours after rupture had taken place before the speaker saw the patient. After opening the abdomen he removed four quarts of bloody fluid and a fetus, which was about ten or twelve weeks old. The woman made a good recovery. He mentioned three other cases he had operated on after rupture had taken place, with recovery of all the women. He recalled only two cases in which he was able to make a diagnosis before the occurrence of rupture, and these were operated on promptly and both women recovered.

Dr. E. W. Cushing of Boston said his attention had been called to this subject some twenty years ago by a case in a near relative. Those who were old enough would recall many cases of so-called hematocele which got well, and he doubted whether women had tubal pregnancy any oftener to-day than they had in 1888. Notwithstanding this, he believed in operating on these cases, and yet he had seen several patients whose symptoms of tubal pregnancy with or without rupture were so slight and so obscure that it was not easy to obtain consent to operate. He mentioned two cases upon which he had operated within two months, the operations having been followed by the recovery of both patients.

Dr. Hunter Robb of Cleveland said that more conservatism in the treatment of ectopic pregnancy was called for in the majority of cases. When the diagnosis of ectopic pregnancy was certain, operative measures were indicated; but in most cases the danger was not sufficiently imminent to warrant immediate interference unless the condition of the patient was otherwise satisfactory. Many women not only survived the effects of a tubal abortion or rupture, but also recovered even without an operation. When a patient was seen in a case of collapse as the result of a ruptured ectopic sac, she should not be operated on until the condition of shock had been tided over. These patients, when they died, usually succumbed not from loss of blood, but mainly from shock. Why, then, should we superadd to the original shock the shock of a major operation, with all the exhausting preliminary procedures? In support of the view that these patients died from shock and not from loss of blood, we had clinical observations of good authorities, and also experiments on animals. Physiologists taught that a woman weighing 130 pounds must probably lose four pounds of blood before succumbing to the effects of the hemorrhage *per se*. So large an amount of blood was rarely found in the abdominal cavity; the bloody fluid was a mixture of blood and a serous exudate. The sudden removal of a large quantity of recently accumulated fluid in the abdomen before the other vessels had time to adapt themselves to the altered mechanical conditions was dangerous and might be followed by fatal syncope. Patients in whose cases the bleeding would be sufficient to cause death were rarely seen in time to be saved by an operation for ligating the bleeding vessel. The best operators gave a percentage of 40 or 50 as their death rate after immediate operations during shock. The deferred operation had given

better results in the hands of equally good operators. So long as there was a reasonable evidence that immediate operation might be the wrong procedure, it was the duty of the physician to hold his hand and leave something to nature.

Dr. J. Wesley Bovée of Washington, D. C., said that there could be no doubt but that if some of the cases of tubal pregnancy were allowed to go without operation the patients would die from a subsequent hemorrhage. No case was safe without operation. He preferred the abdominal to the vaginal route.

Dr. Andrew F. Currier of New York agreed with those who had said that these cases were surgical, and just as a surgeon would endeavor to stop a hemorrhage that occurred from a bleeding vessel in any portion of the body, so was it equally important and proper to stop it in cases of tubal pregnancy.

Dr. Hugo Ehrenfest of St. Louis said he had operated on a woman a few weeks ago in whom infection had occurred from a well formed hematocele from an attempt to perform a criminal abortion on herself. She was three months advanced in pregnancy. A diagnosis of infected hematocele was made from the presence of a mass and septic fever. Operation confirmed the diagnosis.

Dr. F. Pfannenstiel of Germany said there were a few rare cases in which hemorrhage was so great that they must be operated on promptly in order to save the lives of the patients. He thought we should operate as early as possible without precipitation.

Dr. Brooks H. Wells of New York said that while in cases of ectopic pregnancy 95 per cent. might get well without operation, and that 5 per cent. surely died without being operated on, the best results could be obtained by operation done just as soon as the diagnosis could be made. Those women who made the quickest and smoothest convalescence, and who had the fewest symptoms of trouble afterwards, were the ones who were operated on quickly. Furthermore, the mortality rate in those operated on promptly was much smaller than in those who had been in "cold storage" for days or sometimes weeks.

Dr. Joseph Taber Johnson of Washington, D. C., said it was a backward step to wait and see whether these patients were going to bleed again or not. The proper thing to do in these cases was to operate, and the sooner the ruptured tube was removed the better.

Dr. William Gardner of Montreal believed that the majority of cases should be operated on, but the question arose should not the gynecologist wait or operate immediately. He thought Professor Pfannenstiel sounded the keynote when he said we might operate, but without precipitation. He would wait in certain cases, but watch them carefully, before deciding to operate.

The Heart in Shock.—Dr. Eugene Boise of Grand Rapids, Mich., said it was generally conceded that the element of danger in shock was the very low blood pressure. It was also generally believed that the cause of this low blood pressure was vasomotor paralysis. Dr. George W. Crile adopted this theory as the result of a large number of experiments. The author thought that the conclusion of Dr. Crile was erroneous. Dr. Howell spoke of a cardiac shock in which the low blood pressure was due to cardio-inhibitory exhaustion. Dr. Yandell Henderson thought that shock was due to a deficiency of carbon dioxide in the blood, and that when death occurred suddenly in shock the heart was tetanically contracted. A series of experiments had apparently demonstrated that in shock the heart was in a state of tonic contraction, the degree of which varied with the degree of shock, and that treatment directed to the relief of this condition was the correct treatment for shock.

Pernicious Anemia in Pregnancy.—Dr. Palmer Findley of Omaha, Neb., in a paper on this subject reviewed the literature and then presented a clinical report of a case with the post-mortem findings in both the mother and child. As a result of his observations, he presented the following summary: "(1) Pregnancy and the puerperium exercise a favorable influence on the development of pernicious anemia. (2) Women are more liable to pernicious anemia during pregnancy and the puerperium than at any other time. (3) There was no satisfactory explanation for the effect of pregnancy upon the development of pernicious anemia. Frequent child-bearing, prolonged lactation, overwork and malnutrition were predisposing factors. (4) There was a remarkable uniformity in the clinical phenomena and post-mortem findings. (5) The onset of anemia was usually in the latter half of pregnancy. (6) The diagnosis was not possible at the onset, but was later determined by exclusion of other possible forms of anemia by blood examination, fatal termination, and finally by post-mortem examination. (7) The child usually died *in utero* or shortly after birth and had never been observed to show pernicious anemia. Spontaneous interruption of pregnancy was the rule. (8) In all well established cases the disease had proven fatal."

Suggestions in Teaching Gynecology.—Dr. John A. Sampson of Albany, N. Y., demonstrated special mechanical charts as an aid in this work, and said that three phases in the study of any of the clinical branches of medicine naturally suggested themselves: First, the study of each disease as a science, namely, its cause, the changes in anatomy in its different stages, and, particularly important, the explanation of its symptomatology. Second, the classification of symptoms and the study of the various causes of each symptom and how these causes may be differentiated. Third, the art or technique of the clinical branch of medicine, namely, taking of the history, physical examination, diagnosis, and treatment, and importance of clinical experience on the part of the student in the dispensaries, wards, and hospitals, or in private practice. The conditions caused by each disease, which are illustrated problems, the student should attempt to solve from his knowledge of normal anatomy, normal physiology, etc., instead of memorizing data obtained from lectures or textbooks. In the solution of these problems questions were asked, and the answers of the student corrected when necessary and supplemented by information which he could not be expected to reason out. Various means may be employed, such as drawings, models, actual specimens removed at operation or at post-mortem, using whichever means were best adapted to the special subject under consideration. Mechanical charts were of great value in this work.

Hospital Gynecology.—Dr. Robert L. Dickinson of Brooklyn, N. Y., spoke of gynecology as a separate department and described the character of hospital as affecting this. He pointed out the need of a working adjustment between surgery and gynecology, and spoke of the relations which should exist between the assistants and the house staff. He thought there should be uniformity in technique where the operators were numerous, and believed there should also be standard schedules of preparation, of outfit, of after-care, etc. He then discussed the methods of exhibiting or guarding the histories of cases in wards, and pointed out the interrelation of hospital and dispensary.

Operations for Relief of Pelvic Diseases of Insane Women.—Dr. Leroy Broun of New York said that in 1902 he was placed in charge of the gynecological operations of the Manhattan State Hospital, an asylum having under its care some 2,500 women and receiving yearly about 1,000 new patients. All patients on admission were given a systematic physical examination, including the condition of the abdominal and pelvic organs, each feature of the examination being carefully carried out by one trained in the special line. When pelvic or abdominal pathological conditions were present such patients were referred to him for the purpose of determining whether symptoms arose from such, and if so whether an operation would be of benefit. The advisability of an operation having been de-

cided on, the guardians of such patients were communicated with, the condition and physical benefits were explained, and their approval of the operation considered advisable was asked. When refused, as not infrequently happened, nothing was done. Since his connection with the hospital there had been done by himself and under his supervision 411 abdominal and pelvic operations. In 1905 he presented for consideration a paper based on the surgical work performed on these unfortunates during the two years previous. The conclusions drawn were: That in no instance was the mental disturbance of the patients accentuated by the operations performed; that the physical benefit shown by those operated on was noticeable in a marked degree in almost 50 per cent. of the cases, and appreciable in about 40 per cent. As a result of this bodily improvement they became happier and more contented units of the colony in which they lived. The mental recovery of 20 of those included in this preliminary report was unquestionably hastened by the operations performed upon them. While in most instances there had been some mental improvement before the operation, yet in all of the 20 the psychic improvement was striking after the surgical recovery and in some instances the improvement seemed to date from the operation. Three years had passed since the preliminary report of this work. The number of patients included in the present report was 411. This included the total number operated on for the last five years. Of this number 72 patients had been discharged as recovered. The mental recovery of 32 of this number, or about 44 per cent., showed a much more rapid improvement after the operation than before. No patient was included in this number whose mental progress was not marked after the operation in comparison with her progress before the operation. Of the thirty-two patients whose mental recoveries were hastened by the operations twenty-five, or 78 per cent., were in cases in which the insanity showed the dominating symptom of depression. In the old classification existing in the hospital prior to 1904, these were grouped under melancholia, acute and chronic; involution melancholia, and depressive hallucinosis. In the new classification now adopted the majority of such conditions are placed under one head, manic-depressive insanity, and others to the involution period of life. Five of the remainder, or 15 per cent., were patients in an excited or exalted mental state. The remaining two patients were with a diagnosis of dementia præcox and paranoic symptoms. Fifty-eight per cent. of the number of patients who received hospital treatment and operations within six months after the commencement of their insanity were improved or recovered; thirty-three per cent. of those receiving treatment and operations within a year improved or recovered; these did not include the cases in the first class; twenty-six per cent. of those receiving treatment and operations after the expiration of a year were improved or recovered. The number of recoveries taking place among those with whom treatment was commenced within six months after the commencement of the mental disturbances was five times as great as among those in whom treatment was commenced at a later date. Forty-four per cent. of the 72 were discharged as recovered or had their improvement hastened by the operations performed. Why it was that some recovered and others with a like mental disturbance, even under the most advanced treatment, failed to respond, could only be answered by citing a parallel with physical diseases. The ability to improve varied with each individual, whether mental or physical.

Intrapelvic (Subpubic) Versus Abdominal Method of Dealing with Mechanical Obstruction to Delivery.—Dr. Richard C. Norris of Philadelphia said that the modern results of elective section justified the extension of the limit of the absolute indication. He pointed out what this limit should be and spoke of the degrees of relative disproportion which existed and which furnished debatable ground. Reference was made to the factors to be studied before or during labor that promised spontaneous delivery or safe operative assistance. The actual test of labor should not be abandoned. He spoke of the methods and value of fetometry, of pelvimetry, and of studies to determine the character of the membranes, of the cervix, and uterine energy. The status and methods of induction of premature labor or minor degrees of relative disproportion were described and personal statistics given. He spoke of the value and limitations of forceps and version. He referred to the circumstances which justified section of the pubic bone. Pubiotomy was preferable to symphyseotomy. The accidents of pubiotomy were best avoided by the most approved technique and by skilled operative delivery, which included complete preliminary dilatation of the birth canal.

(To be continued.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

State Medical Examining Board of Washington.

Spokane, January 7, 8 and 9, 1908.

NERVOUS DISEASES AND DISEASES OF EYE AND EAR.

1. Name three diseases in which tremor is a prominent symptom.
2. Describe migraine.
3. Name the symptoms that may exist in the preataxic stage of locomotor ataxia.
4. Give the difference in the late condition of the muscles in cerebral palsy of infancy and infantile palsy.
5. Name three diseases in which the condition of the eyes may assist in diagnosing, and detail each.
6. (*a*) Name the symptoms of mastoid disease. (*b*) Name the most serious complication of mastoid disease.
7. In what disease may acute otitis media occur as a complication?
8. What are the symptoms of iritis? What are its most frequent causes?
9. What is strabismus? What muscles are involved? In a child what is the appropriate treatment?
10. What are the dangers to the eye in a corneal ulceration?

PREVENTIVE MEDICINE AND MEDICAL JURISPRUDENCE.

1. Give the legal definition of insanity.
2. Define malpractice, civil and criminal.
3. What is rigor mortis? What is the significance of its instantaneous onset?
4. Under what circumstances would you report a case to the coroner for investigation?
5. Differentiate wounds made before and after death.
6. Describe the prophylaxis against amebic dysentery.
7. What prophylaxis should be adopted during an epidemic of diphtheria?
8. What diseases may be conveyed by the eating of pork?
9. Describe an efficient quarantine against smallpox.
10. Give the period of incubation and the duration of the infection after the subsidence of the acute symptoms in scarlet fever, measles, diphtheria, and smallpox.

ANATOMY AND PHYSIOLOGY.

1. Locate the principal groups of lymphatic glands.
2. Name five muscles of the shoulder and arm. Give the origin, insertion, and action of any two of the five.
3. Describe Poupart's ligament, naming its anatomical formation, relations, and uses as a surgical guide.
4. Name the branches of the abdominal aorta.
5. Name the ganglia connected with the fifth pair of cranial nerves.
6. Briefly describe the bones of the foot, giving their divisions and articulations.
7. Name the structures that maintain the bladder in position in the male and female.
8. Describe the triangle of the elbow and name the structures that pass through it.
9. What are the functions of the brain membranes?
10. What office does the Eustachian tube perform?
11. Describe the white blood corpuscles, giving their source, composition, and properties.
12. What changes take place in the composition of blood as it passes through the kidneys?
13. What is the function of the anterior spinal nerve roots and how is it proven?

14. Define and describe (*a*) respiratory rhythm, (*b*) respiratory sounds.
15. Describe the factors which cause the heart sounds.

OBSTETRICS AND GYNECOLOGY.

1. Describe the normal expelling forces in labor.
2. Give the management of a shoulder presentation.
3. What circumstances necessitate the introduction of the hand or fingers into the uterus during or after delivery?
4. Give your method of preserving the perineum during the second stage of labor.
5. Name the indications for terminating a pregnancy at the end of the seventh month.
6. Give the causes and symptoms of cystocele.
7. Give the treatment of vaginismus.
8. Give the symptoms and treatment of pyosalpinx.
9. Give the complications which may occur with ovarian cysts.
10. Give the treatment of gonorrheal endometritis.

CHEMISTRY AND TOXICOLOGY.

1. Give the formula, properties, and preparation of each of two of the following: potassium iodide; hydrochloric acid; potassium chlorate.
2. Give three tests for recognizing the presence of sugar in urine.
3. What inorganic salts enter into the formation of human bone?
4. What is formaldehyde? How is it prepared?
5. How would you test for hydrochloric acid in the gastric juice? Give the test for lactic acid.
6. Name the symptoms of iodoform poisoning. What disease may it resemble?
7. How would you detect the presence of one of the following in food products: boric acid; formalin; salicylic acid?
8. Name three drugs to which the following are antidotes; tannic acid; lime; albumin.
9. Give the treatment of poisoning by illuminating gas.
10. Give the symptoms and treatment of cocaine poisoning.

SURGERY.

1. Describe senile gangrene. When would you amputate?
2. Give the symptoms and treatment of vesical calculus. How would you differentiate it from renal calculus?
3. Describe all the dislocations of the ankle joint that may occur.
4. Give in detail two methods of skin-grafting.
5. How would you treat a compound fracture of the lower third of tibia and fibula?
6. Differentiate hydrocele from irreducible scrotal hernia.
7. Give the characteristic symptoms of the three stages of syphilis. When would you begin treatment?
8. Give the symptoms and treatment of shock following injuries. When would you and when would you not operate?
9. Describe an operation for (*a*) tracheotomy; (*b*) for intubation. When is the former to be preferred?
10. Give your method of repairing an incised transverse wound of the palmar surface of wrist extending to the bones.

MATERIA MEDICA AND THERAPEUTICS.

1. Under what conditions would you prescribe (*a*) ergot; (*b*) bromide of potassium; (*c*) hyoscyamus?
2. Name five sedatives and give the indications for the use of each.
3. Name four methods of introducing medicine into the system and give the relative dose by each method.
4. Give the classification, properties, dose, physiological action and therapeutic uses of belladonna and strychnine.
5. Give the derivation of and the therapeutic use of (*a*) ichthyol; (*b*) iodine.
6. Name five agents that are germicidal in their action.
7. What are the indications for cold as a therapeutic agent? How does it produce its effect?
8. When would you use the following drugs (*a*) arsenious acid; (*b*) tincture aconite; (*c*) salicylate of soda; (*d*) acetanilid?
9. Name five vegetable and three mineral astringents describing the method of administration and the dosage of each.
10. Write a prescription for a child suffering from pertussis.

HISTOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. Describe in general the morphology of bacteria; grouping; mode of multiplication; spore formation.
2. Name five important culture media and one important bacterium that thrives best upon each.
3. With what three organisms may the bacilli of tuberculosis be confounded? State the order of procedure and differentiate between them.
4. What is bone marrow? How many kinds are there? What histological elements enter into its composition?
5. How many kinds of tissue are there? Name them.
6. Is epithelium necessarily derived from preexisting epithelium?
7. How many kinds of thrombus are there? Name causes of, character of, and the later changes that occur in them.
8. Pathologically, what distinguishes tubercular from other forms of pneumonic consolidation?
9. State the morbid processes that may result from arrested nutrition, impaired nutrition, and increased nutrition.
10. Give the bacteriology and pathology of bubonic plague.

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN.

1. Enumerate the points of diagnostic value in interstitial nephritis. Name the associated conditions.
2. In what condition may we have hemoptysis? Explain the importance of the symptoms as to prognosis and diagnosis.
3. Differentiate endocarditis and pericarditis.
4. Give the etiology and symptoms of acute articular rheumatism. With what disease may it be confounded? On what points would a differential diagnosis depend?
5. Differentiate between chronic gastric ulcer and cancer of the stomach.
6. Give the physical signs of two stages of tuberculosis of the lungs.
7. Define (*a*) Hodgkin's disease; (*b*) Addison's disease.
8. Describe gastric vomiting; cerebral vomiting; Cheyne-Stokes respiration; colliquative diarrhea; a dicrotic pulse; a trip-hammer pulse; Hippocratic countenance.
9. Wherein do you expect the symptoms in typhoid fever to differ in children (under ten years) as compared with adults?
10. Make a diagnosis of one form of congenital valvular heart lesion and give the prognosis.
11. Give the respiratory rate at birth; at one year; at two years; at six years, and at twelve years.
12. What is marasmus? Name its cause and treatment.
13. Name three of each group of the stigmata of degeneration (*a*) anatomical; (*b*) physiological; (*c*) psychical.
14. Name the causes of enuresis.
15. Describe the differences in the eruption of chickenpox and smallpox.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE MEDICAL EXAMINING BOARD OF WASHINGTON.

Spokane, January 7, 8 and 9, 1908.

NERVOUS DISEASES AND DISEASES OF EYE AND EAR.

1. Three diseases in which tremor is a prominent symptom: Paralysis agitans, plumbism, and alcoholism.
3. The symptoms that may exist in the preataxic stage of locomotor ataxia are: Numbness in the feet, uncertainty in walking, weakness of sexual function, impairment of bladder control, lightning pains, loss or diminution of knee jerk, inability to stand with the feet together and the eyes closed.
4. In the *cerebral palsy of infancy* will be found: Contractures, rigidity, increase of the deep reflexes, and sometimes athetosis; in recent cases there is no atrophy.
In *infantile palsy* the contractures, rigidity, increased deep reflexes are absent; and there may be atrophy.
5. Three diseases in which the condition of the eyes may assist in diagnosing: Chronic interstitial nephritis, locomotor ataxia, and cerebellar tumors.
7. Acute otitis media may occur as a complication in scarlet fever.

PREVENTIVE MEDICINE AND MEDICAL JURISPRUDENCE.

1. Insanity is defined, in Allbutt's System of Medicine, as "such a disorder or disease of the nervous system as prevents the individual from reacting normally as a member of the society to which by birth and education he belongs."
2. *Malpractice* is a failure on the part of a medical practitioner to use such skill, care and judgment in the

treatment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil malpractice*. But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice*.

3. *Rigor mortis* is the condition of rigidity or contraction into which the muscles of the body pass after death. It begins at a period varying from about fifteen minutes to about six hours.

"Rigor mortis does not follow immediately upon death in any case; a shorter or longer period of complete muscular relaxation intervenes."—(Schultze, in *Reference Handbook of the Medical Sciences.*)

5. A wound inflicted during life is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

6. Prophylaxis against amebic dysentery would include: Boiling all water before use. No ice should be put *in* water or drink or food; thorough cooking of all food; the avoidance of raw vegetables and fruit; thorough disinfection of the bowel discharges of those suffering from the disease.

8. Diseases which may be conveyed by the eating of pork: Tape worm, trichiniasis, tuberculosis, diarrhea, ptomaine poisoning, gastritis, enteritis.

ANATOMY AND PHYSIOLOGY.

8. *The triangle of the elbow* is situated at the upper part of the anterior surface of the forearm. It is *bounded*: *Above* by a line connecting the two condyles of the humerus; *externally*, by the Supinator longus; *internally*, by the Pronator radii teres; its *floor* is formed by the Brachialis anticus and Supinator brevis. *The structures that pass through it* are: The brachial artery and veins, the radial and ulnar arteries, the median and musculospiral nerves, and the tendon of the Biceps.

9. The *function of the dura* is protection: It forms the internal periosteum of the skull, it forms three partitions for the support of the parts of the brain, it forms sinuses or venous channels for the return of the blood from the brain, and it forms sheaths for the nerves as they leave the skull. The function of the *arachnoid* is lymph supply; of the *pia*, blood supply and nutrition.

10. The *function of the Eustachian tube*, is to keep the atmospheric pressure within the tympanic cavity the same as that on the outside.

11. The *white blood cells* are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells. Their functions are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

12. As the blood passes through the kidney it loses water, salts, urea, carbon dioxide and extractives.

13. The *anterior* roots of the spinal nerves are efferent and motor and secretory and cause contraction of the muscles to which the nerves are distributed, or secretion in the glands to which the nerves are distributed.

The *proofs* of this are as follows: 1. *Division* of the anterior roots is followed by (1) loss of muscle movement; (2) dilatation and loss of tonus of the blood-vessels; (3) cessation of secretions from the glands; (4) impairment of the visceral muscles. 2. *Stimulation* of the anterior roots is followed by: (1) Tetanic contraction of the muscles; (2) changes in the caliber of the blood-vessels; (3) production of secretions from the glands; (4) variations in the tonus of certain visceral muscles.

15. The causes producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

OBSTETRICS AND GYNECOLOGY.

1. The normal expelling forces in labor, are: (1) The contractions of the uterus (which are the main factors, and are involuntary); (2) the contractions of the diaphragm and abdominal muscles.

6. CYSTOCELE: *Causes:* Lacerated perineum, prolapsed uterus, relaxation of the structures forming the pelvic floor, and subinvolution of the vagina after labor.

Symptoms: A dragging sensation in the lower pelvic cavity; a feeling of distention at the vulva; loss of power in urination; tumor of anterior vaginal wall, more apparent on straining.

7. The *treatment of vaginismus* consists in removing the cause when possible, tonics and general constitutional treatment, dilatation of the vaginal orifice; local application of a 5 per cent. solution of cocaine will relieve the hyperesthesia and allow of coitus. The condition is sometimes incurable.

9. The complications which may occur with ovarian cysts are: Inflammation, hemorrhage, suppuration, twisting of the pedicle, rupture, the formation of adhesions.

CHEMISTRY AND TOXICOLOGY.

1. POTASSIUM IODIDE. *Formula* KI.

Properties: Solid, white, odorless, tastes salty and sharp, fusible, volatile, very soluble in water.

Preparation: $6KHO + 3I_2 = KIO_3 + 3H_2O + 5KI$.

POTASSIUM CHLORATE. *Formula:* $KClO_3$.

Properties: Solid, colorless, transparent, odorless, tastes cool and salty, moderately soluble in water, decomposes on being heated.

Preparation: $6KHO + 3Cl_2 = 5KCl + 3H_2O + KClO_3$.

2. *Three tests for recognizing the presence of sugar in urine:* The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1.) *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of traces of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2.) *Fermentation test:* Three Smith's fermentation tubes are used, each containing a little compressed yeast, one filled with the liquid to be tested, the second with pure water, and the third with a dilute solution of glucose, and the three are put in a warm place over night. If gas collects in the first and third tubes, but not in the second, the liquid contains sugar; if gas collects in the third only it does not; under any other circumstances the yeast is at fault.

(3.) *Boettger's test:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color. (From Witthaus' *Essentials of Chemistry.*)

3. *The inorganic salts in human bone* are: Phosphate, carbonate and fluoride of calcium; chloride of sodium; phosphate of magnesium.

4. Formaldehyde is methyl aldehyde H.CHO.

It is *prepared* by the dry distillation of calcium formate:

$$Ca(H.COO)_2 = CaCO_3 + H.CHO.$$

5. *Test for free hydrochloric acid in the gastric juice:* The best is probably the Dimethylamido-azobenzol test; the reagent is used in 0.5 per cent. alcoholic solution, of which one or two drops are added to a like amount of the filtered gastric juice. If free HCl is present, the yellow solution turns red.

"The presence of lactic acid is detected by *Uffelmann's reagent*, which consists of a solution of Fe_2Cl_6 and phenol, diluted to an amethyst-blue color, which is changed to yellow by lactic acid. In order to avoid error by the action of other substances which have a like action upon

the reagent, 10 c.c. of the filtered gastric contents are agitated with ether, and the ethereal extract separated and agitated with the reagent; or it may be evaporated, the residue dissolved in water, and the solution added to the reagent."—(Witthaus' *Manual of Chemistry.*)

6. *The symptoms of iodoform poisoning*, are: (1) An erythematous rash, or eczematous eruption; (2) high temperature, small and rapid pulse, faintness, headache, mental depression, delirium, thirst, nausea, gastrointestinal disturbances; or (3) mental confusion, dizziness, cardiac depression, prostration, and coma.

7. *To detect the presence of boric acid in food products:* "The substance is rendered alkaline with milk of lime, evaporated to dryness, and incinerated. The ash is dissolved in the smallest possible quantity of concentrated hydrochloric acid, separated from carbonaceous matter by filtration, and the filtrate is evaporated to dryness on the water-bath. An appreciable loss of boric acid is not to be apprehended. The mass is then moistened with hydrochloric acid, slightly diluted, saturated with tincture of turmeric, and evaporated to dryness in the water-bath. In presence of the slightest trace of boric acid the dry residue appears of a scarlet or cherry color."—(Lehmann's *Practical Hygiene.*)

8. Tannic acid is an *antidote* to the alkaloids in general; lime to oxalic acid; albumin to corrosive sublimate.

9. *The treatment of poisoning by illuminating gas* consists in supplying fresh air or oxygen and in maintaining respiration. Cold affusions to the head while the body is kept warm, inhalation of ammonia, and transfusion of blood have also been recommended.

10. In *cocaine poisoning* there will be found pain and fullness in the head, pulse first quick, later feeble and slow, extremities cold. The symptoms are not constant.

Treatment consists in the administration of ammonia or coffee; morphine, strychnine, chloroform, and ether have all been suggested. The safest plan is to treat whatever symptoms are present.

The *antidote* is said to be amyl nitrite.

SURGERY.

2. *The symptoms of vesical calculus* are: Increased frequency of micturition; pain at end of urination, chiefly felt at the end of the penis or in the neck of the bladder; the urine may contain pus, mucus or blood; a "click" can be obtained by using a searcher or sound; examination by the cystoscope may reveal the presence of the stone.

The *treatment* consists in removing the calculus, by litholapaxy, or lithotrity, or lithotomy (suprapubic or perineal).

In *renal calculus* the pain may be in the loin, groin, or testicle; there may be no urinary changes; a "searcher" will not find a stone; cystoscopic examination is useless; but the *x*-rays may diagnose the calculus.

6. *Hydrocele:* Is pyriform in shape; the swelling is first noted at the lowest part of the scrotum; it is tense, smooth, and fluctuates; it is dull on percussion; it is *translucent;* the testicle is behind the tumor; there is no impulse on coughing.

Irreducible scrotal hernia: Is sausage-shaped; the swelling begins above; it is *not translucent;* the testicle is below the tumor; there is an impulse on coughing, as a rule.

7. *The first stage of syphilis*, is characterized by the *hard chancre.* The *second stage*, by: Sore throat, mucous patches; the skin lesions or syphilides, which are characterized: By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical. In this stage may also appear: Iritis, periostitis, and alopecia.

The *third stage* is marked by: Anemia, gumma formation, periosteal nodes, headaches, endarteritis and various other diseases.

Treatment should be commenced as soon as the diagnosis is absolute; generally this is on the appearance of the secondary symptoms.

HISTOLOGY, PATHOLOGY, AND BACTERIOLOGY.

2.

FIVE CULTURE MEDIA.	ONE B. THRIVING WELL ON IT.
1. Gelatin.	Anthrax bacillus.
2. Agar.	B. of typhoid.
3. Potato.	Glanders B.
4. Blood-serum.	Tubercle B.
5. Hydrocele fluid (and agar).	Micrococcus of gonorrhea.

3. The bacteria liable to be mistaken for the tubercle bacillus are: the bacillus of leprosy, the bacillus of the smegma, and Lustgarten's bacillus. "The differential diagnosis between these four organisms depends upon the following reactions: When stained by the carbol-fuchsin method, commonly employed in staining the tubercle bacillus, the Lustgarten's bacillus becomes almost instantly decolorized by treatment with mineral acids, particularly sulphuric acid; whereas the smegma bacillus resists such treatment for a much longer time, and the lepra and tubercle bacillus for a still longer time. On the other hand, if decolorization is practised with alcohol instead of acids, the smegma bacillus is the first to lose color. The bacillus tuberculosis and the bacillus of leprosy are both very retentive of their color, even after treatment with acids and alcohol. If, then, we treat the preparation, stained with carbol-fuchsin, with sulphuric acid, Lustgarten's bacillus becomes almost at once decolorized. If it is not immediately decolorized, heat with alcohol; if it is then decoloried, it is the smegma bacillus. If it is still not decolorized, it is either the leprosy or the tubercle bacillus." (From Park's *Pathogenic Bacteria.*)

9. From *arrested nutrition*, may result: Necrosis and gangrene.

From *impaired nutrition*, may result: Atrophy, pulmonary emphysema, infiltrations, degenerations, and pigmentation.

From *increased nutrition*, may result: Hypertrophy and regeneration.

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN.

3. In *endocarditis:* The sounds are in some relation to systole and diastole; are not superficial; may be conducted upwards or to the apex; are usually of a blowing character, or musical.

In *pericarditis:* The sounds are in no relation to systole and diastole; are more superficial; are not conducted upwards to the apex, though they may be heard over a wide area; are almost always of a friction or rubbing character, and are not musical.

4. ACUTE ARTICULAR RHEUMATISM. *Etiology* is not settled; it is supposed to be due to bacteria, but this is not yet proved.

Symptoms: Rheumatic pains in one of the larger joints (wrists, knees, elbows, ankles), which spreads rapidly to other joints. These joints are hot, red, swollen, and very painful; frequently the inflammation leaves one joint and appears in another. The body temperature may be very high; the pulse is rapid, soft, and full; the tongue is large and furred; profuse acid sweating is common; the urine is scanty and high colored, and may be loaded with urates. Anemia develops. Cardiac murmurs, either hemic or organic, may often be heard.

It may be confounded with *septic arthritis.* This latter would show evidence of a prior septic disease, a great tendency to pus formation, great variations in body temperature, the involved joints are more liable to be destroyed; the joint symptoms do not shift from one articulation to another, and the patient is usually more prostrated in septic arthritis.

5. *Gastric ulcer* is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl; there is no epigastric tumor, though the stomach walls may be somewhat thickened.

Cancer of stomach does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; there is progressive emaciation; severe anemia and cachexia are also present.

7. (*a*) *Hodgkin's disease* is a condition characterized by progressive enlargement of the lymphatic glands, with anemia, and secondary lymphoid growths in various other organs (spleen, liver, etc.).

(*b*) *Addison's disease* is a rare condition characterized by some pathological condition of the suprarenal glands and the sympathetic nervous system, and in which the skin becomes bronzed.

8. *Gastric vomiting* relieves the previous nausea, and returns on ingestion of food; salivation is present, also tenderness over liver and stomach.

Cerebral vomiting is projectile in character, and is accompanied by little or no nausea, is continuous even after stomach is emptied; there is no salivation, no tenderness over liver or stomach.

In *Cheyne-Stokes respiration* the respirations gradually increase in volume and rapidity until they reach a climax, when they gradually subside, and finally cease for from ten to forty seconds, when the same cycle begins again.

Colliquative diarrhea is a diarrhea attended with excessive discharges, and which causes much exhaustion of the patient.

Dicrotic pulse is a condition in which the first impulse as it strikes the examining finger is quickly followed by another impulse or secondary wave.

Triphammer pulse is characterized by a short, sharp impulse which promptly collapses.

Hippocratic countenance is characterized by: "A sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and their lobes turned out; the skin about the forehead being rough, distended, and parched; the color of the whole face being dark, livid, or lead-colored."

11. The respiratory rate (per minute) is: At birth, 45; at one year, 30; at two years, 25; at six years, 22; and at twelve years, 20.

13. STIGMATA OF DEGENERATION. (*a*) *Three anatomical:* Asymmetry of the skull, excessive prognathism, high, narrow arched palate.

(*b*) *Three physiological:* Nystagmus, defects in speech, l layed puberty.

(*c*) *Three psychological:* Excessive self-consciousness, morbid egotism, perversions of sexual instinct.

14. The *causes of enuresis* are: Phimosis, adherent prepuce, calculus, highly acid or alkaline urine, cystitis, intestinal worms, rectal polypi, fissure of the anus, hip-joint disease, spinal disease, general weakness of the nervous system, idiocy, and some of the infectious diseases.

15. *The eruption of chickenpox:* Usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular and collapse on puncture.

The eruption of smallpox: Usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.		
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan.	5
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct.	5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct.	13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec.	1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct.	6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov.	10
Delaware	J. H. Wilson, Dover	Dover	Dec.	8
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct.	13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov.	11
Georgia	E. R. Anthony, Griffin	Atlanta	Oct.	6
Idaho	W. F. Howard, Pocatello	Boise	Oct.	6
Illinois	J. A. Egan, Springfield	Chicago	Oct.	21
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	Sept.	16
Iowa	Louis A. Thomas, Des Moines	Des Moines	Oct.	27
Kansas	D. P. Cook, Clay Center	Kansas City	Oct.	13
Kentucky*	J. N. McCormick, Bowling Green	Louisville	Oct.	27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct	1
Maine	Wm. J. Maybury, Saco	Portland	Nov.	10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.	8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov.	10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct.	13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct.	6
Mississippi	S. H. McLean, Jackson	Jackson	Oct.	13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov.	23
Montana*	Wm. C. Riddell, Helena	Helena	Oct.	6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Nov.	4
Nevada	S. L. Lee, Carson City	Carson City	Nov.	2
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec.	30
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct.	20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct.	12
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept.	22
N. Carolina*	B. K. Hays, Oxford	Asheville	June	9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct.	6
Ohio	Geo. H. Matson, Columbus	Columbus	Dec.	8
Oklahoma*	J. C. Mahr, Shawnee	Shawnee	Sept.	—
Oregon	B. E. Miller, Portland	Portland	Jan.	5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec.	—
Rhode Island	G. T. Swarts, Providence	Providence	Oct.	1
S. Carolina	W. M. Lester, Columbia	Columbia	June	8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan.	13
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May	—
Texas	G. B. Foscue, Waco	Houston	Nov.	10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Oct.	5
Vermont	W. Scott Nay, Underhill	Montpelier	Jan.	12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec.	16
Washington*	K. Turner, Seattle	Spokane	Jan.	5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov.	10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan.	12
Wyoming	S. B. Miller, Laramie	Laramie	Oct.	14

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the weeks ending August 29 and September 5, 1908:

	August 29		September 5	
	Cases	Deaths	Cases	Deaths
Tuberculosis Pulmonalis	464	141	466	155
Diphtheria	140	15	175	22
Measles	71	3	57	5
Scarlet Fever	85	4	85	9
Smallpox	—	—	—	—
Varicella	3	—	8	—
Typhoid Fever	144	14	138	11
Whooping Cough	30	3	7	5
Cerebrospinal Meningitis	6	9	5	1
Malarial Fever	—	—	—	—
Totals	943	189	941	208

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending September 4, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, San Francisco	Aug. 15–22	4	..
Indiana, Indianapolis	Aug. 17–23	1	..
Kansas, Kansas City	Aug. 16–22	1	..
Topeka	Aug. 16–22	1	..
Kentucky, Covington	Aug. 23–29	1	..
Minnesota, Minneapolis	July 1–31	4	..
Missouri, St. Joseph	Aug. 16–22	7	..
Montana, Butte	Aug. 12–18	1	..
North Carolina, Greensboro	Aug. 16–22	1	..
Ohio, Cincinnati	Aug. 22–28	1	..
Dayton	Aug. 16–22	1	..
Utah, General	July 1–31	19	1
Washington, Seattle	July 1–31	16	..
Wisconsin, La Crosse	Aug. 16–22	5	..
Milwaukee	Aug. 9–22	3	..

SMALLPOX—FOREIGN.

Arabia, Aden	July 26–Aug. 3	..	4
Brazil, Rio de Janeiro	July 13–26	1,078	490
Pernambuco	July 1–15	..	26
Santos	July 6–19	..	6
China, Hongkong	July 12–18	1	1
Shanghai	July 13–19	..	1
Ceylon, Colombo	July 12–18	4	..
Ecuador, Guayaquil	July 19–25	..	6
Egypt, General	July 18-22	28	..
Cairo	July 31–Aug. 5	2	2
France, Paris	Aug. 2–8	3	..
Germany, General	July 19–25	5	..
Chemnitz	Aug. 2–8	1	..
Konigsburg	Aug. 2–8	1	..
Great Britain, Liverpool	Aug. 9–15	1	..
India, Calcutta	July 12–18	.	8
Italy, General	Aug. 3–9	11	..
Palermo	July 5–Aug. 1	7	1
Java, Batavia	July 12–18	5	
Mexico, Mexico City	June 28–July 11	..	49
Manila	July 5–11	21	3
Spain, Valencia	Aug. 9–15	1	1
Turkey in Asia, Bagdad	July 13–18	20	4
Turkey in Europe, Constantinople	Aug. 3–16	..	10
Zanzibar	July 8–21	1	1

CHOLERA.

Ceylon, Colombo	July 12–18	2	2
China, Hongkong	July 12–18	10	6
India, Bombay	July 1–30	..	12
Calcutta	July 12–18	..	19
Madras	July 18–24	..	15
Rangoon	July 12–18	..	1
Russia, Astrachan	July 22–31	4	2
Zaritzyne	July 24–Aug. 6	96	55

July 19–31, present in Samara, Simbirsk and Tambov government districts.

YELLOW FEVER.

Brazil Bahia	July 16–22	3 cases on an Italian bark	
Para	June 25–Aug. 6	8	7
Ecuador, Guayaquil	July 19–25	..	1
Martinique, Port de France	Aug. 2–8	2	1
Mexico, Vera Cruz	Aug. 22–28	1	1

PLAGUE.

Brazil, Bahia	July 23–29	1	..
Rio de Janeiro	July 13–19	2	..
China, Hongkong	July 12–18	20	20
India, General	July 5–18	1,014	834
Bengal	June 28–July 18.	54	54
Bombay	July 8–21	..	67
Calcutta	June 28–July 18.	..	69
Rangoon	June 28–July 18.	..	137
Mauritius	May 1–31	1	1
Turkey in Asia, Bagdad	Aug. 2–8	1	2
Venezuela, Caracas	July 25–Aug. 9	7	4

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Original Articles.

WOUNDS OF THE HEART, WITH A REPORT OF THREE CASES, AND CONCLUSIONS DRAWN.*

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WOUNDS of the heart may be either non-penetrating or penetrating, injuring the cardiac wall, or opening a cavity. The left ventricle is most frequently injured, and the left auricle is least so. Auricular wounds are more fatal than ventricular ones, and injuries of the apex are less dangerous than either. A needle puncture will rarely cause hemorrhage from a ventricle, but excessive bleeding, which is mostly systolic, is liable to follow a like injury to an auricle. A wound inflicted during diastole is less dangerous than a similar injury during systole, perpendicular wounds are more fatal than diagonal, and those of the right heart bleed more profusely than those of the left. The presence of the foreign body in the heart, the size of the wound, the location of the wound, the number of wounds, the connecting cavities, the attending syncope, the involvement of Kroenecker's coordination center, and the degeneracy of the cardiac muscle are important factors in determining the outcome.

Pericarditis, myocarditis, endocarditis, cerebral embolism, and empyema are frequently secondary complications. When the wound heals spontaneously there is a possibility of cicatricial stretching, and subsequent rupture, as in a case reported by Izzo, of a man stabbed in the left ventricle, who was conveyed to the hospital, from which he was discharged as cured on the twenty-eighth day; a few hours afterward, while lifting a heavy body, he fell and quickly died. At the autopsy the cicatrix of the left ventricle was found ruptured. Loison has collected nine such cases. In addition to the injuries of the heart caused by bullets, daggers, knives, needles, and various implements of war, it may be wounded by a fractured rib, by a foreign body that has perforated the esophagus, or by blows upon the chest. Traumatic ruptures are more frequent after a full meal, as the distended stomach pushes the heart upward and forward, and causes a large area of the organ to be in contact with the thoracic wall, and receive the impact. Newton and Gamgee have collected forty-five cases in which traumatisms caused rupture of the heart without opening the pericardium. All were fatal. Only one of Gamgee's cases survived the injury fourteen hours. The fatality is easily understood, for there being no exit, as soon as the accumulation of blood exceeds the limit of pericardial distensibility the cardiac movements are mechanically stopped. The surgeon not only would be justified, but it is his bounden duty to operate upon every one of these cases, for it is more important, if possible, to rescue a drowning heart than to relieve a strangulated hernia. It is possible for a foreign body, as a gun missile, to remain quiescent for years in the myocardium, as in the case of a British officer, reported by Stevenson, who carried a bullet encapsulated for eleven years, or the still more remarkable case of Beers (Cincinnati *Lancet-Clinic*, 1898) of an American soldier who survived the lodgment of a bullet in the wall of the left ventricle for thirty-seven years.

Symptoms.—There is no certain cardinal sign by which an injury of the heart can be denoted, but when we consider the location of the external wound and, if large, the usually profuse hemorrhage from it, which may spurt, in connection with other signs and symptoms, it can generally be recognized. The *x*-ray furnishes valuable assistance, since it shows an enlargement of the cardiac outline and the presence of any foreign body, as in a case that I will subsequently report. In children the heart is an intercostal space higher than in adults. In the fourth, fifth, and sixth intercostal spaces near the left edge of the sternum the heart comes close to the surface and can be easily injured. The pulse is weak, irregular, intermittent, and often imperceptible in the extremities. There are pain, pallor, restlessness, and generally dyspnea. Frequent attacks of syncope are common. The mind is clear, but the countenance depicts an anxiety and distress that seemingly would welcome death, with the wintry sterility of the grave, as a sympathizing friend. If there is much blood in the pericardium the heart sounds are indistinct, and percussion elicits increased dullness. With the pulsation of the heart a foreign body, as a needle, may be seen to move under the skin—a symptom, centuries ago, enshrined in the magnificence of indestructible verse.

> "He fell, the spear point quivering in his heart,
> Which, with convulsive throbbing, shook the shaft."

Prognosis.—The chief dangers are shock, hemorrhage, and infection. Ninety per cent. are penetrating, and of these only 19 per cent. are instantly fatal. Of the seventy-five deaths in the operative cases, sixteen occurred on the operating table or within the first hour after the operation, and seventeen from seven hours up to two days, which makes a mortality of 44 per cent. from hemorrhage and collapse. Thirty died in consequence of infection, which is 40 per cent. Consequently 84 per cent. of the seventy-five patients died of hemorrhage and infection. In nearly all of the infective cases the patients died of purulent pericarditis or empyema. In twelve of these the pericardium was primarily closed. Of the one hundred and twenty-four cases of

*Read before the Alabama Medical Association, April 22, 1908.

heart suture recorded there were forty-nine recoveries, or about 40 per cent., as against 10 per cent. of recoveries without operation. One hundred and nine were stab wounds, with forty-three recoveries, or about 39 per cent., and fifteen gunshot wounds, with six recoveries, or about 40 per cent. Fifty-five times the left ventricle was penetrated, with twenty-five recoveries, or 45 per cent., and fifty times the right ventricle, with sixteen recoveries, or 32 per cent.

Perforations of the auricles are so infrequent that no reliable statistics have been gathered, but we are safe in assuming a much greater mortality. Contrary to the common belief, these statistics show a more frequent injury of the left ventricle than of the right. In the two cases in which the left coronary arteries were ligated death resulted from infection.

Treatment.—I presume no one will question the propriety of immediate operative interference, as experience teaches that about 40 per cent. of cases recovered in which the heart had been sutured as against 10 per cent. of recoveries in which no operation had been performed. According to Rehn there is not a single death attributable to surgical manipulation, and though sixteen patients have died upon the table, other causes were obvious. In the case of a girl sixteen years of age Podrez probed the left ventricle for a bullet, made ten insertions with a needle, and kneaded the organ with his entire hand, using considerable force, in a vain effort to locate the missile. During his search no interruption of the heart beat occurred and the girl recovered. A needle should be removed at once, but a knife blade or dagger must not be touched until the surgeon has bared the heart and is master of the situation, since an uncontrollable hemorrhage might occur, as in the case of the late Empress of Austria when a file was unfortunately prematurely extracted. It hardly seems necessary to accentuate the fact of the necessity of perfect asepsis in this operation, as forty per cent. of the deaths were due to infection. Diminished resistance from loss of blood and want of cleanliness from hurry of preparation are largely contributive causes. Until every aseptic precaution has been taken mechanical stoppage of the heart from blood in the pericardium should be prevented by aspirating. If the escape of blood in the pericardium is very rapid seven ounces may be sufficient to cause death, but if gradual a much larger quantity will be tolerated. Moullin reported a case in which "the pericardium contained six pints of thin dark fluid which was removed and patient recovered." The needle passed through a flame is rendered aseptic and made to enter the sixth left space close to the sternal margin, the thickness of the bone, about one-third of an inch, then behind the sternum for half an inch, to escape the pleura, and raising the handle push the needle downwards into the pericardial sac—traveling a little more than two inches. The operation has a mortality of a little the rise of one per cent. In case of unconsciousness with hardly a sign of life we should operate without an anesthetic, and upon the return of consciousness administer chloroform. No two operators have made similar external incisions for exposing the heart. Professor Rotter of Vienna performed a number of experiments upon the cadaver and concluded that the easiest way to expose the heart was by making an incision four inches in length along the lower border of the third rib, commencing three-fifths of an inch to the left of the sternum. A similar incision was made along the lower border of the fifth rib. The external ends of this incision were joined by a third. The fourth and fifth ribs were divided and the musculo-osseous flap was turned inward. If more space should be required the third could be included. If the incisions commenced four-fifths instead of three-fifths of an inch from the left sternal border we would certainly miss the internal mammary artery and would only be required to ligate the intercostals. This incision gives us an opportunity of removing any extravasation of blood and inspection of the pleural cavity with reference to other injuries. There are very few wounds of the heart without involvement of one of the pleura. If there is slight bleeding from the heart it may be controlled with a stitch, by pressure of the finger or by the introduction of a finger as Parrozzani did. Sometimes the bleeding is so profuse that suturing is impossible, but if the heart is pulled outward and turned to the right the bleeding will cease because the vessels are flattened and twisted. This harsh method causes great distress, but no death has been recorded from it. The operation can be made bloodless by compression of the right atrium. Professor Magnus of Heidelberg experimented upon dogs and demonstrated that a dog's heart would stand incomplete compression up to four minutes, and complete one and a half minutes, and Rehn thinks the human heart would be much more tolerant as it is not nearly so irritable as the dog's.

With the right hand gently lift the heart out of the pericardium and introduce from below the left hand, and immediately we feel the vena cava inferior, and its inosculation into the right atrium which should be pressed between the index and ring finger, and pushing upwards we displace the inosculation of the vena cava superior. Rehn truthfully remarks "we have in the compression of the right atrium venosum a means of bringing the most violent heart bleeding to a stop at once." In suturing be certain to get a good hold, do not include the endocardium, lest a brittle heart give way. I prefer the interrupted catgut stitch and to use an intestinal needle. Should the heart appear weary allow it to glide back into its normal position for a few moments. As few stitches as possible should be passed, commensurate with safety against leakage, as they cause a degeneration of the muscular fiber with its tendency to dilatation and rupture. Giordano, from his experiments upon rabbits, prefers Lembert's sutures in closing an auricular wound. The sutures should be passed and tied during diastole. Tubes are preferable to gauze for drainage as the latter is liable to cause a retention of the discharge and strangulation of the organ. Never close a pericardium with an open pleura because of the ease of infection in the latter which may extend to the pericardial wound and cause the formation of pus in the closed pericardium.

Case I.—This boy, Henry Myrick, whom I had the pleasure of showing you at the Talledega meeting five years ago, remains in excellent condition. He was at the time of the injury thirteen years of age and of rather delicate appearance. About six hours after the injury Dr. Parker was called, and, perceiving the nature of the case, advised that I should be sent for, and, upon my arrival, I urged an immediate operation. To this the parents readily consented, and I was assisted in the operation by Drs. Michel, R. S. Hill, Robinson, Parker, and Washington. The knife blade entered the fifth intercostal space, about a quarter of an inch to the right of the left nipple, and penetrating the apex of the heart, passed into the left ventricle. The wound was about three-eighths of an inch in length, and

from it came a stream of blood at every systole. There was no external bleeding, but his general condition was very unfavorable. The radial pulse was almost imperceptible and the heart sounds were heard with difficulty. There was a triangular-shaped area of dullness. He had dyspnea, and was very restless. His extremities were cold, as were his lips and nose. When aroused, he answered questions intelligently, though his countenance showed great distress. Securing two lamps I removed the boy from his bed to a table, at one o'clock at night, eight hours after the stabbing, and proceeded to cleanse the field of the operation, and place the patient in as favorable a condition as my surroundings in the negro cabin would allow. Commencing an incision about five-eighths of an inch from the left border of the sternum, I carried it along the third rib for four inches. A second incision was started at the same distance from the sternum and carried along the sixth rib for four inches. A vertical incision along the anterior axillary line was made connecting them. The third, fourth, and fifth ribs were cut through with the pleura. The musculoosseous flap was raised, with the cartilages of the ribs acting as hinges. There was no blood in the pleural cavity, but the pericardium was enormously distended. I enlarged the opening in the pericardium to a distance of two and one-half inches and evacuated about ten ounces of blood. The pulse immediately improved, as was commented upon by Dr. L. D. Robinson, who so successfully and skillfully administered the chloroform. I had my brother, Dr. R. S. Hill, pass his hand into the pericardial sac, and bring the heart upward, and at the same time steady it sufficiently for me to pass a catgut suture through the center of the wound in the heart and control the hemorrhage. I cleansed the pericardial sac with a saline solution, and closed the opening in it with seven interrupted catgut sutures. The pleural cavity was also cleansed with a saline solution. The musculoosseous flap was brought down and stitched in position. The operation lasted forty-five minutes. The patient's pulse, on reaching his bed, was one hundred and forty-five and respiration fifty-six. I injected strychnine hypodermically, and employed hypodermoclysis and autotransfusion. The following morning, September 15, the boy's pulse was 130, and temperature 102°, and he was slightly delirious. On September 16 there was but slight change in the temperature and pulse, though the delirium was much worse. On September 17 he commenced to improve, and his recovery was uninterrupted. Rehn was able to collect only two other cases of delirium following heart suturing. I allowed the patient to sit up on the fifteenth day.

Case II.—A girl was brought to my home about eight o'clock at night. She had carried in her shirt waist a needle two and a half inches in length which she had driven into her heart by accidentally falling against a tree. Her countenance was anxious, pulse rapid and weak, and respiration somewhat labored. She had slight pain about her heart. Upon inspection I found that the foreign body had entered the fifth intercostal space on the left side, and with the pulsation of the heart the head of the needle could be seen to move under the skin. The case being one of unusual interest to me I summoned my friend, Dr. R. F. Michel, and my brother, Dr. R. S. Hill, and proceeded to operate by injecting ten drops of a four-per cent. solution of cocaine into the skin. I made an incision an inch in length down to the needle, and extracted it with a pair of dressing forceps. The wound was immediately closed, and the child sent to a relative's house, with instructions to the parent that they detain her in bed, and that she be kept quiet for ten days. She had no subsequent trouble.

Case III.—This man, Willie Williams, was brought to my office five days after an altercation in which a piece of hat pin three inches in length was broken off in the heart. It was localized with an *x*-ray. It entered the fifth intercostal space near the sternum. So long as he remained in a sitting posture his pulse was distinct but irregular. If, however, he attempted to lie down, his face showed great distress and the pulse became imperceptible. I reached the foreign body by a modified Rotter incision and went straight down on the pericardium, as it was not necessary to open the pleural cavity as I was sure from the *x*-ray examination there was no extravasation of blood nor pleural injury.

Conclusions.—From my own experience and a careful review of the cases reported I have drawn these conclusions:

1. That any operation which reduces the mortality of a given injury from 90 to 60 per cent. is entitled to a permanent place in surgery, and that every wound of the heart should be operated upon immediately.

2. Whenever the location of the external wound and the attending symptoms cause suspicion of a wound of the heart, it is the duty of the surgeon to determine the nature of the injury by an exploratory operation.

3. Unless the patient is unconscious, and corneal reflex abolished, as in Pagenstecher's case, an anesthetic should be given, and preferably chloroform. Struggling is liable to produce a detachment of a clot, and renew the hemorrhage, as occurred in Parlavecchio's patient.

4. Never probe the wound, as serious injury may be inflicted upon the myocardium.

5. Rotter's operation renders access to the heart extremely easy, gives an opportunity of removing any extravasation of blood, and inspection of the pleural cavity with reference to the injuries.

6. Steady the heart before attempting to suture it either by carrying the hand under the organ and lifting it up, or if the hole is large enough, introduce the little finger, as Parrozzani did, which will serve the double purpose of stopping the bleeding and facilitating the passage of the stitches.

7. When the hemorrhage is so profuse as to preclude the possibility of suturing, with the right hand gently lift the heart out of the pericardium and introduce from below the left hand and press between the index and ring finger the vena cava inferior and its inosculation into the right atrium, and pressing upwards displace the inosculation of the vena cava superior.

8. Professor Magnus of Heidelberg believes that the heart will stand complete compression for a minute and a half and incomplete for four minutes.

9. Catgut sutures should be used, as wounds of the heart heal in a remarkably short time. The sutures should be interrupted, introduced, and tied during diastole, not involve the endocardium, and as few as possible should be passed commensurate with safety against leakage, as they cause a degeneration of the muscular fiber with its tendency to dilatation and rupture.

10. In cleansing the pericardium, it should be sponged out and no fluid poured into the sac, as quickly produced tension may cause serious consequences to an already disabled heart.

11. Until every aseptic precaution has been taken the mechanical stoppage of the heart from accumulation of blood in the pericardium should be pre-

vented by aspiration, as diminished resistance from loss of blood and want of cleanliness from hurry of preparation are largely contributive causes to the forty per cent. of deaths from infection.

12. Rehn suggests closing the pleura and draining the pericardial sac, but never the reverse, because of the ease of infection of the pleura, which may extend to the pericardial wound and cause the formation of pus in the closed pericardium.

13. For drainage, tubes are preferable to gauze, as the latter is liable to cause retention of the discharge and may strangulate the heart.

14. A needle may be removed at once, but a knife blade must not be touched until the surgeon has bared the heart and is master of the situation, as an uncontrollable hemorrhage might occur from premature extraction.

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OBSERVATIONS ON THE TREATMENT OF EXOPHTHALMIC GOITER.*

By ANDREW J. McCOSH, M.D.,

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One of the most interesting questions of the day is the treatment of exophthalmic goiter. On the one hand, the cures and improvements due to serum treatment and on the other the claims made by the advocates of the operative treatment of this mysterious disease stand opposed to each other. Medical treatment, whether it be by means of drugs, rest cure, electricity, or psychic influences, will probably always continue to be primarily applicable to the great majority of patients suffering from Basedow's disease. The number of patients, however, who will or must resort to treatment by means of sera or operation is ever on the increase. This is especially true during the past three years. This would not be the case were not the results of purely medical treatment rather disappointing, and those of serum or operative treatment rather encouraging.

I have already employed the term mysterious in reference to the disease, for we must all acknowledge, I think, that we are really entirely ignorant as to its etiology and, to a lesser extent, perhaps, as to its pathology. None of the theories which have been advanced as to its causation will stand the test. As an illustration of this uncertainty, we have the dispute as to its proper classification. The neurologist, the metabolist, the internist each claims the disease as belonging to his specialty. The surgeons have not yet made any such claim, but as more and more cases are drifting into their hands, a similar claim on their part may some day be justified. W. H. Thomson,[1] in a valuable article, thus expresses this view: "The only deduction possible is that the complaint is due to a specific poison which goes wherever the blood goes, and which causes no more tissue changes, except indirectly on nutrition, than does opium or aconite. What the nature and origin of this poison is remains wholly unknown." Nearly 3,000 treatises have been published on this subject with but meager results as to the etiology of the disease. Probably the most prevalent theory is that Basedow's disease is caused by hypersecretion or perverted secretion of the thyroid gland. There are many arguments, however, against this theory. Until we learn more about the function and secretion of the thyroid gland we can scarcely judge what would constitute the amount or character of the normal thyroid secretion. There is definite knowledge on one point alone, which is that myxedema follows the diminution of its secretion, and that the gland extract has a beneficial effect on both myxedema and cretinism. In this connection it is a curious fact that old people do not seem to need the thyroid secretion. The gland undergoes marked atrophy after the age of fifty, and its complete removal in old people rarely results in any condition which resembles myxedema. This fact alone tends to weaken the argument that Basedow's disease is due to alteration in the thyroid gland. Elderly people suffer from the disease and occasionally die as a result of it. In many cases of this disease the thyroid gland has apparently been unchanged, and in regions where ordinary goiter is common the exophthalmic variety does not seem to be especially prevalent. R. L. Thompson[2] has never found that the so-called tetania parathyropriva accompanies the atrophy of the parathyroid bodies which occurs in primary infantile atrophy.

One of the strongest arguments advanced in favor of the theory of hyperthyroidism was the fatal result which in the past has occasionally followed the operation of thyroidectomy. This was supposed to be caused by the toxicity of the thyroid juice which was squeezed from the gland during its removal. A tremendously rapid pulse, high temperature, great mental excitement, and flushed face were the symptoms, which in these fatal cases developed a day or two after operation. It was a natural process to argue that it was a toxic state caused by absorption of thyroid secretion. Many of us are now very doubtful of the truthfulness of such a conclusion. These alarming symptoms seem to be simply an exaggeration of those of the disease, which are enhanced by the mental shock or blood changes due to the operation, or perhaps to the anesthetic, if one has been administered. Personally, I doubt very much if the absorption of the secretion of the gland produces any direct toxic influence in these fatal cases. In my last dozen operations I have taken no pains to prevent expression of the thyroid juice into the wound, and have freely cut and handled the gland without any resulting bad symptoms. I have been warned more than once by surgeons in my clinic of the danger of such apparent recklessness, and some day a sad experience may be my punishment.*

In recent years the parathyroid glands have rather suddenly jumped into prominence. The first accurate, and still one of the best, descriptions of these small bodies was given by Sandstrom in 1880. He was the first writer to consider them of importance. He looked upon them as embryonic rests of thyroid tissue. According to his or the embryonic theory, they were regarded as immature thyroids. This theory, however, does not fulfil all the necessary conditions, as it has been shown by Forsythe and others that parathyroids and embryonic thyroids do not possess the same histological features. Forsythe concludes: "While some observations suggest that the parathyroids can develop into thyroids, the contention that parathyroids are merely embryonic thyroid is not proved." At a later period the Frenchmen, Gley,[4] and the Italians, Vassale and Generali,[5] maintained that the removal of the parathyroid glands generally resulted in tetany.

*Read at the Clinical Society on May 22, 1908.

*Since the writing of this paper I have lost one patient from acute hyperthyroidism. The operation consisted in ligation of the two superior thyroid arteries. The gland itself was not injured in the slightest. There was little shock, but death followed in twenty-four hours.

which frequently terminated fatally. Kocher and von Eiselberg soon learned from their own operative experiences that there was probably truth in this contention. Many other surgeons have accepted this theory, and believe that almost invariably tetany is caused by the removal or destruction of several of these bodies, and that if all be removed the result will be fatal. A most serious and often fatal complication of many of the operations of thyroidectomy performed a quarter of a century ago was tetany. Many now believe that this symptom was due to the destruction or removal of the parathyroid bodies, rather than to the more or less complete removal of the thyroid. This "vitally essential theory" has not as yet, however, been satisfactorily proven. There have been many contradictory observations. These may be largely due to the practical impossibility of exact recognition by the naked eye of these rather elusive bodies. They are constant in neither location, number, nor size; they may be deeply buried in the thyroid or may be microscopic in size; they may be joined to lymphatic glands or to the thyroid residues. Tetany has also been reported as following mere ligation of the thyroid arteries. It is possible, however, that in these cases the parathyroid glands may have been deprived of their blood supply, though experiments seem to prove that they do not depend entirely for their blood on the thyroid arteries. It has been apparenty demonstrated, however, that each parathyroid has its own little artery, usually a branch of the inferior thyroid. In Forsythe's interesting article he advances an evolutionary theory, and arrives at the following conclusion: "The parathyroids are portions of the main thyroid gland which have assumed functional activity, but have not yet formed vesicles. Parathyroid tissue may develop into thyroid tissue and intermediate types occur. The secretion of the parathyroid gland is a colloid material indistinguishable from the thyroid colloid. The parathyroids, therefore, are glands essentially thyroidal in nature, possessing no peculiar function, but engaged in the active secretion of the same substance as the thyroid gland."

L. Vincent[6] also draws the following conclusions: "It cannot be truly said that either thyroids or parathyroids are essential for life, since it is frequently possible to remove either or both without causing death."

While my own personal experience may be of little value, yet it is of interest to note that in over 200 operations on the thyroid gland I have never seen a sign of tetany. In none of these operations have I paid the slightest attention to the parathyroid glands, and in two of those patients the thyroid gland has been apparently entirely removed, and in others but a small fragment has been left. In some of these operations I have seen bodies which have suggested parathyroids, but I have never been able satisfactorily to identify them.

In spite of such confusing observations and contradictory opinions, it must be granted that results derived from chemical investigations, experimental operations on animals, and clinical studies are accumulating which apparently prove that the parathyroid glands are bodies of some importance in the animal economy, and that under certain conditions at least their juice or secretion possesses certain inhibitory or toxic qualities, the exact nature or potency of which is still unsettled.

I am not qualified to speak of the results of the purely medical as distinguished from the serum treatment. We all know, however, that exophthalmic goiter is a disease which often suddenly appears and as suddenly disappears, the reason for either of which occurrences we know not. We know also that many and many a patient has been cured by drugs, by rest, and by hygienic and psychic treatment. It seems to me that at the present day all patients should be treated by purely medical means before a resort to either antitoxins or operations. This view is in accord with that of most medical internists, but there are other physicians who adopt a more radical view. L. F. Barker[7] expresses himself thus: "Though nearly all patients improve by rest, a diet which does not stimulate the thyroid (milk), sodium phosphate, and fortnightly *x*-ray exposures, and although occasionally a patient will get well, very many go backward again as soon as the treatment is discontinued. In the very early cases surgery is capable of curing nearly 100 per cent., even in the outspoken cases almost 75 per cent. can be cured by operations judiciously planned and skilfully performed. Internal medicine up to this time has been utterly unable to obtain results comparable with these." It may be that with our increasing favorable experiences of surgical procedures we may soon adopt this rational view, but I doubt if many in this audience will as yet subscribe to Dr. Barker's conclusions. It is not easy as yet to give a definite position to the virtues of the various sera which are being used. Lack of sufficient time for observation, and the personal enthusiasm of both patient and physician, prevent any final judgment as to the number of patients cured. Undoubtedly the most effectual of the sera are the antitoxin and cytotoxin of Beebe and Rogers. Both these gentlemen certainly deserve the thanks of the profession for their painstaking and brilliant work in this important field. It can certainly be stated that more than one patient has been rescued from imminent death, that many patients have been markedly benefited, and that probably a certain proportion have been radically cured by the employment of these cytotoxins and antitoxins.

Europe acknowledges, but America does not perhaps generally recognize, that the first deliberately planned operation for exophthalmic goiter was a thyroidectomy done by an American, Dr. Van der Veer, of Albany, in the year 1869. During the following quarter of a century the operation did not gain great popularity. Accidents and bad results were not infrequent, and the mortality was great—15 per cent., and over. The last dozen years have, however, effected a great change in this particular. Accidents, such as tetany, are of very rare occurrence, and the death rate has been steadily diminishing, until it is certainly now not more than 8 per cent. At first we did not know how much of the gland it was necessary to remove in order to effect a cure. We are now much wiser in this respect, and the favorable results of our operations depend very largely on this knowledge. We now know that we must remove the larger part of the gland. To a certain extent, each case is a rule unto itself. If we remove too much, myxedema may follow; if we remove too little, improvement and cure may not result. It is difficult in each case to tell exactly how much to remove. Of course, it is better to remove too little rather than too much, for a second operation to reinforce the first is always possible. In general terms, from 65 to 80 per cent. of the gland should be removed, and three of the arteries should be cut and tied. The extent of the extirpation is sometimes governed by the anatomical shape and size of the gland. In certain operations we would, perhaps, like to re-

move but 75 per cent. of the gland, but we are forced by surgical difficulties to remove a considerably greater amount. Landstrom, who has written one of the best works on this subject, gives in detail the results of operations performed by two of his Danish colleagues. With an operative mortality of 5.5 per cent., he estimates the final results in the cases which he has been able to trace for years after the various operations on the thyroid gland had been performed, as follows:

	Excision of Half of Thyroid Gland	Ligation of Three Arteries	Excision of half of Thyroid Gland, with Ligation of Superior Artery of Opposite Side
Cure.....	37.5 per cent.	50 per cent.	80 per cent.
Improved....	25 "	16.7 "	20 "
Unimproved..	37.5 "	33.3 "	.....

It will be thus seen that the results improve proportionately to the amount of gland tissue removed or destroyed. The contrast of 37.5 per cent. of cures where half a gland only has been removed as against 80 per cent. where an additional artery was tied, and thus another quarter of the gland put out of commission, is very striking. Extensive operations cannot always be performed at one sitting. Two or three operations are often needed in weak patients before we are entirely satisfied that sufficient gland tissue has been removed or deprived of its blood supply. Sometimes the first operation must be limited to the ligation of a single artery, the superior thyroid of one side. Then in a fortnight or so the opposite artery can be ligated. The patient in the meantime nearly always shows distinct improvement, and in another fortnight one of the inferior arteries can be ligated, or the greater part of the gland removed.

If a program such as this is followed, the necessity for a general anesthetic may be obviated. As a rule, however, I very much prefer the administration of a general anesthetic. In Switzerland, and perhaps in other Northern European countries, the operation can be generally performed under local anesthesia. In this country, however, it is seldom possible, and rarely advisable. In dealing with our more highly sensitive people the operative shock to the conscious patient has seemed to me more dangerous than that of a carefully administered anesthetic. In my goiter operations I have twice only omitted to employ general anesthesia, and I cannot say that I have seen, except, perhaps, in a single instance, any grave deleterious effects which could be attributed to the anesthetic. In simple goiter my mortality has been less than 1 per cent., and in exophthalmic goiter less than 4 per cent. In my last fifteen cases the postoperative condition has never been such as to give any special anxiety. There have been no alarming symptoms whatever. During the past year I have operated on eleven patients, and not one has been confined to bed for more than fourteen days. In one of my recent cases, a rather severe one, the patient was out of bed on the sixth day, and able to take a railroad journey to her home in a neighboring city on the tenth day after the operation.

My own operations number 23, performed on 22 patients. There has been one postoperative death. This occurred eleven years ago, at a time when our technique was less perfect than it is at the present day. The operation was the second on the same patient. At the time of the first operation she had been very ill for many months. Her postoperative recovery, however, was uneventful. About 50 per cent. of the gland was removed. Slow but steady improvement followed, and at the end of eighteen months she considered herself as almost restored to good health. Soon after, however, the symptoms of Basedow's disease began to return, and continued to increase rapidly in severity. Twenty-six months after the operation she returned to the hospital, asking for further operative treatment, she herself being satisfied that the first operation had given her comparatively good health for a period of eighteen months. She was kept under medical treatment for several weeks, but failed to improve, and in June, 1897, at her own request, a second operation was performed. Her pulse was then averaging 150, and she was in a highly nervous state. During the operation her heart acted rather badly, her pulse being 180, and faster. About 75 per cent. of the remaining gland tissue was removed. After her return to the ward her temperature began to rise, and climbed rapidly to 106° and 107° F. Her pulse continued between 160 and 180. The face became very much flushed, and she was exceedingly restless, with a wild, anxious expression. These unfavorable symptoms increased, and she died about thirty hours after the operation, with symptoms of acute hyperthyroidism. At the time we thought death was due to acute poisoning by the thyroid secretion squeezed into the connective tissue of the neck during the operation. I now believe that this reasoning was false and that death was due simply to an acute exacerbation of her disease.

Of the 21 patients who survived the operation I have been unable to trace 2. Of the 19 patients whose present condition is known, I can report 4 patients as apparently cured, at 12, 8, 7, and 4 years, respectively, after operation. Twelve patients have been operated on during the past year, and each one of these has been markedly improved. All have gained in weight, the least gain being 6 pounds and the greatest 30 pounds. There is not one of these who now has a pulse over 90. The exophthalmus in each one has diminished. The other symptoms have proportionately improved. It is too soon to make a final report on these 12 patients, but they certainly can be classed as 12 improvements. Of the 3 other cases, 2 report marked improvement, but acknowledge that at times when under excitement the heart jumps up to 100, and that they still suffer from nervousness. I find that in these 2 patients but 50 per cent. of the gland has been removed. There is but one patient, the operation having been performed five years ago, who has not been benefited. About 40 per cent. only of his gland had been removed. He is now meditating a second attempt at cure by means of another operation.

I have had no experience with the removal of the sympathetic ganglia for the cure of this disease, and I have never had the slightest confidence in this procedure. Its dangers are great and its results most disappointing. It has at the present day but few advocates.

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THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

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THERE is no single pathognomonic symptom by which tuberculosis of the lungs may be recognized before the tubercle bacilli appear in the sputum; there are, however, associations of several symptoms which make the diagnosis practically certain. The idea of the present paper is not to give all the symptoms that occur in a case of tuberculosis, but to so emphasize the importance of the different early symptoms that a diagnosis may be made from the association of a very small number of them.

The history and the symptoms have been arranged in the following manner: I. History of exposure to contagion. II. Symptoms elicited by the history. III. General symptoms. IV. Local symptoms. Moreover, each of the last three have been divided into very important, important, and suggestive. Under "very important" have been included those symptoms which almost point to a diagnosis of tuberculosis by themselves; under "important," those symptoms which would lead us to suspect tuberculosis; under "suggestive," those symptoms which ought at least to attract our attention sufficiently to make us wish to exclude tuberculosis by examination.

I. *History of Exposure to Contagion.*

This is one of the most important factors in making a diagnosis of incipient tuberculosis. Given the circumstances, for instance, of a patient living with a consort with known tuberculosis, a diagnosis can be made on fewer physical signs than if no exposure is found.

The best accepted opinion at present is that any member of a family in which tuberculosis exists who shows general ill health without evident cause should be examined for tuberculosis. In the German dispensaries when one member of a family is found tuberculous all other members of the family are examined for tuberculosis.

To determine an exposure to contagion it is necessary to go into the family history, and if nothing is found, into the occupation or associations of the patient, and if exposure is still negative, into the history of the house in which he has been living. In studying the family history it is not sufficient to take the patient's first statement that his father died of old age or of an accident, without inquiring the age at the time of death or how long after the accident.

It matters not how little detail is gone into after a definite exposure is found, but to decide exposure as "not found" every statement of the patient must be questioned. The following examples are frequent: Patient said mother died of confinement. Question: "How long after confinement?" Answer: "Well, she never properly recovered from the confinement, but became weaker and weaker, lost flesh, and eventually died." Question: "Did she cough?" Answer: "Yes, she caught a bad cold and coughed for about a year before she died." Pregnancy and labor are extremely important factors in bringing out a latent tuberculosis, and deaths following confinement should therefore be carefully investigated.

"Of what did your brother die?" was asked once. "He was hit with a bat and killed," came the answer. "How long after the accident did he die?" "Six months." "Was he in bed all that time?" "No, he was hit in the chest and consumption developed," came the answer.

"My father and mother died of smallpox seven years ago," said a man of thirty. "Were they robust?" "No, my mother was very thin and always complaining; my father was strong and robust when married, but he, too, was delicate before he developed the last illness." Such a history is suspicious, to say the least.

If, after questioning every statement in the family history and having included uncles and aunts, no exposure is found, it is necessary to go into the occupation. Moreover, it is absurd again to stop at the first statement given. The following is an actual case and illustrates: Patient male, age thirty-five. "What is your occupation?" "Motorman on a street car." "How long have you been a motorman?" "Three months." "What did you do previously?" "Worked in a cigar factory." "How long?" "Twenty years." Such a story is by no means exceptional. It is to be remembered that the two occupations giving the highest morbidity from tuberculosis are printing and cigar-making.

It may in general be stated that an occupation continued for a long time and necessitating close confinement in a poorly ventilated room, especially with many others in the same room, as in the two occupations mentioned, or in a sweat-shop, is suspicious as regards exposure. In taking the occupation history it is well to inquire into every occupation back to the schoolday period.

The danger of contagion through the house was proven years ago by Flick, and histories pointing to the house as the cause are not uncommon. Cases similar to this are met with: Mrs. F., age twenty-seven, married, with one child. No family or occupation history pointing to exposure. Husband perfectly healthy and with good family history. The couple lived with her parents till three months after the first child was born and then moved to a house for themselves. The family living in the house previous to their occupancy had a son and daughter die of galloping consumption. About one and a half years after moving into the house the second child was born. The mother left her bed two weeks after confinement, and three weeks later returned to it with acute miliary tuberculosis.

The following answers are not infrequent among the poorer classes: "How long have you been in your present dwelling?" "Five months." "How long in the one previous to that?" "One year." "The one previous to that?" "Eighteen months." "The one previous to that?" "Five years." Such a story in itself arouses suspicion of a possible exposure since people moving so frequently can seldom fail to come in contact with the contagion.

II. *Symptoms Elicited by the History.*

(*a*) Very important. 1. Chronic Enlargement of Cervical Glands.—We have only four diseases which produce chronic enlargement of the cervical glands, lymphatic leukemia, Hodgkin's disease, syphilis, and tuberculosis. The first three are usually excluded without difficulty, and yet physicians fear to say decisively that enlarged cervical glands are tuberculous. Another fact which is commonly overlooked is that the individual must have been exposed to contagion in order to acquire the disease; therefore, close attention should be paid to symptoms pointing to tuberculosis in other members of the family, because it is likely that they were exposed at the same time.

2. Pleurisy.—It is only necessary to say that two-thirds of the serous and a larger number of the chronic or repeated pleurisies are tuberculous.

3. Hemoptysis.—From an anatomical standpoint it is conceivable that a lesion properly situated may

be no larger than, or in fact not so large as a pea, in order to produce either pleurisy or hemoptysis. In the case of the hemoptysis associated with small lesions without cavitation, the blood usually comes from a congestion surrounding the tuberculous focus and not from the tuberculous focus itself. The most common cause for this congestion is a "cold" produced by the pneumococcus. In these cases the blood may be slight in amount (blood-streaked sputum) or there may be one or more pretty good sized hemorrhages (one to several ounces of blood). In the case of either hemoptysis or pleurisy (apart from pleuropneumonia) it may be said tuberculosis should be taken for granted until another cause is proven.

4. Fistula in Ano.—Like pleurisy and hemoptysis, fistula in ano is in the majority of cases tuberculous. Its presence calls for examination for tuberculosis elsewhere; its presence in connection with pulmonary symptoms is diagnostic unless another cause is plain.

Moreover any of these symptoms in one member of a family should awaken the attention to other symptoms in other members. I know two families in which the husband has fistula in ano, the wife of one having had frequent pleurisies, the wife of the other having had a rather severe morning cough for ten years or more. Though both women were treated by different physicians, their condition, which was tuberculosis, remained unrecognized, because no examination of the chest was made. The physicians attributed the first woman's symptoms to the frequent bearing of children (she had seven); the second woman's to eating too much, the cough was a "stomach cough." In both cases there were not only the symptoms in the patient to attract attention to the chest, but the added symptom of non-traumatic fistula in ano in the consort.

(*b*) Important. 1. Protracted Cough.—Cough is a positive sign of irritation in the respiratory passages, and, as a rule, of irritation in the lungs. Lay people speak of a natural cough and physicians of a stomach and nervous cough. There is no such thing as a natural or a stomach cough, therefore such an explanation is ridiculous. A nervous cough is possible, though rare, and should, therefore, be the last explanation given. In cases of mild tuberculosis the process may advance slowly without subjective symptoms or with only the mildest subjective symptoms for twenty years or more. One of the most common symptoms of mild tuberculosis is a dry, irritative cough sometimes spoken of as "hacking" without expectoration.

The question of cough may be put thus: The most common chronic disease of our day is tuberculosis of the lungs, its most frequent symptom is cough, which may be limited to a slight dry hack, attributed by the patient to irritation at a definite spot far from the actual lesion (for instance, a definite spot in the throat); therefore, in any case of chronic cough tuberculosis of the lungs should be eliminated before anything else is considered.

Tubercle bacilli are found in the sputum only after softening has occurred, and this is practically always the result of mixed infection. Infiltration without mixed infection may progress till considerable involvement has taken place. On the other hand, however, softening with the expectoration of tubercle bacilli is sometimes seen when the lesion is so insignificant as to be undetected by physical signs. It is important that a careful examination of specially selected sputum be made in every case no matter how early the signs, yet a diagnosis must not be made dependent on a positive finding.

The pathologico-anatomical explanation of cough with expectoration not containing tubercle bacilli in a case of tuberculosis of the lungs needs only a moment's consideration to be plain. About a tuberculous focus in the lung even when it is closed (surrounded by new formed connective tissue), and closed lesions are the rule in the early stages, there is always a certain amount of congestion. In this hyperemic area which is not in itself tuberculous, there is necessarily increased secretion. This over-secretion is, as a rule, small, though it may be large in amount. As it comes forth from the mucous membrane it is pushed onward by the ciliated epithelium to the trachea or larynx where it gradually accumulates till capable of setting up sufficient irritation to expel it by cough.

Though cough is an important symptom of tuberculosis of the lungs, even advanced tuberculosis of the lungs may exist without it, especially in young people. It is only a short time since an autopsy at the Phipps Institute on a boy of eighteen showed advanced tuberculosis of both lungs with extensive cavitation though the patient never coughed or expectorated up to the time of death.

2. Inability to Take a Deep Breath Without Coughing.—This is but rarely complained of and is not very frequently noticed by the examiner. When complained of or noticed it is an important symptom.

3. Progressive Loss of Weight.—This is only suggestive of constitutional disturbance. When it occurs apart from an acute disease, while the patient is carrying out his usual avocation, a very definite cause must be found to account for it. In a person exposed to tuberculosis in his home or in his occupation an examination for tuberculosis is called for.

4. Gastric Disturbances.—After cough the most common subjective symptom in early or mild tuberculosis of the lungs is loss of appetite or indigestion. This one symptom, therefore, especially in young adults, should always call for a careful examination for tuberculosis, though standing alone it scarcely constitutes a symptom of tuberculosis.

5. Night Sweats.—It may seem ridiculous to some to include night sweats as a possible symptom in the early diagnosis of tuberculosis; it is quite as surprising, however, to those who examine many cases to find how early they do occasionally occur. They appear to be usually due to mixed infection. Their presence at least calls for the exclusion of tuberculosis.

(*c*) Suggestive. 1. Progressive Pallor of the Skin.—In advanced life (past the age of 40) this may be a symptom of many conditions, in the young adult there are but few chronic diseases to consider. In general the same might be said of this symptom as of progressive loss of weight.

III. *General Symptoms.*

(*a*) Very important. 1. Evident Habitus Phthisicus.—It is always surprising the number of patients who present themselves with tuberculosis of the lungs written all over them, yet who have reached an advanced stage with this symptom crying out to the family doctor for notice. A boy growing rapidly may be thin yet healthy, but after he has stopped growing he does not remain in this condition and especially does not become thinner without some definite reason. At such a stage his condition should be looked into because even if he has not tuberculosis the experience of all ages goes to show that he is making himself an ideal soil for contagion.

2. Increase in the Pulse-rate.—This constitutes

in the majority of cases the earliest sign of pulmonary tuberculosis, yet the minority of cases in which it is absent is not small. In other words, though its presence suggests the possibility of tuberculosis its absence does not prove the contrary. This increase in the pulse-rate need not be continuous, but may require mild excitement or light exercise to bring it out.

3. Fluctuation in Temperature.—Like fluctuations of the pulse, a daily rise of temperature is very significant, though in early or arrested cases it may be absent. On account of the fact that the diagnosis of the presence or absence of tuberculosis is frequently made on one examination, and that examination in the morning, it appears to me that too much stress has been laid on the elevation of the pulse and temperature. The presence of these symptoms on one examination means something, but their absence absolutely nothing. It is a mistake to limit one's self to one examination especially in a negative diagnosis of tuberculosis, and the only proper way of learning the temperature is by taking it at least several times a day for several days.

(*b*) Important. 1. Dyspnea.—There are four prominent causes for dyspnea, namely, disease of the lungs, heart, kidneys, and blood, and of these, disease of the lungs stands naturally first. It ought, therefore, be the first to be excluded. It must not be forgotten that dyspnea in these cases is due not alone to the amount of lung involved (because if it were, dyspnea would never be an early symptom) but to the combination of this with the action of the toxin on the heart, kidneys, and nervous system.

2. Hectic Flush.—Hectic flush in conjunction with another symptom, for instance exposure to contagion, is very significant, yet a hectic flush alone is not to be entirely ignored, and warrants an examination.

3. Clubbed Fingers or Curved Nails.—Clubbed fingers or curved nails are a symptom of many conditions in connection with the heart and lungs. Though they may be absent in even an advanced case of chronic pulmonary tuberculosis, they are sufficiently frequently present even in early chronic cases to demand that tuberculosis be sought for.

4. Bilateral and Especially Unilateral Dilatation of the Pupils.—Though we do not understand the reason for this symptom (it is supposed to be possibly due to pressure of enlarged bronchial glands on the sympathetic nerves) it is sufficiently common in connection with pulmonary tuberculosis to be considered a little more than suggestive.

(*c*) Suggestive. 1. Vague Neuralgic Pains.—These are most frequent and characteristic in one shoulder joint and in the muscles of the thorax, but may occur in any place in the body. The atrophy of and the pains in the muscles of the thorax are apparently due to coincident myositis, though many consider them reflex in origin. They are frequently limited to a spot near the intrathoracic lesion. Some even insist on a definite relation between the pulmonary lesion and the degree of muscular atrophy. The pains elsewhere in the body are apparently due to a toxin, either the toxin of the tuberculosis, or of a mixed infection, or to the antitoxin of the tuberculosis. This last is suggested on account of the frequency of severe rheumatism in arrested cases.

2. General Lack of Resistance.—General lack of resistance to disease as evidenced by susceptibility to other diseases especially typhoid fever.

3. Frequent Chilly Sensations.—Frequent chilly sensations or flushings of heat or what is frequently called "a touch of malaria."

4. Central or Peripheral Nervous Disturbances.—These are not uncommon manifestations of the toxemia. The number of the insane dying of tuberculosis has often been remarked. In the past it has been said that the insane were especially liable to tuberculosis; this opinion is changing and now tuberculosis is more frequently made the cause of the insanity.

5. Enlargement of the Thyroid Gland.—This is found so commonly in women that even its slight significance may be denied. Yet it is apparently more common in tuberculosis.

6. Herpes Zoster.—This seems to be more common in association with pulmonary tuberculosis than apart from it.

IV. *Local Symptoms.*

(*a*) Very important. 1. Change in Percussion Note with Prolonged Expiration.—This combination of symptoms brought out by percussion and auscultation always point to a local lesion. It is especially suspicious of tuberculosis when it occurs in situations of predilection as above or below the clavicles, in the supra or infra spinous fossæ or along a line corresponding to the upper margin of the lower lobe. This horizontal line extends around the chest just above the nipple. The region underneath the infraspinous fossæ is best reached by having the patient place the hand of that side on the opposite shoulder.

Chronic local lesions in the lungs are practically limited to the following diseases: Carcinoma, syphilis, glanders, actinomycosis, abscess, and tuberculosis. Carcinoma and syphilis are readily excluded and in the very great majority of cases do not enter into consideration. Glanders is confined to a special occupation and usually manifests distinct symptoms elsewhere. Actinomycosis is also limited to special occupations. Abscess is always a sequela of a process that can be recognized in the history. Excluding these five a local chronic lesion means tuberculosis.

2. Râles of Any Description Over Limited Areas Especially Those of Predilection.—Two especially common sites may be mentioned, above the clavicle and in the space between the scapulæ. Râles should be sought first during natural breathing, then during forced breathing, and finally after coughing. Like the combination of dullness with prolongation of expiration, râles over a small area point to a local lesion, and must, therefore, be given their proper weight in regard to tuberculosis. Râles widely distributed over one or both lungs usually indicate an acute bronchitis. It is to be remembered that acute bronchitis is much more common in persons affected with tuberculosis of the lungs than in others.

(*b*) Important. 1. An Unilateral Supraclavicular Depression on Inspiration.—This is usually characteristic of pleurisy at the apex.

2. Granular Breathing.—Granular breathing might be classed as one of the very important local symptoms of tuberculosis, but it is difficult to describe, requires experience to recognize, and hence is not in the hands of every general practitioner. Granular breathing shows the inspiration split up into innumerable particles. For instance if we represent ordinary inspiration by a continuous line, we might represent cogwheel breathing by a broken line, and granular breathing by a dotted line.

3. Suppressed or Muffled Breathing at the Apex.—According to Turban the common causes of this are pleuritic exudation and plugging of a large bronchus with secretion.

4. Altered Vocal Fremitus or Resonance.—Increase usually points to consolidation, diminution

to thickening of the pleura or pleural effusion.

5. Atrophy of Scapular Muscles.—When marked this is of considerably more importance than is usually attributed to it. In conjunction with a fossa above or below the corresponding clavicle it becomes very suspicious.

(*c*) Suggestive. 1. Deep Soreness on Percussion.—This soreness has always appeared to me to be in the muscles of the chest and has the same significance as the muscular pains in the chest.

2. Spinal Curvature or Droop of One Shoulder.—The frequent association of this with pulmonary disease has been remarked. Osler calls attention to the liability of subjects of spinal curvature to acute bronchitis; their liability to tuberculosis is even as marked.

3. A Lessened Expansion on One Side.—This is brought out by inspection and palpation. Osler says: "Place the hands in the subclavicular spaces and then in the lateral regions of the chest and ask the patient to draw slowly a full breath." There are also instruments for demonstrating the same. This and the two following signs are important if marked, but when slight are not sufficiently definite to the general practitioner.

4. A Lessened Excursion of the Diaphragm.—The study of this symptom requires time and a greater number of cases than falls to the lot of the average practitioner. It may be found in two ways: (*a*) According to Litten, watch the shadow on the thorax walls when the patient is lying down with the feet towards a good light. This method is very simple when the patient is thin. (*b*) By the fluoroscope.

5. Lessened Excursion of the Lung.—This may be found in two ways: (*a*) Grasp the base of the thorax on both sides, thumb in front on seventh ribs and fingers behind on twelfth ribs. The difference in the rise of the ribs on the two sides will be evident. (*b*) By percussion: have the patient bend over and mark off on both sides posteriorly the line of deep resonance on full inspiration and full expiration.

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ACUTE ANTERIOR POLIOMYELITIS—A PATHOLOGICAL STUDY OF THREE CASES.*

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Although acute anterior poliomyelitis had been recognized as early as 1784 by Underwood,[1] and by Badham[2] in 1835, it was not until Heine[3] in 1840 published his observations that it became established as a definite clinical entity. For many years the pathological anatomy remained obscure, but in 1860 Heine[4] and also Duchenne,[5] on purely clinical evidence, strongly urged the spinal origin of this disease.

Cornil[6] in 1863 was the first to demonstrate distinct lesions in the spinal cord. Prevost[7] in 1865 studied the spinal cord of a long standing case and found lesions confined to the anterior horns of the gray matter, with changes in the ganglion cells, and believed that the disease depended upon an acute primary change of the ganglion cells. This was confirmed three years later by Lockhart Clarke.[8] In 1868 Meyer[9] first pointed out that acute poliomyelitis also occurred in adults. Charcot and Joffroy[10] in 1870 upheld the view of Prevost as to the origin of the disease, but up to this time most observations had been made upon cases which died long after all the acute signs had disappeared.

Roger and Damaschino[11] in 1871 described the pathological changes found in the spinal cord of three children dying at intervals of two months, six months, and thirteen months, respectively, after the onset of the paralysis. They found perivascular round cell infiltration, small areas of necrosis, and degeneration and destruction of the ganglion cells, together with slighter changes in the white columns, and concluded that it was due to an acute inflammatory condition, particularly involving the anterior horns.

Archambault and Damaschino[12] in 1883 published a report of an acute case which was fatal in twenty-six days after the onset. This seems to have been the first acute case with necropsy on record. They found an acute myelitis of the anterior horns.

The first case which I wish to describe occurred in a child aged two years and seven months who was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases and died on the seventh day after the onset of the paralysis. The second and third cases occurred in adults dying on the fifth and fourth days, respectively, after the first signs of motor disturbance.

I wish to express my thanks to Dr. Crispin and Dr. Donhauser of the Pennsylvania Hospital for the pathological material of the second and third cases, and also to Dr. Spiller for many valuable suggestions in carrying out this study.

Case I.—White male, two years seven months. Family history negative. Was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases in Dr. Mitchell's ward under the care of Dr. Eshner, complaining of fever, pain in back, rigidity of the neck, headache, and weakness of both legs and arms; this condition had lasted two days.

Physical Examination.—Respirations were shallow and rapid; temperature 99 2-5. On respiration there was a violent upward movement of the larynx. Pupils were equal and reacted to light and accommodation. The thoracic and abdominal organs were normal. There was a total flaccid paralysis of both lower extremities. The tendon reflexes were absent, and there was a flexor response on irritation of the soles of the feet. There was no atrophy of any of the muscles. The upper extremities were both somewhat weak. Sensation was normal everywhere. There was moderate rigidity of the posterior muscles of the back. Patient was very drowsy and weak. During the next five days the temperature varied from 99 to 101 and the patient was gradually growing weaker. Finally the respirations became shallow and rapid and patient died of respiratory failure on the seventh day of the disease.

The *autopsy* was performed the same day by Dr. Hill, the resident physician. Nothing abnormal was found in any of the abdominal or thoracic organs, excepting for intense general congestion. No cultures were made.

Brain.—The Vessels of the pia were much injected; otherwise no gross change was found.

Spinal Cord.—The dura was somewhat discolored about the cervical swelling, but there was no definite change which could be seen with the naked eye. On cross-section before the tissue had been put in formalin there could be seen numerous minute red dots and lines in the gray matter; some of these seemed to extend into the white matter as well. This was most marked in the lumbar swelling.

*From the Laboratory of Neuropathology of the University of Pennsylvania.

Sometimes the hemorrhages appeared to be more marked on the left side in the lumbar and sacral regions, and again higher up more marked on the right side. This appearance extended from the sacral region all the way up the cord through the medulla and pons, but gradually diminished in intensity from below upward.

Microscopical Examination.—Lumbar enlargement. There is a cellular infiltration which involves chiefly the anterior horns of the gray matter, but the intermediate portions and posterior horns are also affected to a less degree. The blood-vessels are dilated and engorged with blood corpuscles. In a few sections small areas of necrosis are found. The infiltrating cells are diffusely scattered, but here and there show a tendency to accumulate in the perivascular spaces. Many of the cells are of the lymphocyte type, having a small, round, deeply stained nucleus and a small amount of homogeneous, nongranular protoplasm, while others present a larger oval, indented and irregular nucleus less well stained, with a relatively larger amount of pale and vacuolated nongranular protoplasm. A few red blood corpuscles and polymorphonuclear leucocytes are found scattered here and there outside the blood vessels. The ganglion cells of the anterior horns are few in number; most of those remaining present various degrees of degeneration, but occasionally a healthy cell can be found in the most intensely affected areas, while on the other hand they are generally less affected in the less diseased parts. All degrees of changes can be seen from a beginning chromatolysis to total destruction. A few small round cells are found collected about the periphery of the ganglion cells, but it does not appear to be a definite neuronophagic process. The cells of Clarke's column are similarly affected, but much less so than those of the anterior horns.

With the Wiegert method the nerve fibers are widely separated and swollen; many are broken and present a varicose appearance. The anterior and posterior roots are pale. There is a perivascular cellular infiltration of the white matter, chiefly at the terminal portions of the blood-vessels in the anterolateral columns near the anterior horns. The axis cylinders and neuroglia cells are somewhat swollen. There are no definite foci of the inflammatory cells apart from those about the vessels. The posterior and posterolateral columns of the white matter are little affected.

The pia is infiltrated with small mononuclear cells, chiefly on the anterior surface, but the infiltration can be traced to the posterior surface as well. The blood-vessels of the pia are filled with blood corpuscles, and their walls are slightly infiltrated.

Sacral Region.—The appearances are similar in every respect.

Thoracic Region.—Here the process is the same, but the pia on the posterior surface has escaped.

Cervical Region.—The pia is slightly affected about the anterior surface in close relation to the artery of the anterior fissure. The gray matter of the anterior horns is much less involved than that of the lumbar region, and the posterior horns are little affected. The anterior horn cells are few in number and are similar in appearance to those of the lumbar cord. There is only very slight perivascular infiltration of the blood-vessels in the anterolateral columns of the white matter.

Medulla Oblongata.—In the gray matter a few distinct, small, and recent hemorrhages can be seen, and to a less degree in other parts. The walls of the blood-vessels here and there show slight cellular infiltration. The white matter here, as in the spinal cord, was much less affected than the gray. The cells of the twelfth nucleus were for the most part entirely normal, but a few were somewhat misshapen and stained poorly by the Weigert method. The cells of the seventh nerve nucleus were little affected.

Pons.—There is a slight diffuse cellular infiltration with some perivascular infiltration of small round cells, but much less marked than that seen in the medulla oblongata and the spinal cord.

Cerebral Peduncles.—A slight perivascular infiltration of small round cells could occasionally be found in the gray matter.

Paracentral Lobule.—Here there was a slight perivascular infiltration and also a slight cellular infiltration of the pia.

Cerebellum.—The pia is slightly affected, and there are a few small hemorrhages in the cortex.

Optic chiasm and cranial nerves showed nothing abnormal.

Cauda Equina.—The blood-vessels here were filled with blood corpuscles, and a few small round cells were occasionally seen infiltrating their walls.

The peripheral nerves and spinal ganglia were not examined.

Case II.—P. M., adult Italian. The patient was brought to the Pennsylvania Hospital September 4, 1907, in an ambulance, complaining of pain in his head, back of neck, both thighs and legs, lasting four days. He was constipated; the bowels had not been moved for three days, and he had not voided urine for twenty-four hours. His temperature was 103 3-5; pulse 104; respiration 36. He was unable to move his lower extremities. His bowels appeared to have been paralyzed, but there was no loss of sphincter control.

Physical Examination.—Patient is a well developed, fine looking Italian. Face is flushed; pupils are equal and react to light and in accommodation; conjunctivæ are injected; tongue is protruded in the mid-line, and there is slight fibrillary tremor; there is no pulsation in the vessels of the neck. The chest is well formed, very muscular and with good expansion. Respiratory movement rather rapid but not labored. Radial pulses are equal, rapid and of good volume. The abdomen is soft and tympanitic. The lower quadrant was greatly distended before catheterization, when thirty-nine ounces of urine were removed, after which the abdomen was everywhere soft. He complains of much pain about the costal margins. There is absolute paralysis of both lower extremities, with loss of tendon reflexes. No ankle clonus; and there is a flexor response on irritation of soles of feet. Both feet are held in partial extension. There is a suspicious Kernig's sign of both legs. The upper extremities are somewhat weaker than normal and slightly spastic. There is no impairment of sensation and no loss of sense of position. At 8:20 P. M. on the same day he requested that his thighs be flexed on the abdomen and knees externally rotated until the thighs made an angle of nearly forty-five degrees with the trunk and the legs flexed on the thighs, the feet resting on the bed. He seemed more comfortable in this position. Later, at 9 P. M., his body was cold and he was perspiring profusely, although his temperature was 103. During the sponging which had been ordered, it was noted that his finger tips were cyanotic and the pulse rapid. When the temperature was being taken by the mouth at 10:05 P. M. he became very cyanotic and frothed at the mouth, both arms were moved toward his head, and there was a distressed expression about the mouth. The right arm, hand and

fingers were twitching, but there was no movement of either leg or toes. The pulse was rapid but strong. Artificial respiration was begun, and it was found that the arms were very spastic. Cyanosis developed when artificial respiration stopped. A mouth gag was inserted and artificial respiration continued. The pulse was very rapid, weak and running. He was given 1-150 gr. of atropine injected into a vein of the arm. The patient died at 10:50 P. M., the fifth day of the disease.

Autopsy 1011.—Hospital No. 1635. Adult Italian, September 4, 1907. Performed by Dr. Crispin.

Anatomical Diagnosis.—Acute endocarditis (mitral vegetations). Congestion of lungs, spleen and kidneys. Fatty degeneration of liver. Persistent thymus.

Spinal Cord Microscopical Examination.—Lumbar enlargement. There is an intense cellular infiltration affecting chiefly the gray matter, but the white matter and pia are also involved. In some sections the most marked changes are found in the central and basal portions of the anterior horns, while in others the process is more diffuse, the anterior horns, the posterior horns, and intermediate portions all being affected alike. The blood-vessels are prominent and filled with blood corpuscles, many of which have wandered into the surrounding tissue. The perivascular spaces are filled with small round cells. This is most marked about the anastomotic branches of the anterior spinal artery, which in some sections can be seen cut longitudinally in the gray matter at the base of the anterior horns. The central canal in sections from the lower part of the lumbar cord is almost obliterated, but its outline can be distinguished by the arrangement of the ependyma cells, which appear normal. At higher levels of this region the central canal is wide open and some of the ependyma cells have been torn off. The lumen of the canal is filled with an indefinite, structureless, albuminoid material and a number of round cells. Many of the ganglion cells have entirely disappeared, and many show various degrees of degeneration. They are irregular in outline, the nuclei are indistinct and eccentrically placed, and their dendritic processes are broken. In the anterior and lateral portions of the anterior horns there are numerous separate masses of round cells completely surrounding ganglion cells, heaped one upon another so that the nerve cells can be distinguished with difficulty. The cells of Clarke's column are similarly affected. The nerve fibers are swollen and appear broken and widely separated and varicose. The anterior and posterior roots are paler than normal when stained by the Weigert method. In the white matter there is a cellular infiltration chiefly confined to the perivascular spaces, with some proliferation of the neuroglia cells and swelling of the axis cylinders. The anterior, lateral, and posterior columns are all equally involved, but much less so than the gray matter. The pia is also infiltrated with round cells throughout the circumference of the cord(but it is much more marked about the blood vessels on the anterior surface and along the artery of the anterior fissure. The blood-vessels are filled with blood corpuscles, and their walls are infiltrated with round cells, but this is chiefly confined to the adventitia.

Sacral Region.—Here the appearance is exactly the same, except that the ganglion cells are fewer in number and the grouping of round cells about those remaining is less striking.

Thoracic Region.—This portion of the cord presents much the same appearance as the lumbar region, but the pia is less affected, and the grouping of round cells about the ganglion cells is also less marked here.

The cervical swelling is similar to the lumbar portion, but in addition there are a few small open spaces in the gray matter where the tissue has dropped out.

Medulla Oblongata.—Although much less than in the spinal cord, inflammation can be found throughout the medulla oblongata, especially in the gray matter about the fourth ventricle and in close relation with the blood-vessel, particularly those passing from the anterior surface through the raphe toward the gray matter. The white matter is slightly affected. The cells of the nuclei of the cranial nerves are also slightly affected. The pia is infiltrated with round cells and the adventitial coat of the blood-vessels also somewhat infiltrated.

Pons.—There is a considerable infiltration in the region of the sixth nucleus, and its cells are much diseased, but in other respects the changes here are much the same as those of the medulla oblongata.

Cerebellum.—A few small hemorrhages can be seen in those parts which were in close relation with the medulla and pons.

Basal Ganglia.—A few scattered perivascular infiltrations can be found here.

Postspinal Ganglia.—There are many round cells scattered between and about the ganglion cells, many of which show degeneration. With the Weigert method they appear yellowish and some nearly black; the nuclei of many are indistinct, eccentrically placed, and some have disappeared. There are numerous black colored granules to be seen generally near the periphery of the cells.

The anterior tibial, sciatic, and median nerves and portions of the brachial plexuses showed nothing abnormal.

Case III.—J. F., twenty-five years old; admitted to the Pennsylvania Hospital September 25, 1907. His family history was negative. He had always been healthy. He had been occupied as a day laborer, which he had not been used to, and he attributes his condition to overwork. He first noticed numbness of his feet September 23, 1907. The next day, after helping to lift some heavy boxes, his legs suddenly gave way under him, and he entirely lost control of them, and there was some disturbance of the functions of the bladder.

Physical Examination.—On admission: temperature 102; pulse 102; respirations 48. Anemic looking man with flaccid paralysis of both lower extremities. Some stiffness and aching of the muscles of the neck, and he complained of indefinite numbness of the chest and abdomen. Pupils were equal and reacted sluggishly to light. Eyes, nose, and throat were normal. Glands were not enlarged. There was no pulsation of the vessels of the neck. Chest well formed and expands well. Lungs normal but respiratory movements were greatly increased. Heart sounds weak. No murmur. Abdominal organs all normal. There was complete flaccid paralysis of both legs with loss of tendon reflexes and weakness of both arms. Sensation was normal. Blood count showed hemoglobin, 80 per cent.; leucocytes, 28,650. He died September 26, 1907, the fourth day of the disease.

The spinal cord and a portion of the pons and peripheral nerves were examined.

Autopsy 1018.—Hospital No. 1833. Male, aged twenty-five years. September 26, 1907. Performed by Dr. Donhauser one and a half hours after death. Edema of lungs, congestion of liver, spleen, and kidneys.

Spinal Cord Microscopical Examination.—Lumbar enlargement. There is a marked diffuse cellular infiltration throughout the gray matter; the white matter and the pia are also affected, but to a much less degree. In many sections the anterior horns, the posterior horns and intermediate portions of the gray matter are all equally affected, but in others the posterior horns are less so than the anterior. Inflammatory cells are seen diffusely scattered in great numbers and accumulated in the perivascular spaces. The vessels are only slightly distended and contain few blood corpuscles. Here and there small open spaces are seen when tissue has dropped out of sections. Most of the ganglion cells of the anterior horns have entirely disappeared, but a few still remain which appear much distorted, with an indistinct nucleus frequently eccentrically placed. The dendritic processes of many are broken. In a few sections the inflammatory cells are seen densely packed about the ganglion cells impinging upon their borders. With the Weigert method the nerve fibers seem somewhat more widely separated than normally, but stain well and do not appear swollen except in a few places when in close relation to a blood-vessel. The anterior and posterior roots just after they have made their exit from the cord are paler than normal. The cells of Clarke's column present the same changes as the motor cells of the anterior horns. The central canal appears normal. In the white matter the vessels are distended, and many round cells are seen in the perivascular spaces. There is some diffuse infiltration in the white matter close to the gray matter of the lateral horns, with some proliferation of the neuroglia cells. The pia is infiltrated with cells throughout the circumference of the cord, but the greatest change is seen on the anterior surface. The vessels of the pia are filled with blood cells, and their walls, particularly the adventitial coat, are infiltrated with small round cells.

Sacral Region.—In a few sections the anastomotic branch of the anterior spinal artery can be seen cut longitudinally as it enters the base of the anterior horn of one side, presenting an intense perivascular cellular infiltration. In other respects the appearance is the same as that of the lumbar region.

Thoracic Region.—The gray matter and the white matter are similar in every respect to that of the lumbar region, but the pia is slightly affected on the anterior surface only.

Cervical Region.—Here the process is identical with that seen in the lumbar region, except that the pia is less affected.

Pons.—Only a very few sections from this part were studied, and a few scattered perivascular infiltrations were found, chiefly confined to the gray matter.

The sciatic and median nerves showed nothing abnormal with the Weigert method. The remaining portions of the nervous system were not examined.

The cells taking part in the infiltrations were the same in each case and can be conveniently described at one time.

Under an oil immersion lens when stained with hemalum and fuchsin there were many round nuclei, some very large and others smaller, staining a robin's egg blue color, with a few deep staining chromatic granules and a thin rim of protoplasm. These cells were irregularly scattered and widely separated from one another, never grouped in definite foci.

There were great numbers of cells resembling lymphocytes identical with those found in the pia, generally scattered throughout the gray matter and densely packed in the perivascular spaces, presenting a small, dark-staining, round nucleus and a small amount of nongranular homogeneous protoplasm, also many larger cells with a large paler staining nucleus of almost any shape but generally oval, curved or indented, and a larger amount of protoplasm stained a moderately deep pink color and often vacuolated. Very few polymorphonuclear cells were found, but numerous red blood corpuscles were scattered here and there.

In addition numerous cells were found which did not resemble any definite type and in all probability were undergoing degeneration and would eventually have become typical compound granular cells.

The cases which I have described are typical examples of acute anterior poliomyelitis considering both the clinical and pathological pictures. One case of a child and two of adults, beginning rather suddenly with fever, pain in the lower extremities and back, some rigidity of the posterior muscles of the neck, flaccid paralysis of the lower extremities with loss of tendon reflexes and no sensory changes, bladder and rectal disturbances, the paralysis ascending rapidly, resulting in death following bulbar involvement. The pathological findings are very similar to those reported by Dauber, Goldscheider, Siemerling, Lieppman, Redlich, Risseler, Bülow-Hansen and Harbitz, Sherman and Spiller, Wickman, Harbitz and Scheel, Forrssner, and Sjövell.

Dauber[13] had an acute case in a child that died after five days, presenting infiltration of the pia and perivascular and diffuse infiltration of small round cells in the gray matter, also perivascular infiltration of the ganglion cells and degeneration of the ganglion cells.

Goldscheider[14] found the most intense changes in the anterior horns of the lumbar region, slight degeneration of the anterior and posterior roots by the Marchi method, and degeneration of ganglion cells, and considers poliomyelitis to be a localized myelitis affecting chiefly the anterior horns through the distribution of the anterior spinal artery.

Siemerling[15] studied two acute cases in children and found myelitic changes most marked in the lumbar and cervical regions, with some degenerative changes in the anterior and posterior roots by the Marchi stain, destruction of ganglion cells and slight perivascular infiltration in the white matter.

Lieppman[16] reported a case which developed during a severe attack of furunculosis and died four months later of diphtheria. He agrees with Goldscheider and Siemerling that the process follows the course of the blood-vessels of the anterior horns.

Risseler, quoted by Kahlden,[17] describes three acute cases in which there were various forms of degeneration of ganglion cells with diffuse and perivascular and pericellular infiltration of round cells, particularly in the lumbar region. He upholds Charcot's theory, namely, that acute poliomyelitis is due to a primary change of the ganglion cells.

Redlich[18] reports one case of a child that died on the ninth day. The anterior horns were chiefly affected, but the posterior horns and the white matter and pia also. The infiltrating cells contained many fat granules, which he thinks are typical of inflammation in the nervous system. He also found degenerations of the ganglion cells and of Clarke's column, which he considers to be of two distinct varieties of necrobiosis. There were slight perivascular infiltrations in the medulla, cerebral peduncles, particularly in the tegmentum, none of the cortex itself, but slightly of its pia.

Bülow-Hansen and Harbitz[19] had two fatal cases

and one abortive case, brothers and sisters of the same family, all affected at the same time. Two died on the fifth and seventh day, respectively. The usual changes in the gray matter of the cord, pons, medulla, and slight changes of the cells of the vagus nuclei were found.

Spiller and Sherman[20] reported a case under the title of "Acute Polioencephalomyelitis," presenting the clinical picture of Landry's paralysis and terminating fatally in thirty-eight hours after the appearance of the first definite symptoms of motor disturbance. They found intense cellular infiltration throughout the gray matter of the anterior horns. The pia was also affected, and there were a few perivascular foci within the white columns. The ganglion cells of the anterior horns were much degenerated. Changes extended throughout the spinal cord, medulla, pons, and cerebral peduncles to the basal ganglia, but were not very definite in the cerebral cortex and subadjacent white matter, although even here the vessels were much dilated. They consider that the process was essentially a polioencephalomyelitis, although the white matter was not intact, and that acute anterior poliomyelitis in an adult is similar to that in a child.

The naked eye appearances of the spinal cord and brain in my cases when in the fresh state were similar to those of most recorded cases, consisting only in moderate congestion of the cerebral vessels and a swollen and red appearance of the gray matter of the cord when seen on cross section. The membranes of the cord were slightly hyperemic, but no actual exudation was seen.

Microscopically the pia was infiltrated with mononuclear cells, particularly on the anterior surface, and always most marked in the lumbar region. This was found throughout the length of the cord, gradually diminishing from below upward. In Cases I and II it was distinct about the medulla oblongata and pons, and traces could be found over the cerebral cortex. Rarely a few inflammatory cells were found on the outer surface of the pia. Buzzard[21] has called attention to this fact, which is in harmony with the absence of a true meningeal exudate visible to the naked eye in poliomyelitis, and in contrast with what is generally seen in cases of acute septic meningitis. However the involvement of the pia is sufficient to explain the rigidity of the muscles of the neck and pain and soreness of the lower extremities, which are not uncommon in the early stages of most severe acute cases of poliomyelitis. There was no definite relationship between the intensity of the changes seen in the pia and the changes in the gray matter. In Case II there was considerably more perivascular infiltration of the vessels extending through the posterior white columns of the lumbar cord than in the other two cases, and here the pia on the posterior surface also showed greater changes.

Harbitz and Scheel[22] found in their cases that foci in the cord with perivascular infiltration corresponded to the areas of inflammation in the pia at the same level, while on the other hand inflammation of the pia could be found without any inflammation having developed in the cord at the same level. Therefore, they are convinced that inflammation begins in the pia with a simultaneous infection of the cerebrospinal fluid and extends into the cord along the vessels.

The walls of the vessels about the anterior surface of the cord were slightly infiltrated with mononuclear cells, chiefly confined to the adventitia. Wickman[23] found that the veins were more affected than the arteries; in my cases, however, there was little if any difference. Unlike Batten's[24] cases there was never any evidence of thrombosis.

A marked perivascular infiltration of the branch of the anterior spinal artery as it extended into the anterior median fissure was always found, and frequently this could be traced along its anastomotic branch as it extended into the base of the anterior horn of one side.

Throughout the length of the spinal cord the gray matter was always intensely diseased, the anterior horns suffering more than the posterior, except in a few sections of the lumbar region from Case II, where there was little difference. Degeneration of the ganglion cells was very marked, extending over large areas. Generally the degree of degeneration and destruction corresponded to the intensity of the disease in the surrounding structures. Occasionally after a careful search a healthy looking ganglion cell was found in the midst of a severely affected area.

Interstitial and parenchymatous changes were both marked and were found side by side. Severe degeneration of ganglion cells was never found far distant from interstitial changes: generally where interstitial changes were less marked ganglion cells were not severely diseased.

In Case II neuronophagia was very striking, always confined to the spinal cord, particularly in the cervical and lumbar regions. In Case III it was occasionally found in slight degree. No attempt was made to trace the various stages of this process in detail; the general appearances, however, were very like those described by Forrssner and Sjovell[25] in two acute cases of poliomyelitis.

In the cervical and lumbar enlargements and especially the sacral region they found many ganglion cells completely submerged beneath heaps of round cells; also round cells were seen after having penetrated into the substance of the ganglion cells. As the process advanced the ganglion cells degenerated and the round cells had gained in the quantity of their protoplasm at the expense of the ganglion cells.

They believe that healthy ganglion cells are never attacked, but that there is some chemical substance generated during the course of the disease which has killed or decreased their vitality and which has a positive chemotactic action for the round cells, and therefore they attack the ganglion cells and complete their destruction.

Neuronophagia unquestionably plays a very important part in the destruction of ganglion cells in certain cases of poliomyelitis. In the most intensely affected parts of the gray matter it was never found, therefore one might infer that the process had been already completed and is one of the earliest changes to take place. Forrssner and Sjövell suggest that it may explain the very rapid and sudden onset of paralysis. On the other hand early acute cases have been examined with marked degenerative changes of ganglion cells and no evidence of neuronophagia, so that we must admit that there may be some other cause for the rapid destruction of ganglion cells which as yet we know little about. The posterior spinal ganglia were only examined in Case II; moderate degenerative changes were found. After a careful search of the literature I have been able to find but one reference to examinations of the spinal ganglia in poliomyelitis. Forrssner and Sjövell, in the same article which has already been quoted, describe finding a few round cells outside but in close relation with the small blood vessels and no changes

in the nerve cells. On account of so slight a lesion they assume that this may explain the preservation of sensation.

We as yet have little definite knowledge as to the manner in which lesions found in poliomyelitis are produced. Many observers believe that the infectious agent is carried to the anterior horns of the gray matter by way of the anterior spinal artery. In many instances the distribution of the lesions in the gray matter corresponds very closely to the distribution of the blood vessels. The white matter, on the other hand, is but little affected, and here the blood supply is derived from the smaller vessels extending inward from the pia. Kadyi[26] has shown by his experiments that there is no definite anastomosis between the area supplied by the anterior spinal artery and that supplied by the pial vessels, and that there is an area along the adjacent borders of the gray and white matter which is partly supplied with blood by one and partly by the others. Wickman is inclined to favor the lymphogenous route of infection as most probable, and refers to the similarity of rabies and poliomyelitis.

If we accept the teaching that true perivascular lymph channels do exist, we can understand how lymph-borne infection may cause lesions corresponding to the distribution of the blood-vessels of the nervous system similar to those frequently found in acute anterior poliomyelitis.

Conclusions.—(1) Acute anterior poliomyelitis is essentially an acute polioencephalomeningomyelitis.

(2) The process is the same during infancy and adult life.

(3) The process is most marked in the lumbar and cervical enlargements of the cord and frequently may extend upward as far as the cerebral cortex.

(4) Interstitial changes predominate and occur together with parenchymatous changes. Parenchymatous changes never occur without interstitial changes.

(5) The localization and intensity of cellular infiltration depend upon the distribution and vascularity of the area affected.

(6) Neuronophagia is an important factor in the destruction of ganglion cells.

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KAOLIN AS A REMEDY.*

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In 1906 Prof. Julius Stumpf of Wuerzburg recommended the use of kaolin in a book, "Ueber ein zuverlaessiges Heilverfahren bei der asiatischen Cholera sowie bei schweren infectioesen Brechdurchfaellen und ueber die Bedeutung des Bolus (Kaolin) bei der Behandlung gewisser Bakterien-krankheiten," published—Wuerzburg. According to a report by Hahn of Munich in the *Muenchener medizinische Wochenschrift* (Jan. 15, 1907), the author has given kaolin internally in gastroenteritis of children and in cases of cholera (in Prussia, 1906), where in the ten cases so treated a favorable result was obtained. He recommends his method in cholera morbus, typhoid fever, cholera asiatica, ptomain-poisoning, and poisoning by metals. Experiments on dogs showed that doses of white arsenic of 1.2 and 3.5 grams mixed with 40.0 grams kaolin and given within 11 days did not poison the animals. He gives kaolin doses of 125 grams stirred in 250 c.c. of cold water, to be swallowed at once or at short intervals. The same dose is repeated if necessary after three hours. Children should take 60 grams in 125 c.c. water, infants 30 grams in 70 to 100 c.c. water in the nursing bottle. Nothing but a little water must be taken within the next 18 hours. Stumpf believes the effect to be due to a starving of the bacteria by their being enveloped in the mass of the powder. Hahn, however, states that the inhibitory effect in arsenic poisoning is not thereby explained, and his opinion is that kaolin forms a protective layer on the mucosa.

The same journal prints in the issue of Nov. 26, 1907, a paper by Goerner on the same subject. He relates the many experiments made by various investigators in treating wounds, ulcers, etc., with kaolin. Megele noticed the inhibitory effect of the same upon bacteria "due to a drying action." Other authors have held that kaolin is "a reliable aseptic dressing powder." Stumpf disputes Megele's theory, for a watery mixture of an insoluble substance cannot possibly have a drying action. According to him kaolin in powder form consists of particles smaller than bacteria, and it is the enveloping of the bacteria which prevents a further development of the disease. That even very large quantities may be harmless Stumpf proved by taking 250 grams of kaolin every morning for a number of days without any ill effect. Goerner treated 8 cases of acute gastroenteritis, including one case of severe fish-poisoning, with kaolin, with an almost immediate recovery. Of 30 cases of a milder type of acute gastric catarrh only 3 cases were not relieved promptly. Similar results were observed in

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the treatment of infants, with the exception of such chronic cases where large masses of mucus were present. He has also observed that any admixture, like sugar or milk, interfered with the result. Diarrhea in grippe was equally well influenced by kaolin. In one case of rectal diarrhea prompt cure was effected by an injection of the mixture. Cases of enteric tuberculosis were also much benefited by kaolin, a repetition of the dose becoming necessary only every few days; the same was true in a case of amyloid of the intestines. In typhoid fever the bacilli disappear from the stool, but otherwise the course of the disease is not influenced much excepting the regulation of the bowels. Goerner recommends kaolin as an excellent corrigent in various forms of meteorism, though here the dose must be repeated at times.

I have not seen any other literature on the subject, but believe the matter would be well worth further investigation, particularly as all the theories advanced are unsatisfactory.

Kaolin (or "argilla, terra alba, bolus alba, china clay, porcelain earth," in a less pure condition also known as "Fuller's earth") has been used as an external remedy for centuries. Internally it is used frequently as an excipient or diluent of silver nitrate and potassium permanganate; chemists use it as a clarifier. It is an aluminum-silicate derived from feldspar by weathering. The ordinary clay consists largely of the same substance. It is insoluble in water, cold acids, and caustic alkalies, and mixes readily with water. Together with other admixtures, it is the cataplasma kaolini of the pharmacopeia. Its action as a cataplasm is solely by its virtue of detaining heat upon the surface upon which it is applied. Taken internally, it cannot exert a heat-retaining action, nor possess a drying effect, as little as carbon which had been exposed to the atmosphere will absorb any gases after it has been saturated with them.

Under the microscope the preparation consists of very fine fragments of crystals of the size of erythrocytes, many still smaller, very few of the size of bacteria. Mixed with some old distilled water I could observe the water-microbes in their usual lively motion for hours. There was certainly no bactericidal action in evidence.

I sterilized a portion by exposing to dry heat of 150° C. and applied it first in a case of chronic urethritis as an injection. The patient was a robust young man who had been infected for the first time in March, 1907. Successively he had been treated by a number of specialists by means of injections, soluble bougies, instillations, irrigations, internal remedies, etc. Nine months later there was still considerable discharge, which consisted of leucocytes, few erythrocytes, and numberless bacteria of many kinds, to the exclusion of gonococci. The two-glass test showed turbidity in both and numerous shreds. Per rectum the prostate was found slightly swollen and tender, also both vesiculæ seminales were sensitive. No spermatozoa were found in the discharge. He had had no epididymitis. On January 7, 1908, I injected kaolin. After 12 hours there was a profuse discharge of pus without the least pain or discomfort. The pus consisted of leucocytes, erythrocytes, and gonococci, partly within the leucocytes, partly in the plasma (gram-negative.) No other microbes could be discovered. In relapses of gonorrhea the reappearance of gonococci, together with the disappearance of the other bacteria, is often observed. On January 10 there was still considerable discharge. Another injection of kaolin was made. Jan. 14, hardly any discharge. The now mucous secretion showed a remarkable number of epithelial cells with two nuclei. The shreds in evidence formerly had disappeared. Jan. 16, another injection of kaolin. Jan. 19, no secretion. Feb. 2, cylindrical epithelium in secretion, much mucus, few leucocytes, no gonococci. Feb. 9, kaolin injection followed by abundant secretion of pus with gonococci. Feb. 14, little discharge containing a few gonococci. Feb. 16, pronounced phosphaturia, which desisted with a more liberal diet. Feb. 23, kaolin, and again Feb. 26. From now on the gonococci grew less and soon disappeared entirely, in spite of many more injections of kaolin upon which no secretion of pus followed. A slight discharge due to the prostatitis and consisting mainly of mucus was finally stopped by means of instillations of protargol.

The study of this case shows a mixed infection in chronic urethritis converted into a simple "catarrhal" urethritis; elimination of the gonococci from the deeper strata, new growth of epithelium; waning of the urethal catarrh, and gradual healing of the prostatitis.

Another case of gonorrhea in a young man who had become infected for the third time on March 9 was examined March 16. The patient complained of a burning sensation when urinating and a rather profuse discharge of pus established since the day before. There was a mixed infection with a large number of gonococci. Urine, after washing out the interior urethra, was turbid (acute anterior and posterior urethritis). Injection of kaolin. March 18, secretion much increased but painless, containing gram-negative cocci only. March 19, kaolin. March 21, only the first glass is turbid. March 23, no trace of a discharge. April 6, kaolin; no reaction, urethra "dry." The two previous infections in the same patients had lasted six weeks or longer each time. As repeated infections usually heal more slowly, the cure within eight days seems remarkable.

A 50-year-old robust man had received a scalp wound one inch in length. The skin was not entirely severed. He refused to have the hair shorn or any stitches made. After cleaning the wound carefully I covered it with dry kaolin powder. A loose crust formed, which was removed every day to be replaced by a fresh sprinkling of kaolin. No pus formed; healing was perfect in 6 days without any scar.

A young lady suffering from myelogenous leukemia (diagnosed two years ago) was wounded by glass splinters above the left wrist, receiving two wounds of about ½ inch in length each and rather deep. The attending physician worked for about two hours before he succeeded in stopping the flow of blood with iron chloride. The following day the lady presented herself with firm crusts over the lesions. Twelve days after there were redness, swelling, and pain; pus oozed from below the crusts. After their removal kaolin was sprinkled on. Very firm crusts formed, underneath which one wound was found healed after about five days, while the lower one exhibited fungoid granulations healing only after an application of carbolic acid.

The little satisfactory result was probably due to the bad condition of the blood and the neglect of removing the crusts. The kaolin in the crust cannot exercise its typical effect.

A stout lady, 66 years old, had a relapse of an ulcer of her right leg over the tibia. The limb was swollen, hot, and tender to the touch. There was a vallated, undermined rim around an area of three inches in length and one and one-half inches in width, with a fungous surface of dark blue color and

slimy pus. March 1, a 2 per cent. resorcine-salve was prescribed. March 7, iodoform was applied and a cataplasm of carbolic acid ordered. March 11, much improvement. Ulcer now size of a half dollar; Unguentum Hebræ. March 19, no change; kaolin powdered on. After four days epithelium covered the whole surface. There was certainly a tendency to heal, but the rapidity with which the closing of the ulcer was accomplished was remarkable. No pus was secreted in this instance.

A laborer, 43 years old and of poor constitution, had an ulcer above the outer ankle on both legs. He had been treated for years without success. Kaolin healed the one ulcer rapidly, while the other one did not seem to be influenced much. Here continuous exposure to direct sun-rays had a satisfactory result.

A lady, 28 years old, had been infected with lues. The symptoms were very severe from the start and subsided only gradually under treatment with intramuscular injections of mercury. After two years she had to be taken to a hospital while suffering from a complication of nervous symptoms. From a bed-sore sprung an erysipelas and phlegmonous inflammation of both limbs with consequent destruction of both knee-joints. There appeared blue pus with *Bacterium pyocyaneum* in pure culture. Kaolin was injected into the abscesses. The watery, flocculent pus was changed into a thick, creamy fluid within twenty-four hours and no bacteria could be cultivated from the discharge.

A clerk, 29 years old, was much troubled by eructations of an extremely foul odor for years, and neither diet nor internal antiseptics afforded any lasting relief. He was given 125 grams kaolin in cold water on the empty stomach. The odor disappeared promptly and has not returned in three months.

A laborer, 49 years old, of cachectic appearance and complaining of persistent pressure pains in the pit of the stomach, no vomiting, acidity 94 after test-breakfast, no blood in feces (guaiac, benzidin, and aloin tests), no palpable tumor, but considerable enlargment of the left lobe of the liver, was relieved of the hyperacidity after a full dose of kaolin. No improvement otherwise.

These are but only some scanty observations which I have reported, still a few conclusions may be drawn from them.

Kaolin evidently causes a leucotaxis, an emigration of leucocytes out of the blood towards the deposit of kaolin wherever the surface is broken, with the formation of "pus bonum et laudabile." The leucocytes carry with them the microbes out of the depths, out of their recesses within the deeper tissues. This is probably due to a mechanical irritation caused by minute spicula, the fragments of crystals which will not perforate normal epithelium, yet wound the softer membranes of other cells. This is, however, only a theory, as I could not observe it under the microscope; at any rate it cannot be due to any chemical or other physical process, like coagulation or osmosis, as kaolin is absolutely indifferent to organic bodies.

The leucocytes destroy most of the bacteria by phagocytosis, with some exceptions, *e.g.* gonococci, which, while being eliminated, prey upon the carrying leucocytes. There may be another agent active in this process: ferments secreted by or with the leucocytes digesting the microbes.

Internally taken kaolin acts probably in the same manner, as a mild mechanical irritant. It must always be given in very large doses because it has a large surface to act upon. It inhibits the bacteria from receiving any pabulum as soon as they have been mixed with the inorganic masses. But enough of those rapidly propagating cells will still adhere to the mucous membrane to do serious harm if some other agent does not become active and interfere with their growth. Such agents are probably the leucocytes and ferments secreted with them. The experiments demonstrating the digestive affects of leucocytes upon culture media are well known, as also the fact that eventually they may not exert such an action (in certain cases of leukemia). That arsenic in large doses mixed with kaolin had no poisonous effect in Stumpf's experiments may be due to an insoluble combination forming with the protoplasm of the leucocytes which are enveloped in the kaolin. And this reminds of the observations made with Bier's hyperemia where poisons injected into the tissues are so slowly absorbed that the organism suffers no serious harm. Ferments are not so readily destroyed in the intestinal canal as leucocytes, which are rarely found in the feces, and therefore their determination after taking kaolin would prove interesting. The theory demands, of course, that the kaolin should come in contact with lesioned surfaces which it would irritate, as in all catarrhal conditions.

Now it remains to explain why kaolin produces an abundance of pus in an inflamed urethra and not upon an open ulcer. Perhaps the number of leucocytes emigrating is in proportion to the bacteria present. Exposed on an open surface the leucocytes are more rapidly destroyed than when confined in a cavity. The establishment of epithelium repels the leucocytes. The dry powder absorbs all moisture promptly.

There is after all nothing new in the theory, in the principle propounded. Similar remedies are used extensively of whose action we have not understood the true cause yet. The ordinarily insoluble bismuth subnitrate, which taken in small doses or enveloped in media preventing its mechanical effect seems to be inert, consists of minute crystals which must possess an irritating effect. Zinc oxide, iodoform, carbon, calomel, talcum, and others belong in the same class. Most of those substances are, however, not always indifferent and may become harmful, which kaolin never does. The only admixture permissible is pure water, for the reasons stated.

Kaolin should be tried in the internal diseases named and also in cases where free communication with the surfaces exists and a formation of crusts is obviated in fetid abscesses, diseases of the nasal cavity, urethra, rectum, vagina, and perhaps also in cystitis. An essential point may be that the blood is of a healthy character. In cachexia not much can be expected.

In infectious diseases our first endeavor is to destroy and eliminate the virus, the next to prevent further infection by antisepsis and asepsis. It appears that both functions are fulfilled by the leucocytes. Kaolin produces an emigration of leucocytes toward the injured parts, without causing more irritation than the organism desires.

A closer study of the leucocytes and of the ferments somehow connected with them promises a better understanding of the "vis medicatrix naturæ."

407 North Broadway.

Tender Feet.—

℞ Acid salicyl.....ʒiss.
Sod. biborat.....ʒiii.
Glycerini.....ʒiv.
Aquæ.....ʒiv.
M. S.: Rub on the feet night and morning.
—*American Journal of Clinical Medicine.*

SOME OBSERVATIONS ON THE URETHRAL LENGTH.

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At the outset of this paper I wish to state that nothing new or contradictory of the already established conceptions of the anatomy of the urethra has been attempted. The examinations were undertaken to satisfy myself in regard to statements in works on genitourinary diseases concerning urethral measurements. Such studies, if only confirming established ideas, may not be without interest, and with that thought alone in mind this paper has been prepared.

Nearly everyone has probably at some time attempted to make use of urethral measurements as an aid in diagnosis, especially in prostatic disease. After failing in several cases to obtain satisfactory information where urethral measurement was employed, it was decided to examine a series of cases with a view of ascertaining how far it was possible to use this method as an aid to diagnosis, and to see how closely results might correspond with those of others.

It is seldom necessary, perhaps, to resort to this method for accurate diagnosis; still there are cases in which all means at our command must be employed to arrive at satisfactory conclusions, and if it is possible by so simple a means as urethral measurements to determine abnormalities in this or closely related structures, it should not be neglected. Nothing it would seem could be easier than to determine by measurement the urethral length, and by comparison with known standards to draw fairly correct deductions. However simple in theory this may seem, in actual practice it is not so easy to make accurate measurements, and this may account for some of the seeming inconsistencies in some of the cases examined.

Before we are in a position to state whether we have an abnormality in the urethral length we must have a clear conception as to the normal urethral measurement, and if possible definitely fix on standards of comparison. In endeavoring to settle this point we find, while there is some diversity of opinion on the question, most writers are firmly in accord, and it would seem superfluous to go over the subject, but rather to direct our attention to abnormal conditions. On consideration, however, it was thought better to conduct an independent investigation of the whole subject, starting with normal conditions and thus, if possible, fix our own standards of comparison, rather than accept those already given. This paper will therefore only deal with urethræ in which fairly normal conditions might be expected to prevail.

The majority of the men examined were dispensary patients who were being treated for chronic urethritis or who had had that disease, but whose prostates were normal so far as could be ascertained by rectal examination, and where stricture or other abnormality which might interfere with accurate measurement, could be excluded. It can, of course, be said that these were not normal urethræ, but in dispensary cases urethræ which have not been affected with urethritis are rare, except in younger subjects, and as we are dealing with adult conditions such material as was at hand must be utilized for the purpose.

Before considering the cases examined a brief review of the subject of urethral measurements may not be out of place. A majority of works on genitourinary diseases probably follow the descriptions of the urethra as given in anatomical textbooks. These are, of course, post-mortem measurements, and the difficulties of making accurate measurements would not be so great as on the living subject, but at the same time it might not give the same results as would be obtained during life, as will be shown later.

Gray states "the urethral length is from 8 to 9 inches; of this 1¼ inches is prostatic, the membranous being ¾ of an inch along its upper, and ½ inch along its lower surface, in consequence of the bulb projecting backward beneath it below." Thompson, in his work on stricture, from an examination of sixteen post-mortem specimens, gives the following measurements: Spongy portion 6½ inches; membranous ¾ inch; prostatic 1¼ inch; total length 8½ inches. He then mentions the investigations of Mr. Briggs of the Lock Hospital, which were carried out on the living subject, and who found the urethral length to be about 7½ to 7¾ inches. These measurements were confirmed later by Thompson and are given as from 6½ to 7¼ inches. Attention is later called to the difference in post-mortem measurements, which is given as 8½ inches, and on the living subject as about 7 inches.

Thompson says in speaking of prostatic hypertrophy that "the prostatic urethra may measure 4 inches in prostatic hypertrophy, instead of 1½ inches, its normal length," and further, "If by examination the catheter has traversed not more than the ordinary distance, say from 6½ to 8 inches, we may be satisfied that prostatic enlargement does not exist. But if the catheter has passed easily, say 9 or 10 inches, and still no urine flows, there will be little doubt of the presence of prostatic enlargement."

A point which must also be taken into consideration in urethral measurements is the distention of the bladder with urine and its effect in overcoming the muscles controlling urination. If, as generally stated, when the bladder becomes distended with urine, the presence of the fluid in the bladder overcomes the resistance of the internal vesical sphincter, and the prostatic urethra becomes part of the bladder cavity, the urethral length must be correspondingly shortened. On this point White and Martin say: "The discharge of urine from the bladder is prevented by the tonic contraction of the muscular apparatus of the membranous and the prostatic urethra. As the bladder becomes distended, the internal vesical sphincter yields, and the urine enters the posterior part of the prostatic urethra, causing a desire to urinate, which is resisted by the action of the voluntary fibers of the external vesical sphincter and the compressor urethra. On passing a catheter when the bladder is full, the urethra seems about an inch shorter than it does immediately after micturition; this is owing to the participation of the prostatic urethra in the retentive function of the bladder."

It would be interesting to speculate as to what effect prostatic enlargement has, if any, on the action of these muscles. If there is no change we should be led to believe that in prostatic hypertrophy, where there is usually more or less residual urine, a diminution of urethral length would be found in some cases. Since this paper deals only with normal urethra it would be out of place to consider the subject further.

The method of examination to determine the urethral length in these cases was as follows: The

man after voiding urine was placed on a table and the penile length determined, measuring from the integument over the symphysis pubis to the apex of the glans penis; a bougie *à boule* was then passed to the anterior layer of the triangular ligament, care being taken that the same penile length was maintained, as it was in all subsequent measurements. This is important because there may be considerable variation in this respect during examination if care is not taken. The man then stands, while a soft rubber catheter No. 12 French is passed, and when the few drops of urine which ordinarily flow, make their appearance, the distance from the meatus to the eye of the catheter is taken. To determine the urethral length with the bladder distended, a catheter is again passed and the bladder filled with fluid. The catheter then being withdrawn until just at a point where the fluid flows, the measurement is again taken as before.

The total number of cases examined was 22; of these, Cases I, II, IV, and V are incomplete, while Cases X and XIII are prostatics, leaving 15 cases for study.

A glance at the table shows considerable variation in the individual urethral lengths, but when we come to determine the averages, the results are nearly those given by Briggs and quoted from Thompson's work; thus the penile length is in the 15 cases about 2¾ inches (2.78); the length of the anterior urethra 5½ inches; urethra with bladder empty about 7½ inches (7.61 +); while the urethra with the bladder distended measured slightly less, 7.51 + inches.

Taking up the various measurements separately, we find that the penile length averaged about 2¾ inches measured from the symphysis. In Case IV the penile length was 4½ inches, and the total length of the urethra 9¼ inches. This was in a man 43 years of age, who was being treated for prostatitis, and whose prostate was markedly enlarged by rectal touch. He was one of the earlier cases recorded, before the examinations were systematically begun.

TABLE SHOWING MEASUREMENTS OF URETHRA.

(IN INCHES.)

Case No.	Age	Penile L'gth	Ant'r Urethra	Bladder Empty	Bladder Full	Amount Fluid	Remarks
I	28	3½	6½	.....	8½	4 oz.	
II	25	3¼	.....	9	.....	.....	
III.	36	3	.....	.....	7¾	12 oz.	
IV	43	4½	.....	9¼	.....	.....	Catarrhal Prost.
V	22	4	.....	8¾	.....	.....	
VI	34	2¾	5½	8½	8½	8 oz.	
VII	23	3	5¾	8¼	8½	12 oz.	
VIII	25	3½	6¼	8¾	8¾	12 oz.	
IX	18	2¾	5	7½	.....	.....	
X	75	3½	6¾	.....	9¼	12 oz.	Hypert'p'y
XI	23	3¼	5¼	7¾	7	12 oz.	
XII	23	3	6¾	8½	8¼	10 oz.	
XIII	56	3½	6¼	8½	8¾	10 oz.	Prostate large
XIV	.....	2½	5	7¼	7¼	12 oz.	
XV	21	2¾	4¾	6	6	15 oz.	
XVI	16	2½	5	6¾	6¾	15 oz.	
XVII	25	2¼	5½	7	6¼	12 oz.	
XVIII	27	3¼	5¾	7½	7½	15 oz.	
XIX	23	3	6¼	8	7½	12 oz.	
XX	26	2¼	5¼	7½	7¾	12 oz.	
XXI	23	2¼	4½	6¾	6¾	12 oz.	
XXII	23	3¼	6	8	8	14 oz.	
Av. l'gth	.....	2.78	5.50	7.61+	7.51+		

Case VIII gave a penile length of 3½ inches, while the anterior urethra measured 6½ inches.

Cases XI, XVIII, and XXII all showed a penile length of 3¼ inches, while the anterior urethra measured 5¼, 5¾, and 6 inches respectively; a difference of ¾ of an inch between the longest and shortest anterior urethra, all having the same penile length.

Cases XVII, XX, and XXI, the penile length was 2¾ inches and the anterior urethra in the same cases were as follows: 5½, 5¼, and 4½ inches; giving 1 inch between the longest and shortest. We would naturally expect that the relation of the penile length to that of the anterior urethra would vary very little. Such does not seem to be the case, however, if we concede that the measurements are accurate.

The anterior urethra in one case measured 6¾ inches (Case XII) while the penile length was only 3 inches. The shortest anterior urethra measured 4½ inches. The average of the 15 cases was 5½ inches. The average as given by Gray is from 6 to 7 inches, while Thompson states it as from 5 to 6½, in the quotation already cited. But in speaking of the location of stricture, he makes the anterior urethra measure from 6 to 6½ inches.

In Case II the total urethral length was 9 inches. In this case the measurements were also incomplete. The case was, however, a young man of 25 years where no prostatic enlargement was revealed by rectal palpation. The next longest urethra was 8¾ inches (Case VIII). The anterior urethra in this case measured 6¾ inches, making the posterior urethra measure 2½ inches. Case XV gave a urethral length of 6 inches and an anterior urethra of 4¾ inches. Here the posterior would be 1¼ inch.

The average total urethral length, as already stated, was about 7½ inches.

The posterior urethra varied from 1¼ (Case XV) to 3 inches (Case VI). Here again there seems to be no exact relation between the length of the anterior and that of the posterior urethra.

When we come to a consideration of urethral length as influenced by a distended bladder, my experiments fail to coincide with some of the authorities already quoted; for in nearly every case there was little, if any difference in the measurements taken when the bladder was empty or distended. Whether it was a fault in the technique or not, I am unable to say. I can only state that as much care as possible was taken in making the measurements, and the amount of fluid was as much as is usually found where the Thompson two-glass test is resorted to as a means of diagnosis. Whether part of the prostatic urethra does really become a part of the bladder cavity under these circumstances or not does not render the test of less value in diagnosing infection of this portion of the urethra.

In ten cases the result was the same whether the bladder was distended or not.

Case XI, XVII, and XIX showed from ¼ to ½ inch shortening when the bladder was distended, while Case XIII, a prostatic, and Case XX, both showed an increase of ¼ inch.

In conclusion the writer wishes again to state, that while he recognizes the fact that exact measurements of this sort are in the nature of things extremely difficult or perhaps impossible, it is hoped that the results may not be without interest to others as they have been to himself.

66 WEST SEVENTY-FIRST STREET.

Ankle Drainage.—Bolton presents a very satisfactory and efficacious plan of draining the ankle in cases of severe infection following injury. The plan adopted consists in excising the astragalus and the drainage of the joint through the space so created. The method to be used in establishing the excision varies naturally with the character of the original injury. The writer records very flattering results.—*St. Louis Courier of Medicine.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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CREOSOTE INHALATIONS IN TUBERCULOSIS.

THE treatment of pulmonary tuberculosis at present in vogue is emphatically characterized by therapeutic nihilism, so far as the use of drugs is concerned. Fresh air, overfeeding, and rest constitute the tripod upon which the entire therapeutic structure rests, and except when a dry cough is so distressing as seriously to interfere with sleep, or digestive troubles, induced by the excessive amount of protein forced upon unwilling organs, demand relief, the resources of the pharmacopeia are seldom called upon. Even cod-liver oil, once the mainstay of the tuberculous, is denounced as occupying space in the digestive tract which might better be filled with eggs and milk. (And the possibility, even the probability, that much of the milk may contain the bacilli of bovine tuberculosis seems by universal consent to be ignored.) It is, of course, rank heresy to say aught against the prevailing fashion or to suggest that certain drugs may have a quasi-specific action in this disease, if not against the tubercle bacilli, at least against the pus organisms. Nevertheless there are not a few practitioners of independent views who dare to think that forced feeding may be carried too far and that even fresh air and rest may be supplemented by medication with benefit. The results of sanatorium treatment, except in the incipient stages, are not so brilliant as to justify the prevailing belief that nothing else can be done for the tuberculous. The educational value of the sanatorium cannot be questioned, but it is permissible to ask whether, in its exclusive reliance upon nature's remedies, it is not neglecting some valuable artificial means of combating the disease. When confronted with a case of bronchitis or of pneumonia the physician, unless he is an avowed therapeutic nihilist of the most advanced Oslerian school, does not hesitate to turn to the materia medica for remedies to relieve the prominent symptoms, if not to attack the disease directly, and if he has chosen his remedies wisely the patient profits by his therapeutic faith. May it not be that we have gone too far in our rejection of medication in tuberculosis?

In an article on "Laryngeal Tuberculosis," in the *American Journal of the Medical Sciences* for August, Dr. Beverley Robinson renews his plea for the use of creosote inhalations, not only in the laryngeal, but also in the pulmonary, localization of tuberculosis. He first directed attention to antiseptic inhalations in tuberculosis, in a paper read before the Climatological Association in 1885, and since that time has repeatedly, in journal articles and remarks before societies, urged the palliative and even curative value of this method in the treatment of the disease. The inhalations are given by means of a perforated zinc mask, worn continuously, the pad being moistened with beechwood creosote and alcohol, to which, when there is much irritative cough, a little spirit of chloroform is added. After an experience of twenty-five years with this method, the author asserts that he knows of absolutely no other means which will afford anything like the same amount of relief to symptoms and hasten and promote cure to the same degree. The late Dr. Austin Flint gave testimony, many years ago, to the value of this method of treatment, and others in this country and England have also spoken with confidence of its efficacy.

A theoretical objection has been raised against the use of inhalations in pulmonary complaints that the medicated vapor cannot penetrate to the alveoli of the lungs so as to act directly upon the focus of disease. But even if the vapor does not reach the lungs in the inspired air, it may do so through the blood circulation. It is possible the therapeutic action of the creosote would be exerted equally if the drug were given per os, and indeed it is often so given with apparently beneficial results. When the drug is given by inhalation, however, the stomach, already burdened with an excess of food, is relieved of the task of disposing of it, and, theory to the contrary, it may reach the lung more directly if inhaled. Dr. Robinson believes that a most valuable therapeutic adjuvant, if not a specific remedy, is neglected when creosote is not given, preferably by inhalation. The results which he and others who have employed the remedy for these many years have obtained would seem to make it worthy of the notice of phthisiotherapists. A renewed trial of it could hardly do harm when other remedies fail—and, alas! other remedies often do fail in the treatment of tuberculosis.

NARCOSIS AND IMMUNITY.

THE use of ether and chloroform in producing surgical anesthesia always introduces a certain indeterminate factor into the prognosis of any operation, the relative significance of which is very hard to calculate because of the little knowledge we possess of the effect of these drugs upon the organism. In the first place, the functions of very important organs may be profoundly affected, and secondly, the properties of the body fluids may be modified by the anesthetic substances. It is the latter effect which A. H. Zimin of the Tomsk Bacteriological Institute has made the object of a special study, reporting his findings in a monograph issued in Russian by the Institute and entitled "The Influence of Ether and Chloroform Narcosis upon the Bactericidal Power of the Blood and upon Phagocytosis." Platania, Klein, and Cogswell have earlier shown the weakening influence of narcosis upon animals, anesthetized dogs dying after being inoculated with plague while control animals were fully protected by their natural immunity. Bunge showed that the immunity against diphtheria was much diminished by subjecting inoculated animals to nar-

cosis, and Rubin, writing in 1904, showed the unfavorable effect of subcutaneous injections of ether and chloroform upon infected animals.

Zimin studied phagocytosis in anesthetized guinea-pigs, using for this purpose a nonvirulent organism, *Bacillus proteus vulgaris*. In control animals the peritoneal exudate after injection of the culture of this organism was abundant in actively phagocytic leucocytes, no free bacilli being present twenty-four to thirty-six hours after the injection had been made. Other animals were anesthetized and it appeared that the mere procedure was badly borne by them, over one-half dying in consequence of the narcosis. The multinuclear cells were not so numerous in the exudate of anesthetized animals as in controls, and the index of phagocytosis was almost constantly higher in the latter animals, but the healing of wounds made in the technique of the experiments ran about the same course in both series of animals. Studies of the effect of anesthesia upon the bactericidal properties of the blood were made on rabbits, and while a certain diminution of these properties could be observed in consequence of narcosis, the differences were not very marked. On the other hand, the control animals showed frequent individual fluctuations in the bactericidal power of the blood, while the animals subjected to the effect of ether or of chloroform gave more constant though lower figures.

The effects of anesthesia upon the protective processes and phenomena appear to have been very slight in this series of experiments. But it must not be forgotten that the animals used were healthy individuals and the slight changes in their defenses against infection would have been much more significant for their welfare in pathological conditions. The tide for or against recovery may be turned so easily in diseased conditions that the influence of anesthesia, however slight in absolute figures, probably plays a relatively important rôle in the infections which demand surgical interference with the employment of chloroform or ether as a general anesthetic.

THE CARE AND CONTROL OF THE FEEBLE-MINDED IN GREAT BRITAIN.

It seems to be now a definitely established fact that lunacy in all its forms is considerably on the increase throughout the civilized world. That such is the case in this country, so far as figures can be relied on, is certainly true. As bearing upon this vitally important subject, the report of the British Royal Commission appointed in 1904 to inquire into the matter, and which has just been published, possesses an interest beyond the limits of England and Wales.

The report in question is voluminous and is to be followed by six volumes and appendices, embodying the data through which the Commissioners have arrived at their several conclusions. It is estimated that in England and Wales there are at the present time about 150,000 "feeble-minded," in addition to 122,000 certified as insane, making a grand total of 272,000 persons, or in the neighborhood of 0.83 per cent. of the population, who are not responsible for their actions. It is a somewhat curious condition of affairs, that while the liberty of 122,000 is restricted for the good of the community at large, no less than 150,000 should be allowed their freedom. The report contains suggestions for the better care of these unrestrained irresponsible individuals into which, however, there is no space to enter here. It will be sufficient to say that the being at large of 150,000 individuals suffering from varying degrees of mental aberration must be obviously a source of some danger to the whole population. The Commissioners have this to say in regard to the gravity of the existing situation: "The mass of facts that we have collected, the statements of our witnesses, and our own personal visits and investigations compel the conclusion that there are numbers of mentally defective persons, whose training is neglected, over whom no sufficient control is exercised, and whose wayward and irresponsible lives are productive of crime and misery, of much injury and mischief to themselves and to others, and of much continuous expenditure wasteful to the community and to individual families."

With respect to the training of defective children, the Commissioners find an unsatisfactory state of affairs. As a result of medical investigations, the Commissioners conclude that a total of over 36,000 children on the school registers are in need of more suitable provision than is at present existing. On this matter they pronounce as follows: "The educational system of the country, established for the teaching of the normal child, is in our opinion unsuitable for the child who, unlike the blind and deaf, can never reach the mental level of the normal. Also, it is evident that the development of the institutional and other arrangements required for this class would lead education into a department of work largely foreign to it. It is only by taking care of children who are mentally deficient in various ways and degrees as part of a common problem that it becomes possible to provide for them systematically or adequately either during childhood or later. On these grounds it seems to us indispensable that a new authority should be established for the care and control of this class, and that it should be responsible both for children and adults."

It is interesting to learn that the members of the Commission who visited this country for the purpose of inspecting and reporting upon the system of treating the insane and feeble-minded which prevails in many of the States, were greatly impressed by the general superiority of American methods to those which rule in Great Britain. One volume of the series which is about to be published by the Commission will deal wholly with American institutions for, and system of training, the insane and mentally defective.

As to heredity in its relation to defects of mind, the volumes shortly to be published will discuss this phase of the subject fully. The conclusions of the Commissioners as published in the report seem to be expressed somewhat ambiguously. They are made to say that there is the highest degree of probability that feeble-mindedness is usually spontaneous in origin, not due in fact to influence on the parent, and that it tends strongly to be inherited. This appears to be a contradiction in terms, the

more so as the trend of the argument in the report is in favor of the influence of heredity on children born of unstable or of feeble-minded parents.

Operative Treatment of Pulmonary Embolism.

Much has been written in recent years concerning the etiology and treatment of thrombophlebitis. In spite of all prophylactic endeavor thrombi occur and a certain percentage of them is followed by an embolus of the pulmonary artery or one of its branches. When a small branch is involved the prognosis is not necessarily fatal, but when the main artery or one of its two main branches is the seat of the embolus, the case nearly always ends fatally and treatment is of no avail. At the thirty-seventh meeting of the Deutsche Gesellschaft für Chirurgie Trendelenburg suggested operative treatment for embolism of the pulmonary artery or one of its two main branches. He held that death frequently did not set in for from ten to sixty minutes after the onset of the attack, thus allowing sufficient time for an operation. He advised making a skin-rib flap and opening the pleura and pericardium. The origins of the pulmonary artery and of the aorta are then compressed by temporary elastic ligatures, the pulmonary artery is opened, the embolus is detached, the wall of the artery is closed by suture, and finally the ligatures are removed. The entire procedure from the moment that the ligatures are applied until they are removed must not take longer than forty-five seconds, as the patient would otherwise die. After numerous animal experiments Trendelenburg performed the operation once on a human being, but without favorable result. To say the least such surgery is heroic and is therefore necessarily followed by a high mortality. It also has the objectionable feature that a part of the operation must not consume more than three-quarters of a minute if the patient is to survive. Furthermore while it is often easy to differentiate between an embolus of one of the pulmonary arteries and an embolus of one of its smaller branches, this is not always the case, and the operation would be useless if the latter were involved. Then we must consider the remote possibility of a patent foramen ovale which would be a positive contraindication to the operation.

Duodenal Obstruction after an Abdominal Section.

Intestinal obstruction, functional or mechanical, is one of the most serious accidents that may occur after an operation involving the peritoneal cavity. The symptoms often enough simulate sepsis, and the surgeon passes anxious hours in his indecision between the two courses open to him: another laparotomy, which is, of course, a very dangerous procedure, and may prove completely unnecessary, and "expectant treatment," which may let the patient really suffering from mechanical ileus to get beyond all hope of recovery through an operation. In the *Berliner klinische Wochenschrift* for June 15, 1908, Landau considers a special form of ileus occurring after operations, namely, the strangulation of the transverse portion of the duodenum by the root of the mesentery and the superior mesenteric artery contained in the latter. In one of his patients, who had undergone a hysteromyomectomy, symptoms of sudden collapse, with incessant vomiting, meteorism, thready pulse, and the other signs that usually go on with beginning peritonitis suddenly appeared. No general treatment was of any avail, and an operation was decided upon, when it occurred to one of the attending physicians that duodenal obstruction could produce a similar symptom-complex. On his advice, the patient's position was changed from the usual dorsal decubitus to a prone one, so that the supposed pressure upon the bowel would be relieved. The effect was instantaneous; the vomiting ceased, the abdominal distention went down, the pulse improved—in a word, complete and speedy recovery followed. A similar case, occurring later, was correctly interpreted soon after the beginning of the symptoms, and the same simple procedure, the change of position of the patient, was followed by a like favorable outcome. Landau thinks that the duodenum is naturally exposed to pressure, because it has no mesentery and is in reality a fixed portion of the intestines. Normally, however, the digested material from the stomach, and the secretions of the liver and of the pancreas keep it almost always half-filled and prevent its collapse, with the possibility of further compression caused by the tug of the intestines upon the root of the mesentery. Such pressure in the healthy man may produce a momentary nausea and a feeling of uneasiness, and change of position quickly relieves them. The usual postoperative treatment, however, the withholding of food, the flat posture on the back, combined with the paralyzing effect of the anesthetic, furnish all favorable conditions for producing collapse and compression of the duodenum. Landau thinks that the practice of allowing patients to leave their beds as soon as possible after an abdominal section, which practice has been warmly defended by several American surgeons, is the best method of preventing this serious complication. Both his patients were kept in bed longer than usual, because of special indications, and the occurrence of duodenal ileus in their cases strengthens his decision to allow patients to sit up or to leave the bed very early after an operation involving the peritoneal cavity.

News of the Week.

Tuberculosis Campaign.—Free lectures on tuberculosis are being given in Iowa by the Rev. A. E. Kepford of Des Moines, who is reported to receive a salary of $5,000 a year for traveling through the State, lecturing, and distributing pamphlets and tracts. The lectures are illustrated by stereopticon pictures and attract large audiences. Since March 75,000 pamphlets have been distributed. In Pittsburg, Pa., the officers of the Tuberculosis League, which conducts the hospital for the treatment of tuberculosis, have opened a school for the children who are patients, which is held on the porch of the hospital. The school is in charge of an adult patient, a school teacher who has had to relinquish her work. Two short sessions are to be held daily. It is thought by some physicians that there is no better place to cure tuberculosis than on the shore of Lake Michigan. Acting on this belief, and alarmed by the steady spread of the disease in Northern Illinois, physicians of Lake County recently met at Waukegan to effect the organization of the Lake County Anti-Tuberculosis Association. Dr. J. C. Foley of Waukegan, was chosen president, and Dr. W. H. Waterson, manager. It is expected that a building capable of housing fifty patients will be erected near Waukegan at a cost of $10,000. In addition to establishing a colony for patients afflicted with tuberculosis, the Associa-

tion will conduct an educational campaign among the people of Lake County (Illinois), and especially among the farmers. The Association will cooperate with the Chicago Department of Health, which has tried in vain to persuade the farmers to have their cows tested for tuberculosis, and finally has arranged for the sterilization of all milk coming into Chicago.

New York Department of Health.—In submitting its budget for 1909, the department asks for an appropriation of $3,416,519.25, an increase over last year of more than a million dollars. A large part of this increase is requested so that the force of the department may be increased by 485 new employees. The total salary list for 1909 is estimated at $2,269,722.25. The sum of $5,000, which was authorized by the Board of Estimate to be expended in exterminating stray dogs, has been exhausted.

Death Rate in New York—The death rate for the week ending August 29 was 15.15 per 1,000 of population. For the corresponding week in 1907 the rate was 17.92. The total number of deaths was 1,472 in 1907 and 1,284 in 1908. Of the latter number 290 were due to diarrheal diseases.

Medical Inspection.—The summer corps of medical inspectors in Chicago visited seven thousand and ninety-three families in the congested residence districts during the week ended August 29. The 36,298 persons comprising these families were occupying a total of 30,555 rooms. There were 1,746 children under one year of age, 4,364 from one to five years, and 15,535 children were over five years of age. Of the children examined, 341 were found sick.

New Charities Boat.—The service of the new steamboat of the Department of Charities of New York was inaugurated on September 10. The boat will make trips between the foot of East Twenty-sixth street and Blackwell's Island for the use of patients and passengers going to the City Hospital.

Cholera in St. Petersburg.—Reports from St. Petersburg indicate that Asiatic cholera there is rapidly becoming epidemic. Up to September 15 the hospitals had received 240 cases, and sixty deaths were reported to that date. It is feared that the epidemic may reach the dimensions of that which occurred in 1891, when thirty deaths a day were reported during the months of October and November. The cases have been confined chiefly to the lower classes. The conditions prevailing in the suburbs of St. Petersburg are said to be especially favorable for the development of the disease, since in many sections there are no water mains, and the people drink the polluted water from the canals. The German authorities are exercising strict precautions and all emigrants from Russia are being examined with the greatest care.

Suicides in St. Petersburg.—During the first week in September sixty-six cases of suicide were reported in St. Petersburg. A large proportion were said to be working girls between the ages of eighteen and twenty-five.

Opium in China.—The Chinese government has taken its first drastic action under the new regulations covering punishment for the sale of morphine in sentencing, on September 9, a morphine seller of Pekin to banishment for ten years for dealing in the drug. The limit of three months allowed for metropolitan officials to record the fact that they had ceased using opium has passed without a single man coming forward to sign the pledge.

Famine in China.—As a result of the recent heavy floods in China, which have destroyed a large part of the ripe crops, a famine is threatened in the region between the Yellow River and the Great Wall.

Louisiana and Lepers.—The treatment of persons suffering from leprosy is a problem which has been wisely met by the State of Louisiana. A home is maintained there where lepers are under the control of mild and proper regulations, the government being vested in a State Board and the internal arrangements in the hands of a group of Sisters of Charity. The land on which the home is situated was formerly a part of a large sugar plantation, and opportunity is afforded for those who are able to perform useful services. Books, music, and other diversions are provided.

The International White Cross Association, which was founded last year for the purpose of concentrating the fight against cancer, tuberculosis, and other epidemic diseases and social scourges, and of promoting the pure food movement, held its first congress at Geneva during this month. About 700 delegates were in attendance, and attention at this sitting was directed more especially to formulating plans for the regulation of food and pharmaceutical products, and to considering the movements in this direction already under way in America and Europe. By thorough discussion the attempt was made to evolve a fair and reasonable definition of pure food, which would serve as a basis for uniform international legislation against food adulteration.

The Playground Association of America held its second annual congress during the second week in September at the Museum of Natural History, New York. Dr. Maxwell, the City Superintendent of Schools, spoke of the great need, particularly in New York, for recreation centers, and said that the Board of Education needed $200,000 to carry on the work. One of the delegates suggested that certain streets might be roped off during suitable hours and the children allowed to use them as playgrounds. The congress closed with an exhibition of folk-dancing in Central Park on Saturday afternoon. The officers elected for the coming year are as follows: *Honorary President,* Theodore Roosevelt; *President,* Luther H. Gulick; *Honorary Vice-president,* Jacob A. Riis; *Vice-presidents,* H. B. McFarland and Miss Jane Addams.

Alcohol in Berlin.—Dr. Hirschfeld, a German physician, has computed the quantity of alcoholic drink consumed in Berlin, and he announces that during the time investigated the consumption of beer was at the rate of 438,929,532 liters a year, and that large quantities of brandy and wine were also drank. The average annual indulgence in alcoholic drinks per head is estimated on this basis as 236¼ liters, at a cost of about 100 marks. As the average income of the Berliner is less than 700 marks, it may be said that he spends one-seventh of his income for intoxicating drinks.

Central Park Lakes.—Many complaints have recently been printed in the newspapers concerning the condition of the water in the lakes in Central Park, New York, and in consequence Dr. Walter Bensel, Sanitary Superintendent, has, at the request of the Park Commissioner, directed an investigation. In his report he states that while in that portion of the lake known as South Bay there is an accumulation of decomposing vegetable matter such as is inevitable at this season of the year, the condition of the lake is in no way detrimental to the public health. The Park Commissioner has also

characterized as ridiculous the statement, which appeared a short time ago in the daily papers, to the effect that the oil used on the roadways and the gasoline leaking from automobiles were draining into the lake and poisoning the ducks and swans. Post-mortem examinations have shown that deaths among these birds are due either to old age or to tuberculosis.

New Hospital for Evanston (Illinois).—Work has been begun at Evanston on a large new hospital, which is being erected by the Sisters of St. Francis at a cost of $80,000. It will adjoin the old hospital building but is much larger than the present structure and will increase the efficiency of the institution practically three-fold. The plans provide for a four-story brick structure, with stone trimmings, substantially constructed on the best lines laid down by modern medical and surgical science. There will be a general ward, operating room, patients' rooms, nurses' and physicians' rooms, diet kitchens, and all the accessories.

Dr. John A. Wyeth of New York lectured before the Virginia Clay-Clopton Chapter of the Daughters of the Confederacy in Huntsville, Ala., on August 27, on the life and character of General Robert E. Lee.

Dr. E. Franklin Smith of this city has removed to the new physicians' building at 11 East Forty-eighth street.

The American Electrotherapeutic Association will hold its eighteenth annual meeting in the Electrical Engineers' Building, 29 W. 39th street, on September 22, 23, and 24. All practitioners of medicine are cordially invited to attend all sessions. A full program is announced, and it is believed that the exhibit of electrical and .r-ray apparatus will be very complete and interesting.

The American Druggist Syndicate held its third annual convention in New York September 9 to 11. The attendance of 3,000 represented every State and Territory except Alaska.

Obituary Notes.—Dr. Joseph A. Hodge of Henderson, Ky., died at his home on August 30, aged 79 years. Dr. Hodge was graduated from the medical department of Louisville University in 1850 and for forty years had practised his profession in Henderson. He served for two years as president of the State Medical Society and was a prominent member of other associations.

Dr. Lorenzo Hale of Albany, N. Y., died at home on August 31, in the sixty-fourth year of his age. Dr. Hale was a graduate of the Albany Medical College and for several years was editor of the *Albany Medical Annals*. He was also a member of the Albany Medical Society, of which he was at one time president.

Dr. Frederick H. Hooper of New Bedford, Mass., died on August 31, aged 78 years. Dr. Hooper was graduated from the College of Physicians and Surgeons of New York and began the practice of medicine in New Bedford in 1857, failing health causing his retirement about five years ago. He was a charter member of the Massachusetts Medical Society.

Dr. Charles Harrington of Boston died suddenly in London on September 11, aged 52 years. Dr. Harrington was born in Salem, Mass., July 29, 1856, was graduated from the Harvard Medical School in 1881, and pursued postgraduate courses in several of the German universities. From 1883 until quite recently he was a member of the teaching staff of the Harvard Medical School, and had held several positions as chemist and analyst under the Massachusetts State Board of Health.

LETTERS TO A NEUROLOGIST.

To which are appended brief replies purporting to set forth concisely the nature of the ailments therein described, with remarks on their appropriate treatment.

XII.—A Drunkard's Plight.

My dear Doctor.—I am seeking you as the highest court; I need your help and your sympathy. I am no craven, rather a blind bird battling for light. Forgive this outburst and I will be sane and state my case as I know it.

It is difficult to state the precise moment at which I awoke to a realization of a taint, a hereditary predisposition, a preordained infirmity, with which I had to cope, in addition to the other adversities of life. I am humiliated that I have not put up a better fight, but I have not yet despaired. With your help I may win out. Contrary to the Holy Writ, it is that which goeth into the mouth that has defiled me.

In my schooldays there was no craving for alcoholic stimulant: in fact, I was what is nowadays termed "a molly coddle." At my university I traveled with a rapid crowd, and perhaps "outheroded Herod," but the twelve years which intervened have dimmed the recollection of how firm a hold alcohol then had upon me. Drinking was always a lark in those days, not the means to an end, as it became later, nor the irresistible impulse it is now. After my graduation I spent two years in New York studying architecture. My experiences there confirmed me in my taste for alcohol, and six years abroad stamped deep in my constitution the craving for drink. But it is only during the past four or five years that it has absolutely enslaved me. In the beginning a small amount of alcohol would give me a brace—would wake my brain to greater effort, would broaden my field of vision—would almost dictate trains of thought, and so I used it, until one day I awoke to the fact that the dose had been increased enormously, that reaction followed the stimulation almost immediately, and that instead of being an aid to me in my work I was absolutely unable to finish anything. Now and then I have ideas, definite conceptions, and I think I will whip them into shape, but, alas, I don't succeed. I am now in the condition in which I would go to your office, deny my infirmity, and yet, if you chanced to leave the room, drink from a bottle of pure alcohol on the shelves of your dispensary.

I realize how necessary it is that I should abstain from alcohol, and countless times I have resolved to do so. I have fortified my resolution with prayer, by appeals to that Source from which we are promised that there shall be no denial if we go sincerely and humbly. How often have I read "Whatsoever ye shall ask in prayer, believing, ye shall receive," and how bitterly disappointed I have been that my appeals were always unheeded. I have strengthened my will by pledges to one whom I hold in higher regard than any one in the world; by physical discipline, and by counsel from your profession, I have sought refuge in the country, remote from centers where drink was to be obtained. I have availed myself of the sanity, the loyalty, and the devotion of my wife by sharing with her my fears and my determination to make a daily, an hourly fight against temptation. I have even taken the Keely cure! Yet all to no avail. The physician here says I am threatened with neuritis and acute Bright's disease, and tells me that I must stop alcohol. He neglects to tell me *how* I shall stop. I have no desire to disgrace my family

or to fill with misery and incapacity the years that remain to me. I am a man of sentiment and of education, possessed of a sense of duty to my family and to the community in which I live—and, delivered from this demon, it is possible that I might be able to do something that would contribute to the joy of living for others. But unless I can get aid I am through, and the sooner I experience translation the better for me and for all those whom my existence concerns.

It is not alone the fact that my capacity for work has gone, but I am enthralled, enslaved, emasculated by this monstrous hirudinean that has worked its way into my soul. This is the ignominy. There was a time when I awoke each morning with a joy of life, a desire to accomplish, a capacity to do, a feeling of well being, which, now that they are only memories, are to me as the sight of green meadows, winding rivers, and cool forests are to the traveler irretreviably lost in the desert. I can't conceive what sensations I was seeking which lead me to change all that for the feeling of self-disgust, of physical discomfort and moral turpitude which were soon the matudinal sequence of my nocturnal imbibition. I recall that in those days, coupled with the regret for my action of the day before, there was always the resolution that I would abstain for a long time. Occasionally I would be be able to go two or three days without recourse to drink, and then, despite my strongest effort, I would blot out every mental and moral resemblance to my Maker. Gradually there fell from me, like rags from a beggar, the desire or the willingness to abstain at all, and in its place came my present incessant craving. I see the necessity for work. I see it lie before me in various stages of incompletion; I realize the weighty obligations that are imposed upon me by my children. I am deeply conscious of the finger of contempt pointed at me by my fellow men; I have a sincere desire to live a life of usefulness and to accomplish something worth while. No one can realize more keenly than I do that I must deliver myself from this octopus which has fastened itself upon me, which has sapped my moral core and destroyed my will power. It availeth nothing to tell me that I must stop; as well tell water not to run down hill or sap not to well upward in the tree. Nor are any of the devices or admonitions which have been suggested to me adequate to combat it.

These words are not the wail that indicates recovery from a debauch, nor are they the lucubrations of a brain recently befuddled with alcohol. I have recently recovered from what is thought to have been a serious illness following a convulsive seizure, which the doctor tells me was of uremic origin, induced by drinking a bottle of vermouth—the only thing that I could lay my hands upon, and which I consumed practically in one sitting. I will do anything that you tell me to do, provided that you will give me serious and comprehensive attention.

It will not suffice to give me advice and a prescription. That has all been done before, and it has availed nothing. What I ask is a resuscitation from a state of death as real as that from which Lazarus rose. That required a miracle, and I am convinced that nothing less will suffice for me. I scarcely hope to be transported back to those days of my youth when a draught of water could slake the pleasant thirst of exercise or mollify the parched lips and tongue of the noonday heat, but I hope and pray that it may be vouchsafed me to enter once more with elation and exaltation into the pursuit of some self-selected task and the discharge of obvious duties, to have the capacity to think and to execute; to do something for others that would make the burden of their lives lighter and the cheer of their days deeper; to enter with alacrity and abandon into the pleasures of my children, and to be to my wife that which her fancy and belief pictured me twelve years ago.

As St. Monica, drawing near to her death, sent most pious thoughts as harbingers to heaven, and her soul saw a glimpse of happiness through the chinks of her sickness-broken body, I am sending this appeal to you to combine the offices of physician and friend and deliver me from an infirmity which, I say in all humility, makes life intolerable. It has reduced me to a state in which I can say, like the melancholy poet in the Northampton Asylum—

> "Where there is neither sense of life, nor joys
> But the huge shipwreck of my own esteem
> And all that's dear."

Yours faithfully,

Dear Sir.—I hope I shall be able to help you. Your appeal is one to which I am particularly sensitive. The task you set me is an onerous one; experience has taught me its difficulties. I need not tell you that inebriety, or habitual drunkenness, is a common disorder. The request to undertake the treatment of a case is no rare experience. The unusualness of the solicitation in this instance lies in the fact that it comes from the person who is concerned, not from the family, husband, parent, or wife. The afflicted person, as a rule, resents interference with what he calls his freedom, or the right to do as he pleases. This attitude often constitutes a barrier which must be broken down before anything can be accomplished. Fortunately, in your case you realize the necessity for extrication from the pit into which you have fallen, and you are willing to work with me. That will lighten the task somewhat and give greater promise of success.

The treatment of habitual drunkenness or inebriety is a concrete problem. There are no rules which, if followed in every instance, will result in success. In fact, you admit this in your letter when you say that a prescription and a regulation of your diet and your exercise will not be adequate. The successful treatment in any given case demands study of the individual, of his antecedents, of his disposition, of his habits of thought, of his ways, of his environment, of his methods of dealing with the situations of life, of his pleasures, of his appeals, and of his self-reliance. His amenability to suggestion, his capacity for obedience, his willingness to undergo humiliating experiences and self-effacement—all these, and more, must be determined. An intimate knowledge of the way in which the drink habit has fastened itself upon the individual is likewise very important for the physician. Whether or not it has been the outcome of conviviality or the clamoring of a sensation for appeasement. If it is a habit merely, and not a constitutional reaction, there is a chance of overcoming it more readily.

It must be difficult for the reader of current literature to realize that inebriety is the menace to the health and happiness of so many people as we physicians know it to be. A recent article in the *Century Magazine* by one of the directors of an institution connected with the Emmanuel Church, in Boston, which they are pleased to call a clinic, re-

ports that about 80 per cent. of the habitual drunkards upon which he has tried his 'prentice hand have been cured. In the August number of *McClure's Magazine* of this year, a professor of psychology of Harvard University says that it is his experience of the last few years, during which he has studied the effects of suggestion and hypnotism on habitual drunkards, that in most cases it is an easy matter to cure social drunkards of the larger cities. It seems incredible that there should be any real drunkards left when such wonderworkers are still at large, and when such master hands are still unshackled! Not being plain doctors of medicine, they do not feel obliged to give statistics in support of their statements, mere allegations sufficing. A physician who would report a cure of 75 per cent. of the cases of habitual drunkards treated, and give no statistics to support his claims, would find few readers and no believers. But let a man whose training has not been with such concrete matters as disease, one who deals largely in abstraction, make such statements, and they will be accepted by many who ought to know better.

Travelers who visit the Island of Martinique marvel at the temerity of the inhabitants of St. Pierre who take up their residence on the site of the city, which was wiped out by the eruption of Mt. Pelée. They build their houses on the lava that covers the bodies of their children, their wives, and their parents. Every few years the Ohio River at certain places along its course overflows its banks and destroys property and human life. The inhabitants who escape build their dwellings again on the banks of the river after the stream has receded, and take up life anew, forgetting, or unheedful of, the potential danger. The attitude of the people of this country in reference to the cure of alcoholism is very much like the attitude of these seemingly hazardous people.

It is scarcely fifteen years since the press of this country teemed with laudatory articles on a certain cure for alcoholism. Senators, divines, men eminent in law and in the councils of the State, vied with each other in setting forth, through the medium of our most dignified magazines, the marvelous cures which, to their personal knowledge, had been effected by this secret method of treatment. Institutions for carrying out the treatment sprung up throughout the entire country, and the number of cases treated successfully extended into the thousands and tens of thousands. Such appearance of verity did the cures have, and such justification for the existence of the method of treatment was furnished by responsible and important persons, that it was considered almost questionable taste to deny the validity of one or the efficacy of the other. Yet, who hears of this cure to-day? What has it accomplished? Is not habitual inebriety as great a stain on twentieth century civilization as it was a generation ago? Must we again offer the broad avenue of credulity on which irresponsible drivers of fads and fancies may promenade and display their wares, or shall we have the courage of our convictions and deny their assertions, scoff at their statements, and treat with indifference their excursions afield from their own profession?

It is unfortunate that each country or section of country is not in possession of an island which might be set apart for the reception of habitual drunkards, to which they could be sent by process of law for a number of months or years, depending upon the intensity of their affliction. A fertile soil would provide sustenance and a strict system of quarantine would keep out alcohol. If the place should get a vogue as a favorite resort of some of our "first" families, and this might be easily brought about, people would go to it not only willingly, but with alacrity. Victims of the drink habit are proverbially attractive persons, and a community of them would be almost irresistible. You may find the scheme too Utopian, or at least too far remote from realization. Let me advise something more practical. My suggestion is that you commit yourself voluntarily to an institution where you can be deprived of your liberty for a year. If you are not willing to do this, go to a training school, such as ....., and stay there a few months, and at the end of that time engage a trainer to accompany you to your home, and empower him with authority to keep you from taking a drink. Do as I suggest about making voluntary commitment of your person, and at the end of a few months you will begin to get strong physically and well balanced mentally. Work will once more appeal to you, and the joy of creating will begin to dawn upon you again.

If you will not do this, then you might send for the elders of the town, who will say, "This, our son, is stubborn and rebellious; he will not obey; he is a glutton and a drunkard," and then ask them to stone you with stones until you are dead, as the stubborn son was treated by the people of Israel.

I am not saying very much to you about using your will power. I appreciate that your will power is pretty well lost. It will redevelop and establish itself in proportion as you refrain from alcohol. The time to talk to you about will power is after you have abstained for a few months. You should then receive treatment by suggestion, and the person from whom it may come most appropriately—for he is with you all the time, and in a position of authority—is the trainer. You will note that I am using the word trainer to mean one whose duty is to develop you physically, mentally, and morally, and to superintend you. I wish to digress a moment at this point, to say that we are badly in need of a new profession, the training profession. We need trainers to develop children who suffer from mental retardation, to treat the victims of psychasthenia, to foster the waning intellectual powers of patients with dementia præcox, to curb the impulses of the obsessed, and to develop self-reliance in the alcoholic.

The profession of trainer is entirely distinct from that of the nurse or doctor, although occasionally a good trainer may be recruited from the ranks of either of these professions.

It may be that you prefer to get your suggestion from beneath the cloth, now that so many clergymen are construing their duty to be the treatment of disease as well as the preparation of mortals for the life hereafter. Their favorite suggestions are that the Lord will no longer single you out to bear humiliation and suffering; He did not intend that you, made in His image, should be committed to torture and despair; that He is appeased with the amount of pain you have already borne; that the desire for drinking will disappear; the uncontrolable impulse will not return; that if you will but think intently enough to get wholly *en rapport* with the Lord the impulse to offend will not take its origin within you. If you are fortunate enough to have faith to believe that there is a personal God who watches over you, that the very hairs of your head are all numbered, who is conscious of your every thought, and who will reward your virtues

and punish your sins, then this sort of treatment may be beneficial to you; indeed, it may cure you. If you can find it in your makeup to believe that ministers of the Lord are able to cure disease by virtue of the irradiations from God through them, then it is probable that you can get more help from a clergyman than you can from a doctor.

If you have what they call faith—that is, "assurance of things hoped for, a conviction of things not seen"—if you have within you an assurance that the desire for alcoholic stimulant will leave you, and a conviction that there is a Power looking after you who will keep it away if you will ask with sufficient humility, then you are cured, and you are not called upon to go to Boston, which will be a second reason for rejoicing. If you have the kind of faith which the Lord said the Apostles should have when they besought Him to increase their faith and He answered, "If you had faith as a grain of mustard seed, then ye might say unto this sycamine tree, Be thou plucked up by the root, and be thou planted in the sea, and it should obey you"—but if you haven't got this variety there isn't much hope for you in that direction.

These Christian Scientists in Boston, who are masquerading under an assumed name, and who do not hesitate to call their Reverend Mother's religion a "despicable superstition," are animated primarily by desire to regenerate the Christian Church. They think their movement is an answer to the materialism of the age which threatens the church with extinction. They believe that Christ's mission was that of a physician, a healer of the souls and bodies of men, and that they should take up the practice as a sort of limited liability company. They balk at organic diseases, the kind that Christ cured so readily. What they are pleased to call functional disease is the grist they grind.

And the answer they give to those who ask with all reverence why God should discriminate between functional and organic (a mere makeshift of ignorant, benighted man) is the same as that given by M. de Mongeron, the pious biographer of François de Pâris, a miracle worker of the sixteenth century, to the Bishop of Sens, who, on being shown a boy whose blindness had been miraculously cured in one eye, ventured to inquire why the Lord didn't cure them both—"We haven't the right to question the ways of the Lord."

Granted that Christ was a physician. He was not a specialist in functional disease. "The blind receive their sight, and the lame walk, the lepers are cleansed, and the deaf hear, the dead are raised up, and the poor have the Gospel preached to them." Nor are His instructions to His Apostles any less comprehensive, "Heal the sick, cleanse the lepers, raise the dead, cast out devils." Those were the orders, and if the successors of the Apostles aspire and are ambitious to do the one, they should do all.

To students of the Bible like myself (shortly I shall be interpreting my mission as a physician as a call to preach the Gospel, so contagious is this vicarious assumption of function), Jesus is the best authority as to His mission. "The Spirit of the Lord is upon me, because He had anointed me to preach the Gospel to the poor: He had sent me to heal the brokenhearted, preach deliverance to His captives, and recovering of sight to the blind, to set at Liberty them that are bruised. To preach the acceptable year of the Lord." I should point out to you that this is taken from that portion of the Holy Writ which was furnished by one who is not entirely reliable, a physician, Luke, who may have been jealous of the Lord. At least, this suspicion has been thrust into my mind by the Reverend E. Worcester, who says in "Religion and Medicine," page 344, "Luke, being a physician, could not tolerate any reflections on the medical profession."

If these divine healers do what some of them claim to do in the field of disease, and assume that it is done through their mediation of supernatural agencies, there is no reason that they should not bind and loosen upon earth as well. Their claims to do so would be no less arrogant than their therapeutic pretence.

I am not using this opportunity to scoff at a profession which is deserving of the glory and honor universally accorded it. I utilize this occasion to say that it is not frank, or honest, or honorable, to ascribe to supernatural agencies or to the intervention of God, the operation of psychological and physiological processes susceptible of scientific and empiric explanation. One may believe, if it comforts or promotes respect and reverence, that when leaves fall from a tree a supernatural force causes them to fall, but the wind that is blowing is nevertheless the logical and adequate cause.

There exists a vast mass of trustworthy material testifying to the reality of cures effected by other than physical means. No one denies it. These cures are susceptible to logical explanation. Does any one doubt the reality of the cures effected by the Perkins-Tractors, or the King's Touch, or the Berkely Tar Water, or the hundred other agencies which have had great vogue in past times? Were they effected by God? The Emmanuel Church will have to quicken its pace to get as many real cures to its credit as Mr. Perkins had before he was gathered.

Unless the Emmanuelites believe as the Reverend Mamma of Brookline believes, that sickness is sin, they haven't a leg to stand upon. When Jesus was leaving Capernaum a man sick of the palsy lying on a bed was brought to Him as he entered the ship. He said to him, "Son, give good cheer, thy sins be forgiven thee. Arise, take up thy bed and go into thine house." The real Christian Scientists are much more logical than those who ape their tactics so closely that it is difficult to distinguish them, but who are ashamed to fight under the flag.

I say to you if you need supernatural aid go to the chief pumping station; go to Boston, of course, for Boston is the irradiating center for all forms of supernaturalism, but when you go, go to the Temple, not to the Church. If, however, you are a philosopher, and believe that the way to rid yourself of an infirmity that is the legitimate sequence of a bad habit is to replace it by a good habit, and the way to overcome an impulse which is dependent upon enfeebled will power is to develop will power in some systematic way, as you would develop memory or muscle, then I advise you to pin your faith to the profession that practises the cure of disease legitimately.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

ARMY MEDICAL REPORT—DUSTY TRADES IN RELATION TO PULMONARY DISEASES—ANTITYPHOID INOCULATION FOR MISSIONARIES—DEPOPULATION OF IRELAND—FOOD INSPECTION—OBITUARY.

LONDON, Aug. 28, 1908.

THE report of the Medical Department of the Army for 1907 has appeared and shows that the health of the troops both at home and abroad was exceptionally good. Since 1904 the introduction of the out-patient system for mild cases has diminished the rate of hospital ad-

missions, but the decline in mortality and invaliding rate may be accepted as an indication of improvement. In India, South Africa and Egypt the reduced sickness is apparent, but there was an increase in Gibraltar. The figures for India show remarkable progress, the admission and death rates being the lowest on record. The Director-General draws special attention to the returns under the head of venereal diseases, which long caused an enormous amount of inefficiency. In 1897 the hospital admission ratio was 507.8 per 1,000; in 1907 it fell to 89.9, a result to which several causes may have contributed, but which is certainly very satisfactory. As regards invaliding in India, during the last cold season the experiment was tried of sending weakly men to selected hill stations in the country, instead of to England. The result was most satisfactory, the men improved in a marked degree. These hill stations have an unrivaled climate in the winter. A decrease of 1,008 invalids is reported as due to this new departure. The retention of over 1,000 trained and seasoned soldiers is an important gain.

Another noticeable gain appears in the decline of sickness in Malta. Perhaps no better example can be quoted of the success of scientific prophylaxis than the history of fever among our troops on that island. The returns show that the hospital admissions for Malta fever in 1905 numbered 643, in 1906 they were 161, while in 1907 they were only 11. The number of invalids sent to England from this station decreased from 383 in 1905 and 165 in 1906 to 14 in 1907, while the average number of those rendered constantly inefficient from Malta fever dwindled from 111 in 1905 and 43 in 1906 to only 3 in 1907. Further instances of the successful application of sanitary and prophylactic measures, though to a much smaller extent, are reported from India, South Africa, Egypt, and the Straits Settlements. To deal with typhoid a standing committee has been formed in India, while in South Africa important investigations are being carried out. Differences in bacteriological characteristics are reported as having been found between enteric fever as prevalent in these two countries. Tables are given showing the general state of health of British and other armies, from which it appears that the only armies showing a reduced rate in comparison with the previous year of hospital admissions are those of the United States and of Great Britain. But you must not plume yourself on this fact and must note that it is in comparison with the previous year only that you come out so well, for further tables show that in respect of all diseases the United States Army heads the list with the highest ratio, followed by that of Austria-Hungary, France, Germany, Russia, and Great Britain, in the order named. The death ratio for all diseases in the six armies remains at about the same relative position as in the previous year.

It was only appropriate that at the Sheffield meeting a whole morning should be given up to the discussion of dusty trades in relation to consumption and lung diseases. Dr. Scurfield, the able Medical Officer of Health, introduced the subject. He pointed out that while in England of people over 25 years three males to two females died from consumption, in Sheffield the proportion was six males to two females. This meant that about 120 men a year died in Sheffield who need not die if the conditions of work were as good as in the rest of the country. Other figures showed that bronchitis and pneumonia prevailed among the workmen of the dusty trades. Through the trades unions he had been able to get some important statistics. They showed that the death rate of the grinders from phthisis was more than six times and from respiratory diseases nearly three times that of the average Sheffield male. In the case of cutlers the phthisis rate was nearly three times and the rate of respiratory diseases four times that of the average male.

Dr. Scurfield quoted the investigations of Dr. Ropke of Solingen, who considered all dust made by grinders injurious, particularly stone, emery, and iron dust. The effect of the inhalation was on the nasal mucous membrane, which eventually atrophied and was followed by a like injury and the same result in the pharynx and larynx. This facilitated the access of the dust into the lungs and the formation of dust-filled fibrous inflammatory masses, which on breaking down gave an open door to bacilli. Dr. Scurfield mentioned that it was a common belief in Sheffield that animal dusts (bone, horn, ivory) are harmless. Even if that were so they would be carriers of bacilli. The Germans in 1898 laid down stringent regulations to secure cleanliness in workshops and prevent the inhalation of dust by the workmen, and they claim to have thereby enormously reduced the death rate. Sheffield certainly offers abundant room for a similar effort.

Professor Oliver said the relation between the male and female mortality left no doubt as to the influence of the trades, and the same thing was going on in America, though not to so great an extent. There was no doubt that some dust—for instance, coal dust—could be present in the lungs for a long time without setting up symptoms. On the other hand, dust of an irritating kind would set up active inflammation. Professor Oliver added that he had been struck with the poor, thin arms of the young workers at Sheffield, whereas one would expect the muscles to be developed by their use. He would like an explanation.

Dr. Barnes of Sheffield said the grinders' disease was pure tuberculosis, and Dr. Dyson of the Infirmary had authorized him to state that this opinion had been enforced on him also. He had gone through notes of fifty cases investigated by Dr. Cocking and forty-nine were pure phthisis. Colliers and sulphur miners inhaled dust, but were not subject to phthisis. The source of infection, Dr. Barnes continued, was the sputum of the grinders. In dry-grinding shops they spat on the floor, in wet grinding shops into the troughs, and the bacilli were caught by the revolving wheel. He would make it punishable to spit on the floor. The regulation against spitting in public was insufficient at Sheffield, as seen by the state of the tops of the tram cars.

Dr. Nevin thought the particles of dust made way for the bacilli and men with damaged lungs would be susceptible to slight infection, so that to banish the bacilli from the workshop would not eradicate all risk.

Dr. Kite said in his district some years ago ganister disease was the most prevalent form. It was due to silica in the air and was very fatal. Once he had eight or nine hundred cases, but it had now practically disappeared. The British workingman had to be protected against himself. In one factory the greatest difficulty had been found in getting the men to take precautions against anthrax. In reference to Professor Oliver's remark, he said the thin arms of Sheffield children were due to want of fresh air and exercise.

Dr. Ellis Barker said the better conditions in Germany were due to the system of insurance, which made masters and men jointly interested in maintaining them. When England does this her difficulty as to sanitation will vanish.

Dr. Woodcock of Leeds spoke of contracting the disease in houses. He also said that in Leeds the mortality of Jews was excessive. They were mostly tailors and he supposed it would be said they worked amidst infected dust.

Dr. Scurfield, in the course of his reply, said that phthisis among women in Sheffield was less than in most other towns and yet there was this enormous amount among the grinders, who did not pass it on to their wives, but did to their fellow workmen. If dust was not the cause, what was?

Medical men connected with or interested in missionary societies have of late recommended antityphoid inoculation to those about to engage in mission work where the fever is more or less endemic. The matter has been laid before those concernd by Dr. Hingston Fox, who has contributed an interesting paper on it to the *Journal of Tropical Medicine*. He shows that missionaries are more subject to typhoid than even soldiers. Of sixty-three stationed in Central India eleven were attacked by enteric fever, of whom one died and two were compelled to give up mission work. In Madagascar seven cases occurred among fifty-three missionaries, one fatal. Dr. Fox says that Sir A. Wright's inoculation reduces the liability to contract the disease by about one-third. He describes the preparation and standardization of the vaccine and the mode of inoculation with other details, for which those interested are referred to the journal above quoted for last month.

A further decrease in the population of Ireland is reported for 1907, though there was an excess of births over deaths of 24,408. The loss by emigration amounted to 39,082, which is above the average of the ten previous years. The deaths equaled 17.7 per 1,000, which is 0.2 under the average. There was no death from rabies, the country having been free from that since 1898, when four deaths were returned as due to it. Deaths from the effects of alcohol show an increase. Excessive mortality from tuberculosis is again reported, although it may be hoped that the inauguration by the Countess of Aberdeen of a Women's Health Association for Ireland and the tuberculosis exhibition held in Dublin will show some effects in the next report.

The Local Government Board issues this week a circular on food inspection. The value of our food imports exceeds £200,000,000 and the instructions and advice to local authorities concern more than half. It is expected that the effect will be to secure the purity of the food of the people. The investigations on which it is founded were undertaken in consequence of a "scare" two years ago.

Thomas Orme Dudfield, M.D., St. Andrews, died on the 30th of July, aged 75. He was for many years Medical Officer of Health for Kensington and took a most active part in all matters relating to sanitation and local government. He was a past president of the Society of Medical Officers and he represented them on many occasions to the local and general government. On all questions of medical politics he was an able and thoughtful authority.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 3, 1908.

Deceptive Conditions in the Hip-Joint.—Histories of five cases are given by R. Hammond, who says that a diagnosis based on clinical signs and symptoms alone will not always be an accurate one. Of the cases reported, the first illustrates a tuberculosis of the hip following fracture of the femoral shaft, the picture being completed by the result of the *x*-ray examination and the tuberculin test. In a second case tuberculosis of the hip followed a fall. A diagnosis of fracture of the femoral neck was suspected, but none found. In a third case hip disease was suspected, but the radiograph showed an old fracture of the femoral neck. In the fourth case osteomyelitis was found just below the great trochanter. In the fifth case there was a traumatic separation of the epiphysis of the upper end of the femur which from the history and symptoms might have been confused with tuberculosis except for the use of the *x*-ray, and the tuberculin test. The author adds that tumors involving the bone, both benign and malignant, in the early stages are frequently confused with tuberculosis and all the methods of diagnostic precision which we possess often fail of an accurate diagnosis. This is especially true in the case of benign bony tumors and bone cysts, which often present the greatest difficulty in correct interpretation.

Erythema Multiforme with Visceral Lesions.—J. N. Hall refers to Osler's collation of cases of this association, and adds two personal observations. In his first case, that of a male of 23 years, who, in addition to his dermatosis, presented evidences of a parenchymatous degeneration of the kidneys, with colicky paroxysmal pain at the epigastrium similar to that seen in locomotor ataxia, gallstone disease, gastric ulcer, appendicitis, etc., but under treatment directed to the dermatosis all the abdominal symptoms cleared up. In his second case, a male of 29 years, the dermatosis came on after eating strawberries not quite ripe. Considerable edema existed about the wrists for one or two days. A single ecchymosis was present under the mucous membrane of both upper and lower lips. Sharp nose bleed occurred. Severe arthralgic pains caused much complaint. The temperature rose as high as 103.8 degrees, declining gradually to normal on the tenth day. The pulse varied from 80 to 120. The patient was semicomatose during the first two or three days, awakening to complain of frightful headache and photophobia. The neck was retracted, there was stiffness in the muscles of the back, and knee jerks were exaggerated, and an imperfect Kernig's sign was stated to have been present. Very marked hyperesthesia existed over the face and neck so that the lightest touch was painful. The Widal reaction was negative and the spleen was not enlarged. The heart was negative. On the fourth day a spinal puncture was made with rather unsatisfactory findings, but on the sixth day perfectly clear fluid was obtained containing no microscopic evidence of meningitis. Flexner's serum for cerebrospinal meningitis had been sent for, but was not used. After the spinal punctures the comatose condition cleared up, but the headache persisted. The urine was negative throughout; no gastric or intestinal symptoms appeared. By the tenth day the fever had practically subsided. Recovery was uneventful.

New York Medical Journal, September 5, 1908.

Carsickness.—W. C. Wood attributes carsickness to the nystagmus produced by looking out of the car windows. Look out of a car window and observe how rapidly the telegraph poles flit by; each one is seen and involuntarily followed by the eye until it is opposite, when the eye shifts to the one following. This is true of near buildings; objects farther away seem to move slower, and those very far off seem to be almost stationary, until the whole landscape appears to be revolving round a common center. The unconscious effort to take in everything produces a rapid lateral oscillation of the eyeballs, as any one can observe by watching the eyes of his fellow passengers. The eye strain is enormous, and is the chief factor in producing carsickness. This can be proved by asking a patient who is subject to carsickness to look steadily at a mirror which is moved rapidly to and fro or tilted backward and forward. He will immediately complain of nausea and vertigo. The treatment consists in advising the patient to avoid looking out of the car windows and in giving him a grain of citrated caffeine shortly before he takes the cars, and repeating it every hour as long as there is any tendency to be sick. The author has been enabled by this procedure to relieve many sufferers from carsickness.

Preliminary Report on the Effect of Repeated Injections of Tuberculin on Lymphatic Organs.—This report is made by S. G. Dixon, A. J. Smith and H. Fox, who say that the condition of the spleen in guinea pigs after treatment with tuberculin or some producer of the tubercle bacillus like it suggested that this organ might be the seat of some pathological change after injection of these solutions. The question actually arose whether the inexplicable deaths among cattle after testing might not in some way be connected with this substance. In the course of their work in this laboratory they have repeatedly encountered focal necroses in the spleen, and occasionally in the liver of guinea pigs and rabbits dying of the injections of the various tuberculins. These necroses were suggested by the naked eye appearance. The lymph nodes were not attacked by these areas, even those in close proximity to the point of inoculation. The foci of necroses were not sharply outlined, but usually were surrounded by large lymph cells or endothelium. Around the older ones was sometimes a zone of polynuclears and round cells, rather indicating a throwing off of the necrotic remains. The endothelium was almost always slightly hyperplastic. In order to see if severe treatment of a healthy cow with tuberculin would produce anything similar to this an animal was injected six times, two weeks apart, with 400 milligrammes of old tuberculin under the skin. She did not react at any time. She was killed two weeks after the last dose and at autopsy appeared to the naked eye to be a healthy animal. The pathological histology of spleen, lymph glands and liver is described in full. The prescribed treatment in this animal did not produce any distinct focal necroses. There was, however, a tendency to hyperplasia of the endothelium which went on to vacuolization and necrosis. This was more diffuse than usually seen in guinea pigs' spleen and affected frequently the sinus and endothelium. Although the endothelium has suffered in both the guinea pigs and the cow, no hemorrhages were present either great or small, thus speaking against any lytic change. The phagocytosis and pigmentation rather lead the authors to attribute the degeneration to great proliferation incident to the toxemia.

Tuberculin an Adjunct to the Home Treatment of Pulmonary Tuberculosis.—J. A. Miller reports on 46 patients whose treatment was continued for a period of six months. Some were treated in their homes and some at various clinics and hospitals. Three main principles guided him in the selection of cases: (1) No early or favorable cases for whom sanatorium or other climatic treatment was available were kept in New York. (2) No cases with fever were treated, with two exceptions. (3) Tuberculin treatment was urged only for patients who were not progressing favorably without it. As a result of these three principles the patients treated have been largely long-standing advanced cases, who were gradually drifting into more or less chronic invalidism. The author then takes up successively the questions of varieties of tuberculin used, dosage, guide to dosage, etc. In the forty-six patients under consideration, the following results have been obtained: Four patients (8.7 per cent.) were apparently cured; in eleven patients (23.9 per cent.) the disease was arrested; nine patients (19.6 per cent.) were improved; eleven patients (23.9 per cent.) were stationary; eleven patients (23.9 per cent.) were progressive. As far as statistics go it would seem that any form of treatment must have considerable efficacy which is able to show the improvement in condition, with such a degree of permanency in such a class of cases, and under such conditions as are here reported. As to clinical impressions, his experience has included several patients in whom the results of the tuberculin appeared truly remarkable, in some others there has been distinct disappointment especially in a few which seemed at first to do exceedingly well, and then relapsed later, just as is customary in tuberculosis, but which we would hope not to find when any degree of immunity had been established. It cannot be too strongly emphasized that if good results are to be obtained by therapeutic use of tuberculin, the

greatest patience and care must be exercised in every particular. The dilutions should be made only by some one who is skilled in such work. Any evidence of intolerance must be carefully noticed, and the progression of dosage correspondingly regulated; and lastly and perhaps most important the duration of treatment must be extended over a very considerable time, preferably from six months to a year.

Journal of the American Medical Association, September 5, 1908.

Esophageal Surgery.—N. W. Green and J. W. D. Maury tell their experiences in the experimental surgery of the esophagus and illustrate the apparatus employed. They operated in two ways. In one the esophagus was sectioned, reuniting the proximal end with the cardia of the stomach; in the other, there was a side tracking of the cardiac orifice similar to the method of Biondi, using during these procedures an apparatus for artificial respiration using positive pressure, which is described in the *Annals of Surgery*, October, 1907. The sectioning was done with the aid of sutures and the Murphy button which has the merit of making a continuous tight joint. Their experience leads them to believe that a mechanical device that makes an anastomosis with absolutely no soiling of the serous membrane, forming also a tight joint, will prove of the greatest value in preventing infection. Dead spaces in the chest should be overcome as much as possible at the termination of the operation by increased air pressure. They speak of the absence of omentum with its coapting power as a disadvantage, and in one instance they have carried omentum into the chest and applied it to the wound. The constant motion of the diaphragm may interfere with proper union, and they have stretched it on the operated side and interrupted the function of the phrenic nerve in an effort to overcome this factor. They describe in detail one method of operating which has been very satisfactory in their hands.

Recumbency in Convalescence.—C. C. Frederick advocates keeping patients in bed after abdominal operations for a longer time than is now advised by many operators. With the exception of appendectomies, not acute, he would say that no patient after abdominal section ought to be allowed to be up before the lapse of from sixteen to eighteen days. The reasons he gives are the incompleteness of union before that time with the consequent greater risk of hernia, and the need of such a period of rest in the usually debilitated state of the patient. Since following this rule he has not had 1 per cent. of hernia in his abdominal cases, and, while the use of the buried suture has contributed, he lays this success largely to the longer recumbency. Of course, in a person operated on in full vigorous health the second reason does not apply to the same extent, but the danger of hernia is still present.

Surgery of the Thorax.—E. F. Sauerbruch describes his device of a pneumatic cabinet to avoid the danger of pneumothorax in operations on the thoracic organs and the rules to be followed in its use. It is remarkable, he says, how little of the anesthetic is required and then only at the times of opening and closing the thoracic cavity. Between these very little is needed. It has been found unwise to reduce the pressure more than from 7 to 8 mm. Hg, and Friedrich has had excellent results with a negative pressure of from 3 to 5 mm.; in fact, such a minimum pressure should always be employed during intrathoracic operations, as on the esophagus or lungs, or when it becomes necessary to expose the mediastinum. Before concluding the operation, however, it is essential to raise the pressure to 7 or 8 mm. so that the lungs will be fully expanded and completely fill the chest cavity. The strictest asepsis is as important as in abdominal operations, and complete hemostasis is of the utmost importance so that as little blood as possible enters the thoracic cavity. As regards the indications for this method, he says that it is particularly applicable for the removal of large tumors of the chest wall, lessening the dangers and rendering it possible to operate more extensively, and the contraindications are fewer. If, in spite of care, the pleura is injured, the apparatus will prevent the occurrence of pneumothorax. Its possibilities in the treatment of pulmonary tuberculosis will increase, but too much must not be expected; in fact, he believes that in such cases thoracoplastic operations will give better results. Excellent results have been obtained with the method in empyema, and it has great advantages in the surgery of deep abscess and gangrene of the lung. Changes of dressings, it has been shown by experience, should be made in these cases, at least in the beginning of the after-treatment, under negative pressure, not because of pneumothorax, but solely because it tends to remove blood and pus from the bronchi. In bronchiectasis it is applicable only when the lesion is isolated in one lobe of the lung. The method is useful in operating for intrapleural injuries, and it is especially indicated in operations on the intrathoracic portion of the esophagus, and Sauerbruch has developed a technic which makes it possible, at least in animals, to resect large portions of the esophagus. The essential feature is the avoidance of sutures and the use of the Murphy button for the anastomosis. Gastroesophageal anastomoses and resection of the cardia have been performed on man. The operation is described. The surgery of the heart is the least advanced of this new method of using negative pressure, as heart injuries are always emergency cases. In closing, Sauerbruch speaks of the value of exploratory thoracotomy in clearing up doubtful diagnoses, which he considers more often justifiable than has been thought to be the case.

Serum Diagnosis of Syphilis.—W. J. Butler gives the history and describes the complement fixation test of Wassermann and reviews the literature of the serum diagnosis of syphilis. He holds that the large proportion of positive results in luetic and suspected luetic cases, and the uniformly negative results in controls, indicate the specificity and reliability of the Wassermann test. Butler has used the test in 125 cases, but in 20 of these syphilis could reasonably be excluded, all of which reacted negatively. The other 105 are grouped under two heads, with subdivisions: 1. Cases of manifest or suspected syphilis and cases with a syphilitic history. 2. Cases with lesions of the nervous or cardiovascular system in which syphilis was neither acknowledged, denied, suspected or unsuspected. In the first division there were 61 cases: 4 in the primary stage, all positive; 25 in the secondary stage, 24 positive, 1 negative; 17 in the tertiary stages, 16 positive, 1 negative. Of latent cases, there were 15; 8 positive, 7 negative. In the second division there were 44 cases; positive reaction in 75 per cent. Of these, 40 per cent. had either no knowledge of infection or denied it. Butler summarizes his conclusions as follows: The serum reaction for syphilis is specific. It is found positive in from 90 per cent. to 95 per cent. of all cases with syphilitic manifestations. It is found positive in 50 to 60 per cent. of latent cases. It is found positive in from 70 to 80 per cent. of metasyphilitic and parasyphilitic diseases. In many cases the reaction is influenced by treatment of the patient, and it is not improbable that this number would be greatly increased if the reaction were pursued throughout prolonged treatment. A positive reaction indicates activity of the specific virus, and is an indication for specific treatment. While a positive reaction indicates syphilis, a negative reaction does not have an equal negative value. Its failure does not warrant any judgment as to cure. It is diagnostic simply of a systemic infection, whether this be acquired or inherited. The reaction will be found of enormous advantage in the determination of a differential diagnosis in every department of medicine.

Causes of Edema.—Martin H. Fischer discusses the nature and cause of edema. The cause, he asserts, resides in the tissues. The tissues become edematous, not because water is forced into them, but because they absorb water from liquids flowing through or about them. He relates in detail his experiments with frogs. In regard to the character of the tissue change, he states that it is clearly shown by these experiments that the severest grades of edema may exist without the presence of any "blood pressure" or a demonstrated "increased permeability of blood vessel walls." Edema, he believes, represents nothing but an increased affinity of the tissue colloids for water. If this theory be true, he declares that it must be possible to prove three things: First, that protoplasm is colloidal in substance; second, that in the variable affinity of colloids for water we have a force of sufficient magnitude to account for the maximum amount of water ever found absorbed by tissues in a state of edema; third, that conditions leading to an increased affinity of their colloids for water exist in the tissues under circumstances associated with the development of an edema. He briefly considers each of these possibilities and in regard to substances which increase the affinity of the tissues for water, he states that, with the exception of alkalies, acids, including carbon dioxid, are the most powerful substances known for increasing this affinity. And it is either the retention or production of acids in the tissues as rendered possible in conditions leading to an edema that he sees the chief cause for its development. He directs attention to the fact that dead bodies kept in water become edematous and states that this is because after death the tissues become acid and absorb water from their surrounding medium. For the same reason, gangrenous tissue swells if a source of water be furnished either from without or through the lymph or blood vessels. This conception of edema, he asserts, holds good for local as well as for generalized edemas. He cites glaucoma as a form of local edema and also the imbibition of water by the crystalline lens.

British Medical Journal, August 22 and 29, 1908.

A Third Report on Clinical Experiences with Spinal Analgesia.—Arthur E. Barker makes this third report with a third series of one hundred cases. A study of these three hundred cases appears to possess a certain value, although it would seem premature to adopt any decisive attitude towards this comparatively new procedure. It is still *sub judice*, and must long remain so. In this last series of one hundred cases there was a larger number of very serious abdominal operations, among them several enterectomies—one removal of the splenic flexure of the colon for cancer, one abdominal hysterectomy and pyosalpinx in the same case and at the same sitting, one ectopic gestation, etc. But throughout from time to time cases have been noted in which marked pallor came on soon after the injection, though there were no fatal results from it. Faintness has been followed usually by slight retching, and then a rapid return to comfort. There was no fatality among the three hundred cases due to the spinal analgesia. He regards the procedure as not without serious risk in debilitated patients where the upper part of the abdomen has to be dealt with. This is far from being the case. It was a remarkable fact that several cases had been in a very perilous condition of asthenia before operation, and have taken no harm from the spinal analgesia, while showing in their subsequent recovery an absence of those troubles from shock, vomiting, etc., so often seen after chloroform. From his own experience he says he is inclined to advise beginners not to use the method in extremely debilitated patients for severe operations on the abdomen requiring high analgesia. Their best results had been in operations below the umbilicus, and best of all on the pelvic organs.

Some Lessons from Ancient Fractures.—Frederic Wood Jones reports on a collection of two hundred cases of bones that have been broken in ancient times and have healed. These fractures were collected from a series of upwards of six thousand bodies buried in the Nubia that lies between Sheilal and Demhid and they are from representatives of all periods between the early predynastic times (the earliest period from which human remains have come down to us, *circa* 4000 B. C.) and the Christian era, until about the fifth century after Christ. They therefore cover a period of history of the human race of considerably over four thousand years. The most striking difference is seen in the figures relating to the fractures of the patella, and of the tibia and fibula. All fractures below the knee were very rare. The reason probably is that these people went barefooted, and lived at a time when there were no stairs, curbstones, or pavements. Fractures of the foot probably owed their rarity to the fact that wheeled traffic was absent. The two fractures that were notably more common in ancient Nubia were those of the forearm and of the clavicle. This was probably due to the use of the "naboot," a long stick, the Nubian's constant companion. The results of union of bone shown in their series are quite as good as those obtained by the surgical treatment of to-day.

Hyperpyrexia.—James Smith reports the case of a woman, twenty years old, who gave a clinical picture striking and suggestive. Commencing with a septic throat, followed after a short interval (during convalescence) by acute rheumatism, and culminating in extreme pyrexia (108.6° F.) and convulsions. It seemed probable that more than one toxin was active and contributory.

Rectal Injection of Bromides in Puerperal Eclampsia.—F. J. Jones reports the successful use of this remedy in the case of a primipara of 21 years. Just as the presenting part (breech) was born the first convulsion occurred. Chloroform was immediately given and the labor hurried to completion. A second convulsion occurred soon after and in spite of morphine by hypodermic use and bromides by the mouth, a third in about twelve hours. She was getting stupid and could not take medicine by the mouth. So the reporter washed the bowel out, gave half a dram of bromide with ten minims of belladonna tincture by rectum. No more convulsions occurred. The urine was loaded with albumin. Recovery was uneventful.

Bilharziosis of the Gastric Mucous Membrane.—The specimen referred to by A. W. May was from the stomach of a Chinaman. The naked eye appearance was that of a small pedunculated cystic growth about the size of a small bean, covered by the gastric mucosa. On section a distinct cystic condition and a small amount of a greenish-yellow fluid with a distinct butyric odor were seen. Microscopical examination of this fluid showed the presence of considerable numbers of terminal-spiked ova, typical in every respect, except that the spines had the appearance of being rather shorter than those found in other situations. Sections examined microscopically showed the tumor to consist of an outer covering of mucous membrane, with a distinct connective tissue capsule lining the cyst cavity. No ova were embedded in either of these structures.

Treatment of Bubonic Plague.—B. L. Paton observes that there are doubtless many cases of this disease in which treatment has been successful, though one very seldom sees reports of such cases. His own plan is to give one grain of carbolic acid in pill or mixture, every hour, and to inject the bubo with a varying quantity of the same drug in proportion to its size. From 2 to 15 mm. is about the range as to amount used. Several epitomized clinical histories are given. The author says that in his successful cases the gland or glands affected have always been *below* Poupart's ligament. It is important to keep an eye on the urine when carbolic acid is prescribed in such large amounts, as it is quite possible that some cases have died of the treatment where this precaution has not been attended to. As long as there is a free flow of urine of normal color the treatment is not doing any harm.

Treatment of Chronic Empyema by Hyperemia and Hypertransudation.—According to J. S. Dick there is a practical consensus of opinion that drainage adequate to the size and position of the opening and the length of time it is maintained, is the first condition of cure. He relates the history of a case of empyema following pneumonia. Two years from the onset of the latter disease and nine months from the first operation for drainage, there still existed a cavity with a capacity of over two drams and secreting one dram of pus daily. It had been in this condition for three months. Under these circumstances an attempt was made to effect a cure by increasing the transudation of blood to the infected area. A cupping glass, with rubber exhaust, was employed, of suitable shape and of such a size as to include the sinus and portion of the chest wall bounding the cavity externally. Its application at first was rather painful. It is necessary, however, in such a case, to distinguish between the pain from pressure and the pain from suction, when the area surrounding the sinus is more or less tender. While the cupping glass was in use the patient inflated a football (as he had previously been in the habit of doing for months), in the hope of securing a further local reexpansion, or, it may be, a localized emphysema of the portion of lung abutting on the cavity. The cavity was filled daily with a sodium citrate-chloride solution and the first effect was a notable diminution in the amount of daily discharge. In two months the cavity was quite dry. The author quotes Mr. Godlee as saying that "If we suppose a case in which the various walls of this cavity have been drawn in to the utmost possible extent, there is nothing further to trust to, if things be left alone, than the filling in of the cavity with granulations. Now, when this has gone on to a certain extent, a degree of tension is established which effectually prevents a continuation of the process. A state is then reached in which the pleura becomes lined with a perfectly smooth surface—secreting pus, indeed, but showing no signs of developing fresh granulations." Dick adds that one might suppose (1) that the negative pressure secured by the use of the cupping glass would contribute something in this direction, (*a*) by favoring local pulmonary reexpansion, (*b*) by the induced hyperemia stimulating granulation; (2) that the hypertransudation, which ensued upon the installation of the sodium citrate-chloride solution, would, in conformity with recent pathology, be credited with an inhibition of bacterial activity and a diminution of the tryptic potency of the pus—thus rendering fresh granulations less liable to erosion.

Deutsche medizinische Wochenschrift, August 20, 1908.

Infection with Vaccine.—Eichhoff reports the case of a child in whom vaccination was delayed because of a general eczema from which he was suffering. However, on being bathed in the same tub with his brother who was recently vaccinated, the child received a general infection with the vaccine most of the eczema lesions changing into vaccination pustules. The regional glands were markedly swollen and the temperature elevated. In fourteen days the disease was ended, but numerous scars all over the body were left.

Blood Modifications in Infantile Scurvy.—Prosper Merklen and Leon Tixier made daily examinations of the blood formula in a case of infantile scurvy, before and after antiscorbutic diet, and the use of iron. The blood formula showed constantly a diminution of hemoglobin, but the hypoglobulia, which is usually found, was not constant, and varied with the administration of the iron. After it had been taken for ten days, the formula was normal with regard to red blood cells, showing the value of the use of iron. There was a myeloid reaction shown by the presence of myelocytes, which occur with infections of some duration. The patient suffered from painful pseudoparalysis, and extreme anemia, but showed no hemorrhages.—*Gazette des Hôpitaux*

Book Reviews.

Lehrbuch der Ohrenheilkunde. Von. Dr. Georg Boenninghaus. Berlin: S. Karger, 1908.

This new textbook is intended for students and practitioners. It covers the subject fairly thoroughly in 375 octavo pages. Especial mention should be made of the 140 drawings admirably chosen and showing originality on the part of the author, and of the plate of drum membranes unusually well colored. Except for special details the anatomy is omitted. The description of otoscopic findings is especially good and indicates individual research on the part of the author. Some of the subject matter is both original and, as a whole, up to date. The chapter on functional tests is good both for hearing and equilibration and contains matter far superior to anything that is to be found in English textbooks. The chapter on diseases of the external ear covers the ground well; that, too, on diseases of the inner ear is very satisfactory. The technique and treatment of middle-ear diseases is especially well done, but the description of mastoiditis is too cursory to be valuable. There follow a chapter on central deafness, one on deafmutism, and a short chapter on forensic otology. The book closes with a chapter 16 pages in length in which the subject of operative technique is very insufficiently treated.

School Reports and School Efficiency. By David S. Snedden, Ph.D., and William Allen, Ph.D. for the New York Committee on Physical Welfare of School Children. New York: The Macmillan Company, 1908.

This book is the result of an effort made by the committee named in the title to secure an establishment of an improved system of school reports, that would clearly disclose the various data of interest concerning the New York Public Schools. This effort followed the recognition of the fact that in the present chaotic system of reporting school doings, the publicists, the parents, and all other interested citizens cannot obtain clear ideas as to condition of the schools nor defend by statistical data any changes necessary for the improvement of the public schools.

The book opens with an historical study of the development of school reports during the last century. The succeeding chapters present examples of tables and other forms used in some of the best reports of Detroit, Buffalo, New York, etc. Then follow lists of legitimate questions, some of which are answered in most reports, others are occasionally answered, and others are never answered. Many economies and improvements are then suggested, first in a general way and then in a practical study of a New York City School Report for the year ending July 31, 1906. The mistakes and blunders detected are numerous enough to impress the reader that speedy remedial action is necessary both to save waste in the moneys provided by the taxpayers for the maintenance of the schools, and to furnish support to those who, having the best interests of the schools at heart, strive for progress in the great public school system of our city. The subject of the volume is not limited in its interest to any one profession; it concerns deeply all good citizens and a study of it is as important to the physician as to any other member of the community.

Treatment of Internal Diseases; For Physicians and Students. By Dr. Norbert Ortner, of the University of Vienna. Edited by Nathaniel Bowditch Potter, M.D., Visiting Physician to the New York City Hospital, to the French Hospital, and to the Hospital for Ruptured and Crippled; Instructor in Medicine, Columbia University. Translated by Frederic H. Bartlett, M.D., from the fourth German edition. Philadelphia and London: J. B. Lippincott Company, 1908.

From the editor's preface we quote the following, which will give our readers an adequate idea of the volume: "The scope of the book is indicated in its title: prophylaxis is discussed in but few sections. The author initiates the reader into as much of the pathological physiology of the diseases discussed as bears upon their rational treatment. He very properly emphasizes throughout the volume the importance of the mechanical, dietetic, climatic, hydrotherapeutic, and other extramedicinal methods, with judicious reasons for those selected, and follows with a discussion of the applicability of certain drugs, their respective advantages, disadvantages, and limitations, adds useful prescriptions from his own experience, and that of others, and leaves the reader better armed to meet the etiological indications and the various contingencies which arise and require symptomatic treatment." The editor has done very much more than merely to append his name to the title-page of the work. On nearly every page he has added notes suggesting differences of opinion, criticisms, and additions from authoritative American and English writers; and much of the value of the book is due to his careful and judicious work. The volume is a veritable encyclopedia of treatment, written by a therapeutic enthusiasist who errs, perhaps, by suggesting or naming too many drugs and preparations. Many of the remedies mentioned will shock those who consider it heresy to save a patient's life by means of any drug not stamped with the *sumatur* of the Chicago Council of Pharmacy and Chemistry; but the book will be of much value to every physician whose first aim is to cure or relieve his patients, and who in the discharge of such duty cares not for such "authorities," self-constituted or otherwise.

Golden Rules of Dietetics. The General Principles and Empiric Knowledge of Human Nutrition; Analytic Tables of Foodstuffs; Diet Lists and Rules for Infant Feeding and for Feeding in Various Diseases. By A. L. Benedict, A.M., M.D., Buffalo, Member of American Academy of Medicine, and of American Gastroenterological Association, etc. Author of Practical Dietetics. St. Louis: C. V. Mosby Medical Book & Publishing Company, 1908.

The first portion of this book is given up to the consideration of the daily requirements of the human body in foodstuffs, the standard diet in health, and the composition and preparation of various foods used by man. General hygiene of nutrition is then followed with a number of diet lists taken from many different sources. The rest of the book is devoted to the consideration of the various diseases from the standpoint of the diet best suited to the pathological condition of the gastrointestinal system and the organism in general during the continuation of the disease and in convalescence. An appendix gives directions for preparing the most important and most frequently used dishes, and furnishes a table of foods with the number of calories in a standard portion of each. The book is not intended to take the place of larger treatises on the science of nutrition, but to serve as a ready guide to the physician and the nurse in providing for the adequate and rational feeding of the patient. It forms a very practical manual containing in succinct form the accepted principles of the science and art of dietetics.

The Sexual Question. A Scientific Psychological, Hygienic and Sociological Study for the Cultured Classes. By August Forel, M.D., Ph.D., LL.D. New York: Rebman Company, 1908.

The author of this work is a pronounced idealist and dreamer, and we find him expressing ideas and opinions out of all agreement with present teaching. He advises how to avoid conception in case pregnancy is undesirable; he does not think it altogether wrong for a husband to have intercourse with a woman not his wife, and he believes that love is an irradiation of sexual appetite. But in spite of these revolutionary statements, the volume is entertaining and instructive, and shows a wonderful knowledge of human nature. The entire subject has been studied from every side and not a point is left untouched.

Surgery. By John Allan Wyeth, M.D., LL.D. (University of Alabama); President of the New York Academy of Medicine; President of the Medical Faculty of, and Surgeon-in-Chief to, the New York Policlinic Medical School and Hospital; ex-President of the American Medical Association, of the New York State Medical Association, and of the New York Pathological Society; formerly Attending Surgeon to Mount Sinai and to St. Elizabeth's Hospitals; Honorary Member of the Texas State Medical Association and of the Medical Society of New Jersey; Author of "Essays in Surgical Anatomy and Surgery;" awarded the first and second prizes of the American Medical Association in 1878, and the "Bellevue Alumni Association Prize" in 1876, etc. With 864 illustrations. New York: Marion Sims Wyeth & Company, 1908.

Dr. Wyeth's well-known "Text-Book of Surgery," which first appeared in 1887, and has seen several new editions since, appears now with the new title transcribed above and is issued by a new firm of publishers. This edition is practically a new book, most of the text having been rewritten, and many new illustrations added. The latter are especially good in such chapters as require descriptions of the surgical anatomy of an operative field. The text is concise, well arranged, and very readable. It covers the whole ground of modern surgery, more attention being given to the practical side of the subject, that is, to the symptoms and treatment of surgical affections, than to the pathology of them. There are chapters on such special surgical fields as the eye, the ear, and the male and female genitourinary organs. The index is quite complete and allows the use of the volume for quick reference, but we miss a table of contents giving a general view of the subjects treated. On the whole, Dr. Wyeth's book compares very favorably with other one-volume text-books on surgery and may be recommended to students or physicians looking for such a work.

Society Reports.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-third Annual Meeting, Held at Philadelphia, Pa., May 26, 27, 28, 1908.

THE PRESIDENT, DR. J. MONTGOMERY BALDY OF PHILADELPHIA IN THE CHAIR.

(*Concluded from page* 468.)

President's Address.—President BALDY in his address discussed the general policies, advances, and failures of the past, as well as the duties of the future. The objects of the society were of a mixed character, scientific and social. The social side brought men together, gave opportunity for personal contact and the estimate of personal worth, and no better way existed of discovering an individual's professional capacity than to become acquainted with his methods of thought, accuracy of observation, and process of reasoning as applied to those everyday affairs with which everyone, scientist or layman, was equally well acquainted and of which he was equally competent to judge. In looking over the field of endeavor for the past year he found nothing new advanced, nor any startling improvement on the old. After a decade of obstetrical and gynecological activity, unprecedented in any branch of medicine, he said that gynecologists were like wise men who seemed to be resting, retrospecting, and putting their houses in perfect order before proceeding further. Notwithstanding this, the signs for the future were bright, and when it was noted on the one hand the activity of the obstetrical world in that great undertaking, the prevention of blindness at the beginning of life, and the activity of the gynecological world in the fight against cancer, we might look with complacency upon the criticism which had predicted the end of gynecology as a specialty. President Baldy then discussed the general administration of anesthetics as performed to-day, and expressed the hope that an anesthetizer would be placed in each and every hospital in the land with a salary of sufficient size to attract to the service men or women of proper intelligence. Many brainy women fully capable of being trained to give anesthetics had entered the nursing profession and it was from this source we must look for a solution of the difficulty. Women were being tried and were proving most satisfactory as anesthetists, and it would be a bright day of advance in the technique of the operating room when their services were more generally adopted.

The Development of the Technique of Gynecological Operations.—Dr. AUGUST MARTIN of Berlin, Germany, presented a review of the work done by gynecologists in the past fifty years, and said the basis of the increasing value of gynecological operations was the advance in anatomy, normal and pathological, and in diagnosis. Asepsis insured surgical results. He said there were two routes in the front of discussions regarding operation to-day, the abdominal and the vaginal, and he described the indications and limitations of each.

Abdominal and Vaginal Gynecological Operations; Their Indications and Techniques.—Dr. F. PFANNENSTIEL of Kiel, Germany, followed with a paper on this subject in which he pointed out that either method was available for the majority of gynecological operations. The route which gave primarily and secondarily the best chances for life and health for the patient was to be preferred. In all intraperitoneal procedures the best chances were given by abdominal celiotomy, as it afforded a better opportunity for either radical or conservative work. In aseptic cases, tumors, extrauterine pregnancy, chronic inflammations, malformations, etc., the abdominal route was preferable. In septic cases, when the indications were that the infectious matter could be completely removed, the vaginal route was preferred, unless a complete view of the whole field of operation and its surroundings was necessary. Except in early invasion of the cervix, all cases of cancer were better treated by the abdominal route; also when involvement of the appendix was suspected. Vaginal operation accomplished most in all cases of prolapsus or descensus (genitoptosis) and movable retrouterine displacements. Here neither suspension nor the Alexander operation with or without colporrhaphy was permanent. Anterior and posterior vaginal celiotomy were used, sometimes the one, sometimes the other, and, if necessary, both. The author then pointed out the advantages of the Pfannenstiel transverse abdominal incision.

Vertical and Horizontal Amputation of the Uterus.—Dr. HOWARD A. KELLY of Baltimore said that supravaginal hysterectomy in women under forty was too radical if it could be avoided. He spoke of subsection of the body of the uterus as being a better plan, retaining the uterine mucosa, cutting the flow down to normal, and preserving the function of menstruation. He then described the methods of vertical and horizontal subsection of the uterus.

Cesarean Section Necessitated by a Previous Ventrofixation.—Dr. EDWIN B. CRAGIN of New York said that the fact that dystocia following ventrofixation should occur six times in the experience of one man, and be so marked as to indicate cesarean section, was sufficient evidence of the frequency of this sequel to the operation. As these fixation operations were all performed by different operators, the personal equation was eliminated. In spite of attention being called to the possibility of this unfortunate sequel to ventrofixation, ventrosuspension was still quite frequently performed. An intended ventrosuspension might become a ventrofixation by accidental wound infection. A ventrosuspension, which allowed an easy labor, if a febrile puerperium occurred in the first postoperative confinement, might become a ventrofixation and demand a cesarean section for the next delivery, as occurred in the last of this series. During the child-bearing age, ventrofixation was not a safe operation for posterior displacement of the uterus.

Is Pubiotomy a Justifiable Operation?—Dr. J. WHITRIDGE WILLIAMS of Baltimore in a paper on this subject stated that in thirteen operations performed by him or his assistants there were no maternal deaths, only one woman being seriously sick. All of them began to walk by the end of the third week and were dismissed in good condition less than one week later. In one-third of the cases there was permanent mobility between the cut ends of the bone. This did not interfere with locomotion, and possibly played a part in permitting subsequent spontaneous delivery in one patient. The operation was contraindicated when the conjugata vera measured 7 cm. or less, and consequently did not enter into competition with cesarean section, except at the uppermost limit of the classical indication. It was particularly applicable to the "border-line" cases, as it afforded a safe method of delivery after subjecting the patient to the test of several hours in the second stage; whereas the mortality of cesarean section rose steadily with each hour elapsing after the onset of labor. If pubiotomy fulfilled its present promise, it should entirely do away with the induction of premature labor in the treatment of contracted pelves.

An Experimental Study on Hemorrhage Following the Cutting of the Uterine and Ovarian Arteries in Dogs and Its Possible Bearing on Ruptured Ectopic Pregnancy.—Dr. HUNTER ROBB of Cleveland said that attempts were made to cause lesions in dogs which would correspond in severity to those present in cases of ruptured ectopic pregnancies in women. The experiments, which numbered in all twenty-nine, might be divided into the following series: (1) Division of the uterine and ovarian vessels. Not one of the fourteen dogs died as the result of the hemorrhage. Probably the woman rarely if ever died of the hemorrhage *per se*. (2) Division of the uterine artery producing shock. Secondary operation on the dog

while in a condition of shock. This single observation in which the dog died was at least suggestive in showing that there was danger in giving an anesthetic or in carrying out an operation while shock was still present. (3) Division of the uterine vessels and observation on the blood-pressure and hemoglobin. As would be expected, there was a fall in blood-pressure and hemoglobin percentage immediately after incision of the vessels; as soon as the hemoglobin percentage stopped going down the blood-pressure began to rise again. (4) Division of the uterine vessels and observations on the pulse, respiration, and hemoglobin, with especial reference to the timing of the clotting of the blood. Immediately after the cutting of the vessels the pulse and respirations had improved and the hemoglobin remained stationary. On opening the abdomen it was found that the bleeding had ceased and clotting had taken place. (5) Division of the vessels, observation on the pulse, respiration and hemoglobin before and after bandaging and after applying weights to the lower abdomen. The application of bandages and, better still, the application of weights to the abdomen improved the pulse and respiration and caused the hemoglobin to remain stationary, *i.e.* these procedures favored a cessation of the hemorrhage. (6) Division of the uterine vessels with the dog in the upright position; observations on the pulse, respiration, and hemoglobin. With the dog in the upright position the pulse and hemoglobin were kept in better condition than when the dog was allowed to remain in the horizontal position.

Assuming, then, that in these experiments conditions were produced similar to those occurring in ruptured ectopic pregnancies in women, the results suggested the following conclusions as being worthy of consideration: (1) A woman suffering from a ruptured ectopic pregnancy does not die from the hemorrhage itself. Death is caused by hemorrhage and shock, which might be increased by various procedures. (2) An immediate operation might add shock to shock and so prevent recovery. (3) The hemorrhage ceases in from fifteen to twenty minutes. The fact that the hemoglobin remained stationary showed that clotting had taken place. A hemorrhage that had ceased might be started up by manipulation of the tissues, and might thus be mistaken for a continuing hemorrhage. (4) The subcutaneous injection of salt improved the pulse and respiration and did not start the hemorrhage up again. (5) The use of bandages or proper weights by which the abdomen walls were approximated was likely to improve the condition of these patients.

The following papers were also read: "The Condition of the Mucosa in Cases of Uterine Myomata," by Dr. Thomas Cullen, of Baltimore; "Intraabdominal Pressure," by Dr. Richard R. Smith, of Grand Rapids, Mich. "The Surgical Treatment of Prolapse of the Uterus and Bladder," by Dr. I. S. Stone, of Washington, D.C.; "Endometritis Exfoliativa," by Dr. Hugo Ehrenfest, of St. Louis, Mo.

Officers Elected.—The following officers were elected for the ensuing year: *President,* Dr. J. Riddle Goffe of New York; *First Vice-President,* Dr. Howard A. Kelly of Baltimore; *Second Vice-President,* Dr. Malcolm McLean of New York; *Treasurer,* Dr. J. Wesley Bovée of Washington, D.C.; *Secretary,* Dr. Leroy Broun of New York; *Members of the Council,* Drs. George Tucker Harrison and J. Montgomery Baldy of Philadelphia. New York was selected as the place for holding the next annual meeting.

Epididymitis.—

℞. Extracti opii.....3ii.
Guaiacol. .....3ii.
Lanolin. .....3i.
M. ft. ungt.
S.: Apply locally.

—*American Journal of Clinical Medicine.*

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting, Held ot Montreal, May 11, 12, and 13, 1908.

(Special Report to the MEDICAL RECORD.)

DR. HERBERT S. BIRKETT OF MONTREAL, PRESIDENT.

(*Concluded from page 405.*)

Tuesday, May 12—Second Day.

Methods of Opening the Maxillary Antrum.—Dr. JOHN O. ROE of Rochester read a paper with this title and enumerated the various operations which have come into vogue during the last few years. He emphasized the advantages of the nasal route over all others. The success of this latter method no matter what special modification of it was followed depended on the freedom of the opening which allowed perfect drainage and gave free access to every portion of the cavity. The lower portion of the turbinate was removed first with either knife or scissors. An incision was then made through the periosteum down to the bone from behind forward, covering the entire length of the antrum. The first puncture should be made over the forward projection of the antrum and at this point the incision through the periosteum was turned downward as far the the floor of the nose. This flap was then raised from the bone, carrying periosteum with it, throughout this subturbinal portion of the wall and rolled into the center of the nose out of the way. An opening was then made into the anterior portion of the septum as close to the floor as possible. This was enlarged with any instrument preferred, the cavity was carefully explored, curetted, and dried out. The periosteum which had been raised from the inner wall was trimmed and then turned down over the stump of the wall and held there by iodoform gauze packing. Thus a uniform mucous surface was left and a perfectly free opening into the cavity. The patient could easily irrigate through such an opening himself and absolutely free drainage was maintained. Danger of recurrence was avoided, even in face of infection, and there was no necessity for an external operation. A new model of antral perforator was exhibited.

Dr. HARMON SMITH described the instrument which he was accustomed to use in perforating the antrum. He did not believe it very practicable to attempt to save the antral mucosa because we often pulled it away entirely in making the first change in the dressing. Dry packing was best.

Dr. W. E. CASSELBERRY believed that the best instrument was one which would cut forward after it had entered the antrum.

Dr. J. PRICE-BROWN of Toronto believed that such an instrument as Dr. Roe had presented was useful in chronic cases but there was some danger of atrophy resulting if a permanent connection between antrum and nasal fossa was made in young patients. In the latter class, the operation by the canine fossa route was preferable.

Dr. EMIL MAYER was in general strongly in favor of the intranasal route and wished to protest vigorously against the unclean habit of having the patient's mouth bathed with antral pus as was the case when the buccal route was taken. It was possible to cure chronic cases by intranasal drainage and he had had much satisfaction in using the chisel devised by Dr. Myles which had a large end and pulled forward, thus meeting the desideratum mentioned by Dr. Casselberry.

Dr. J. H. BRYAN named as an objectionable feature of the intranasal operation the fact that if the opening was made in the inferior meatus or in the region of the anterior extremity of the inferior turbinal, the opening thus left might prove of great embarrassment to the patient. This operation would not cure all cases, for we could not curette the entire antrum through the inferior meatus.

Only through an anterior opening could we remove all the diseased mucosa.

Dr. T. P. Berens of New York said we must determine whether the antrum was merely a pus reservoir or the actual seat of disease. The discharge might come from above and our procedure would depend on the finding as to this matter, in each individual case. Dr. Roe had not made it clear to the speaker just how he decided this point in diagnosis and selected his cases for the intranasal operation.

Dr. J. W. Gleitsmann was in accord with Dr. Bryan and said that what we needed was a more thorough knowledge of the etiology and diagnosis of these conditions and as simple methods of treatment as possible.

Dr. L. A. Coffin said that his custom was to do a radical frontal or ethmoidal operation on one side and treat the antrum secondarily, and do, as had been suggested by Dr. Bryan, the radical operation through the canine fossa opposite the middle turbinate.

Dr. E. Fletcher Ingals spoke of the excessive zeal of some men in the line of operating on sinus cases. One did not need a sledge hammer to drive a tack. He believed that 80 per cent. of antral cases and more than that number of frontal cases could be cured by a comparatively mild operation through the nose. It was better to act mildly at first for we still had the radical procedure in reserve.

Dr. J. H. Bryan believed it impossible to cure a chronic antral suppuration without a radical operation.

Dr. W. L. Ballenger of Chicago believed that a large percentage of inflammations, even chronic, of the cells draining anteriorly into the infundibulum could be cured without a radical operation. The ends to be attained were free drainage and ventilation, and even in the presence of granulation and bare bone, cure would result if we could establish the two conditions named. He had found radical operations necessary in only about three per cent. of a group of 200 cases.

Dr. Berens would admit that 80 per cent of all the cases we saw would recover without radical treatment but the objection to intranasal surgery in these cases was that we could not always see what we were doing. The dropping of pus into the mouth was not a necessary consequence of the canine fossa operation, for the canine opening could be stitched so as to prevent this.

Dr. Roe said, in closing, that he was accustomed to make a small opening through the nasal wall and then explore with a probe in order to determine whether the antral wall was lined with mucous membrane or whether the cavity was full of granulations and the mucosa spongy. Through this opening he inserted a small cannula and made further explorations. One could medicate every portion of the antrum by means of remedies applied on a cotton-tipped bent probe. He did not believe in scraping out the antrum and leaving its surface a great scar. We should give the membrane time to recover.

Abscess of the Larynx Following Pneumonia.—Dr. T. Melville Hardie of Chicago reported the case of an Italian laborer of 43 years admitted to hospital with pneumonia. Resolution came in nine days but he still coughed frequently and had some pain in the throat. Next day there was considerable dyspnea and laryngeal edema could be made out. Two days later tracheotomy under local anesthesia was called for. After exposure of the cricoid and upper trachea an irregular enlargement was made out on the left side of the larynx and incision of it evacuated some pus. Diplococci (probably pneumococci) were found in pure culture. After a serious illness the man recovered.

Dr. H. L. Wagner said it was interesting to note the different effects the pneumococcus had on mucous membranes and adjacent structures. In one instance in a case of pneumonia an acute swelling was found on the inside of the nose and both sides of the septum and then going externally giving the picture of erysipelas. From this inflamed area a pure culture was obtained similar to that from the nose and septum.

Further Report of a Case of Tracheal Scleroma.—Dr. Emil Mayer of New York City gave the further history of the case reported by him in 1906. Ten months later the patient presented herself with hoarseness and dyspnea and it could be seen that the growth had recurred. She was submitted to *x*-ray treatment through an extensive tracheotomy wound made for the purpose, the incision being three and one-half inches long, from the lower edge of the thyroid cartilage to about three-quarters of an inch above the sternal notch. The isthmus of the thyroid was divided between ligatures. Exposure was made under chloroform at first but without it later. Six weeks of this form of treatment had a most happy result and she left the hospital apparently cured. Seen one year later she reported that she had continued well, without dyspnea, hoarseness, or cough. Examination of the larynx and trachea showed perfectly normal conditions, with no trace of recurrence. In case of later recurrence the author thought that application of the *x*-ray over the cicatrix of the tracheotomy wound would promise good results, as this would not present the same resistance as the normal tissue would; or this failing, it would be easy to reopen the former wound and renew the direct exposure.

Subglottic Papilloma; Branchiogenetic Cyst.—Dr. Thomas J. Harris of New York City reported these cases. Case 1 was that of a boy of 11 years with subglottic papilloma which was attached under the surface of the right cord. Attempts at endolaryngeal removal were unsuccessful owing to the extreme irritability of the throat, an overhanging epiglottis, and a very poor general condition. He was admitted to hospital and another attempt made with the tube-spatula. In this way a part of the growth only could be taken off and laryngo-fissure was decided on with a preliminary tracheotomy. There was considerable reaction but this finally subsided and it was proposed to insert an intubation tube on account of persistent swelling of the cords though all traces of the papilloma had disappeared. The child was intubated, but in a few hours he began to have severe dyspnea and the tracheotomy tube was introduced. The intubation tube could not be seen in the larynx and events proved that it had been dislodged and swallowed as it came through in the stools. After a while another intubation tube was introduced and remained in place for a few days and then disappeared nor was any trace of it found afterward. The boy did well, however, and eventually made a good recovery.

Case 2 was that of a branchiogenetic cyst occurring in a Russian woman of 30 years who complained of a feeling of discomfort and occlusion in the region of the nasopharynx. Digital examination revealed a growth suggesting a cyst and filled with pulpy material like adenoids. The mass was easily removed with the forceps. Sections showed the tissue to be made up mainly of lymphadenoid structure. One surface showed the normal stratified epithelium of the pharynx. There were a few mucous glands and scattered through the section in several places were tubules lined with ciliated columnar epithelium. Beneath this epithelium the tissue had the appearance of embryonal connective tissue and the growth was evidently the remains of a branchiogenetic cleft.

Some Surgical Emergencies Associated with the Tuberculous Larynx.—Dr. Charles P. Grayson of Philadelphia made in this paper a plea for a more hearty and earlier association of the family physician with the specialist in caring for the laryngeal lesions arising in the ordinary course of pulmonary tuberculosis. There should be no such thing as emergency surgery in laryngeal tubercle. Much could be done to prevent certain complicating lesions but it must be done by one accustomed to intralaryngeal manipulations. Several personal cases were detailed illustrating the points made by the writer. In

one case a hurried tracheotomy was done to prevent asphyxiation. In a second an abscess was threatening life and called for evacuation. In a third a tracheotomy was called for on account of sudden edema. Such experiences were happening frequently not only in the country districts but in large cities where the aid of the laryngologist could be easily secured.

Dr. W. E. Casselberry said that it was not always possible to prevent such complications as had been mentioned by Dr. Grayson. They would come on in spite of every precaution the specialist might take.

Dr. Price-Brown would emphasize the value of rest in laryngeal tuberculosis. In one instance he had been obliged to do a tracheotomy but the rest afforded the larynx by the operation had sufficed to keep the patient alive for over five years. One-half of the epiglottis was gone and the upper orifice of the larynx was greatly contracted. Yet the man was able to work eight hours a day and the local process had been brought to a standstill.

Dr. J. O. Roe would regard tracheotomy only as an emergency measure, but functional rest could be obtained by abstinence from conversation. Nothing less than absolute silence was efficient.

Dr. J. W. Gleitsmann called attention to the dangers arising in the use of tuberculin. He had been very careful in selecting the dose, had always had his patient under close observation, and had never seen any bad effects. He always examined the chest and eyes after each injection. He believed there was some chance of relieving these cases if the patient could live and work in a hygienic environment with an abundance of good food.

Papilloma of the Larynx in Children.—Dr. J. Payson Clark of Boston reported the later history of four cases which he had presented to the Association in a paper read three years ago. He also reported four new cases and reviewed the literature of the last three years. The entire number of cases reported was 18. In ten tracheotomy had been done with five fatalities. The author was of the belief, however, that in the prolonged and obstinate cases a preliminary tracheotomy offered a better chance of permanent recovery and avoidance of recurrence than does a laryngofissure. Desirerata of treatment were (1) that we should get rid of the growth as soon as possible and with the least risk to the patient; (2) that the voice should be not impaired, and (3) that (in girls at least) there should be no external scar. The author dismissed laryngofissure as never applicable. A new case should be watched for a few weeks and if no increase in size took place one might try removal without tracheotomy using straight instruments and direct vision. Such neoplasms would not yield to any form of treatment until their period of active growth had been passed, or until they had lost their power of reproduction. There were no data on which to estimate the duration of this period, hence the wisdom of the above named course of action. In all our manipulations the utmost care must be taken not to wound the mucosa as this trauma may be the site of a new papilloma. The advisability of operating without a previous tracheotomy in cases with dyspnea must be decided in each individual instance. Apart from the curative value of tracheotomy there could be no question that it made the subsequent removal of the growth easier and safer. The risk of bronchopneumonia following (immediately or eventually) tracheotomy was a real one, but in case of a large and rapidly-growing papilloma or one recurring rapidly after removal without tracheotomy, the only alternative was suffocation.

Dr. A. Coolidge, Jr., coincided in every respect with the views of Dr. Clark. As regarded treatment, cases of papilloma could be divided roughly into two classes: (1) Those which occurred in young children and (2) those occurring in children old enough to allow one to put in any instrument for inspection and treatment. This age might be between seven and ten years. Before that age a tube having once been inserted, it should stay in till all traces of the papilloma had disappeared. Frequent operating and laryngo-fissure are to be condemned. Children might die from many causes if the tube was removed too early.

Dr. D. Bryson Delavan referred to the tube devised by Dr. John Rogers of New York. He was in general accord with the views expressed in the paper and called special attention to the dangers of ill-fitting tubes.

Dr. Harmon Smith believed that there must be some pathological difference between a single-papilloma even when large, and the multiple variety. The former were not so apt to recur. The more the latter were removed, the more they seemed to recur. If, however, we could put the larynx at rest, the growths might cease to reproduce themselves.

Dr. Emil Mayer asked if anyone present had had experience with the local application of alcohol in these cases.

Dr. H. L. Swain had seen some success follow the use of alcohol as suggested. He had had no experience with either iodine or carbolic acid which had been suggested by some writers.

Dr. E. Fletcher Ingals would feel like urging a tracheotomy in all cases in which there was dyspnea, before attempting an operation for removal. He had seen no benefit from the use of alcohol, but had seen one papilloma cease to recur following the use of iodine and carbolic acid.

Dr. F. E. Hopkins had seen pressure from an intubation tube cause the papilloma to disappear, but irritation of the region resulted with ulceration of the vocal cord. A hard rubber tube instead of a metal one might have afforded better results.

Dr. Clark said, in closing, that in none of his cases was the dyspnea so severe as to prevent him from doing a tracheotomy. He had never been called on to insert an intubation tube to prevent suffocation. Tracheotomies done at leisure left less conspicuous scars than those done hurriedly.

Essentials in Voice Production.—Prof. Wesley Mills of the McGill University Medical Faculty and a Guest of the Association, delivered a short address on this subject. The laryngologist must show in order to influence his patients a sympathy with them and some knowledge of musical sound as far as it went. There were so many methods of vocal teaching now before the public that one was at a loss to know what plan to adopt. Prof. Mills laid down as essentials the following points: Speaking and singing are in reality the same. The physiological adjustment of the various parts of the vocal organs is the keynote of the whole question. Practically all respiration exists for the expiratory blast. The principal adjustment is between the expiratory action of the respiratory mechanism and the vocal bands, known as the "attack." This is completed by a further adjustment of the upper or resonance chambers to the parts below. One speaks with the tongue and should on no account speak with the throat. He must speak from the throat into the resonance or upper chambers, that is, he must speak towards his face. He must especially speak and sing with that part of his mouth cavity lying between the soft palate and the teeth. He must keep the back of the throat and the front boundaries of the mouth cavity out of the way. He must never strain or use more force in phonating than the organ can bear without suffering. Artistic speaking and singing are always physiological. Vowels alone are musical and consonants are necessary nuisances but deserving of close attention. The speaker performed some simple experiments illustrating resonance. He deplored the prevailing slipshod methods of pronunciation in daily life, on the stage and in the concert hall. The present generation was given to a nasal tone owing to the laziness that allowed the tongue to roll up and back and the soft palate to drop and meet it so that the breath stream must pass through the nose. Prof. Mills would lay great stress on exclusive

mouth breathing in phonating. In mouth breathing the tongue flattened, the soft palate tended to rise, and the totality of the mouth parts were put into the best form for the utterance of pure vocal sounds. Under such circumstances nasality became relatively difficult, and in absence of mouth breathing it was very difficult, to cure. All faulty methods of voice production tended to produce venous congestion with a corresponding starvation and poisoning of the tissues of the vocal organs owing to the fact that the blood was kept too long in the capillaries.

Essentials of Speech Production.—Dr. G. Hudson Makuen of Philadelphia spoke of the method of voice formation and of the differences of the voices for speech and song respectively. He then took up the matter of articulation and considered the central mechanism of speech as distinguished from the peripheral mechanism. The chief receptive avenue for speech was of course through the hearing: but vision also played an important part. The chief motor center was Broca's center, as it was called, at the posterior portion of the third frontal convolution, and in it were stored the memories for the varied movements used in the production of speech. Modern theories suggested that the Broca center was really sensory rather than motor as it shared with the visual and auditory centers the function of serving as a storehouse for sensory impressions. On this theory the motor center for spoken words lay in the medulla. The order of cerebral activities in the production of speech therefore was first the revival of word images in the auditory center (and in some cases in the visual center) by means of afferent impulses from without through the special senses, or by means of impulses from the higher intellectual centers from within the brain: second, a transmission of these impulses from revived images in the auditory and visual centers through commissural fibers to the Broca center; and third, a revival of the kinesthetic word images which in turn incited to action the motor centers in the bulb. For such physiological results we must have the following conditions: (1) the mechanisms must be structurally normal and free from pathological encumbrances, such as dental, alveolar, and palatal irregularities, enlarged tonsils, nasal obstructions, and cerebral tumors; (2) the various parts of the individual mechanisms must be accurately coordinated; (3) there must be a similar coordination of the mechanisms themselves; (4) this accuracy of vocal and articulatory musculature must be largely automatic, and this in turn was brought about mainly through psychophysical development and training. The speaker said that he always advised the removal of enlarged tonsils in singers and had never seen any bad effects follow. Children inherited bad speech tendencies, and a bad environment in this respect encouraged bad speech. He believed that the diaphragm should be confined entirely to expiration and never used for inspiration. What he meant by diaphragmatic breathing was not to use the diaphragm at all for inspiration but to use it artistically in the production of voice.

Dr. J. W. Farlow remarked that one difficulty in instructing patients in the use of the voice was that they did not hear the sound of their own voices as it appeared to other people. This was easily realized by any one who spoke into the recording apparatus of a phonograph and then listened to his own voice as recorded on the cylinder. He would lay stress on the importance of careful attention to the use of the voice by children. Comic operas and stage darkies with all their slang and loud talking were most demoralizing to the ordinary listener and were responsible for much of the modern abominable vocal methods of every-day life.

Prof. Mills said that occasional joint conventions between teachers of singing and laryngologists would be of great service. The voice teachers differed much in their use of terms and much confusion was caused thereby. The influence of great teachers was after all but a tradition. He was not prepared to admit fully that the Broca center was a sensory affair. The recent experiments of Sherrington and Gruenbaum seemed to prove that all this region was motor. There was a tendency also to recast the entire subject of aphasia for it was not believed that the present system of localization was at all satisfactory. His ideal of a voice teacher was one who would in a large measure combine in himself the physiologist, physician, laryngologist, and musician. He had found that the throats of singers were, as a rule, comparatively dry, and believed that too much moisture was a distinct disadvantage, especially when occurring on the vocal bands. Childhood was not too early to begin correct instruction in speaking. He did not believe that the removal of the tonsils affected the pitch of the voice, and in the case of a patient who might claim that it did, he would say that the patient had not learned how to sing correctly. Contrary to the view expressed by Dr. Makuen, he must insist that the diaphragm was an inspiratory and not an expiratory muscle.

Wednesday, May 13—Third Day.

The Morphology of the Turbinals.—Dr. John M. Ingersoll of Cleveland, O., gave a description of the turbinal bones as occurring in fishes, loons, reptiles, panthers, apes, and man, illustrating his remarks with some excellent drawings. His recapitulation was as follows: The turbinal structures of fishes except dipnoi were used only for olfaction and were simply ridges covered by olfactory mucous membrane. In reptiles, owing to the changed manner of respiration, the nasal organ functionated both in respiration and olfaction and both respiratory and olfactory turbinals were found. They were, however, quite simple structures. In birds the importance of the respiratory function increased and the respiratory turbinals showed a high degree of development. The expanse of respiratory mucous membrane was very largely increased by the coiled structures of the turbinals. The olfactory turbinals were simply ridge-like structures. In microsmatic mammals all of the turbinals exhibited a very high degree of development. Their numerous fine branches and coils enormously increased the amount of mucous membrane exposed within a comparatively small space and thus increased the efficiency of the nasal organs. In apes, all of the turbinals had degenerated or reverted to some of the more primitive types. In man the turbinals were quite similar to the turbinals of the ape and were all rather simple structures. Rudiments of the fourth and fifth ethmoidal turbinals were sometimes found. The agger nasi was the rudiment of the nasal turbinal. Such rudiments were much more frequently present in the embryo than in the adult.

Dr. D. Bryson Delavan called attention to the fact that in saw operations on the septum we often came in deep section on a slightly oval space, which might be the remains of Jacobson's organ or of the channel leading to it. It was difficult to explain its origin and the line of communication through the hard palate with the mouth.

Dr. W. E. Casselberry had never been able to find the space referred to by the previous speaker.

Dr. H. P. Mosher said that in discussing Jacobson's organ we were greatly helped by comparative anatomy. He described the appearance of this organ in the human fetus and its gradual evolution to the condition found in the adult.

Hypertrophic Form of Syphilis Involving the Fauces and Epiglottis.—Dr. W. F. Chappell of New York City reported the case of a boy of 14 years who had previously been treated in hospital for tonsils and adenoids. Some four years later he again came under observation, with symptoms of snoring in sleep, guttural voice, labored breathing, and dyspnea on ex-

ertion. Frequent choking and strangling spells came on, though the boy seemed in perfect health. Examination showed both faucial pillars hypertrophied and much hypertrophic tissue occupied the position of the tonsil. The uvula was much enlarged in each dimension and nearly filled the pharyngeal cavity and was probably the cause of the choking. The same condition existed in the epiglottis, which had lost its flexibility and allowed food to enter the larynx. The arytenoids shared in the general hypertrophy. No implication of other laryngeal structures could be made out. The mucosa covering all these parts was grayish, smooth, and shiny. Adrenalin had no particular effect on the hypertrophied tissue. A portion of the uvula was removed, with much relief to the symptoms of choking and strangling. Examination of the portion of the uvula excised suggested a diagnosis of hereditary specific infection, though nothing corroborative could be obtained in the personal or family history. Under mixed treatment and later Donovan's solution of arsenic and mercury, considerable improvement resulted, but considerable hypertrophy of the parts involved still remained. Most of the obscure cases of pharyngeal hypertrophy on record had proven to be of an amyloid nature. Such a case as the author's was unique.

Membranous Tertiary Syphilitic Lesions.—Dr. D. Braden Kyle of Philadelphia reported three cases reresembling Vincent's angina. In all there was a membranous deposit on various areas in the throat. All the patients were males over thirty years. The membrane could be easily stripped off and left a ragged, worm-eaten surface, which bled easily. There were no associated systemic symptoms at the time. The symptoms were the usual ones of irritation from an ulcerated condition in the mouth. In all there was a denial of specific disease. All sorts of remedies were applied without avail, and then the iodides and finally mixed treatment, but without result. The membrane continued to form and the ulcerations grew deeper. Bacteriological examination was non-decisive in one case; the two other cases revealed Vincent's spirilla, but many other bacteria as well. The author finally decided that in spite of the negative results of treatment the cases were specific and that if the patients would enter the hospital and receive treatment by inunction and obtain the proper nourishment, they would recover. His surmise proved correct, as inside of ten days the membranes began to disappear and recovery was fairly rapid. Up to the present time there had been no relapse, though there was slight scar tissue in the mouth. The author's aim in reporting these cases was to note (1) the unusual form of tertiary lesion, (2) its close resemblance to Vincent's angina, and (3) the importance of the therapeutic test. In the cases with Vincent's spirilla he did not believe a mixed infection was present, but that the presence of the latter organism was purely accidental.

Cysts, Abscesses, and Edema of the Epiglottis.—Dr. Henry L. Swain of New Haven reported several cases and discussed their pathology. In the depths of the branchial clefts in the embryo, epiblast and hypoblast were seen separated by only a network of a single layer of fibers. An inclusion cyst such as these epiglottis cysts were, might come on one or the other side of the partition, but when in later years these cysts filled up, the swelling would be at the base of the inside or outside of the epiglottis. Also in the region under discussion we might have dermoid cysts and supernumerary thyroid glands. The exact cause of the sudden swelling of all these structures was often obscure. They might become infected from some previous inflammation, but often their enlargement, with the usual symptoms of throat discomfort and mechanical disturbance of the parts, was the first thing noticed. The indications for treatment were plain and clear. Dr. Swain also reported three cases of what he called "idiopathic inflammatory edema of the epiglottis," for lack of a more definite name. The attacks were in no way connected with previous disturbance in the throat. In one case there had been a leptothrix deposit on the tonsils, which had caused considerable disturbance. In this case the trouble was supposed to have been due to a small abscess, which could not be located, but which, from the sudden subsidence of symptoms, had evidently ruptured. In the former two instances the simplest explanation would be to assume the existence of a perichondritis, which was accompanied by edema and pus formation. It might be that there was an inflammation of a small retention cyst on the epiglottis.

Dr. W. E. Casselberry said that Dr. Swain had grouped two classes of disease which had received very little attention in literature. We quite frequently met with cysts in the region of the larynx, epiglottis, aryepiglottic folds, and base of the tongue classified simply as "cysts," but it might well be true that branchial cysts occurred in the region of the epiglottis. As to those cases resulting from idiopathic inflammations of the epiglottis, we must remember that most conditions in this region formerly styled idiopathic were in reality infections and caused by microorganisms. This was notable in some epidemics of diphtheria in which some cases seemed to show an exudate, while others showed merely edema, and yet in both we found the Klebs-Loeffler bacillus.

Dr. J. E. Newcomb said that diphtheria always meant the presence of a membrane somewhere, although it might be only a small patch down in a bronchus, but the old conception of diphtheria without membrane must be given up.

Dr. Emil Mayer referred to a case of inflamed epiglottis causing obstruction, for which a tracheotomy was about to be done, but under hot inhalations and adrenalin applications the swelling had subsided. Later, after the case had cleared up, it was noted that more than half of the epiglottis was gone, and his final conclusion was that the case was one of acute inflammation of that portion of the epiglottis remaining after a previous specific destruction.

Dr. E. Fletcher Ingals had recently cured a cyst of the aryepiglottic fold by aspiration and injection with iodine and carbolic acid.

Dr. J. M. Ingersoll had treated two retention cysts of the epiglottis by simply cutting the tops off, and there was no recurrence.

Prolonged Intubation in the Adult.—Dr. W. K. Simpson of New York reported the case of a woman who had come under observation in 1903. For five months she had been wearing a tracheotomy tube inserted on account of urgent laryngeal dyspnea. The latter had come on in connection with a severe cold, during which she had cough, hoarseness, and increasing difficulty in breathing, so that tracheotomy became necessary. She greatly desired to be freed from the wearing of the tube. Examination of the larynx showed it to be practically closed, all the landmarks being obliterated. The superior portion, including the arytenoids, was incorporated in a more or less uniform bilateral mass of a rather dense character, leaving a mere slit in the center. There was no apparent loss of tissue and practically no motion of the parts. Antisyphilitic treatment was given, though the question of old specific infection was doubtful. Results were not at all definite. Finally, under chloroform, a medium-sized hard-rubber intubation tube was passed and the tracheotomy tube withdrawn. The tube was worn well, but was finally coughed out and replaced, and this happened several times. Still later, the tracheotomy slit was closed. In due time the intubation tube was re-

moved, having been worn over four years. At the present time the voice was in fair condition. At times the quality was excellent, but it became hoarse on slight cold. The laryngeal color was rather pale. Motion was somewhat restricted owing to induration about the left cricoarytenoid joint, while the right side moved more freely. The right cord was fairly normal in contour, color, and motion, while the left seemed to have been more or less absorbed. The glottic space, though irregular, was ample for breathing. The author would lay stress on the following points: (1) The tolerance of the larynx to long-continued pressure; (2) the superiority of such pressure in causing absorption over the older methods of temporary introduction of dilating instruments; (3) the comparative comfort with which such tubes might be worn indefinitely; (4) the improved general condition of the patient while wearing an intubation tube in contrast to the debilitating influence and local annoyance of the tracheotomy cannula; (5) the superiority of the hard-rubber over the metal tube in the lessened formation of calcareous deposit, thus lessening the dangers of ulceration and formation of exuberant granulation tissue.

The Question of Rheumatism Originating Through Tonsillar Infection.—Dr. George B. Hope of New York City presented a paper with this title. He traversed the familiar paths of the discussions of the last few years on this mooted question and declared his disbelief in the theory that rheumatism gained access to the body through the tonsils. These organs did not disseminate bacterial infection to the degree commonly conceived. Bacteria were rarely allowed to pass beyond the capsule into the surrounding lymph nodes to develop active inflammatory processes. Hope believed that the theory of a tonsillar infection with reference to rheumatism rested on inference rather than on proven facts. Tonsillectomy for this condition was as illogical as rubbing the joints for the prevention or cure of arthritic rheumatism. Hypertrophied and indurated tonsils should be removed, it is true, but this was a matter wholly independent of their having a causative relation to rheumatism.

The Treatment of Inoperable Tonsillar Hypertrophy by Interstitial Injections of Silver Nitrate.—Dr. J. L. Goodale of Boston presented the results of his observations on injections of enlarged tonsils with silver nitrate. Three cases with hemophilia and tonsillar enlargement had recently come under his observation, and crypt dilatation with cheesy detritus was evidently to blame for the infectious arthritis present in all the cases. One objection to the employment under such conditions of chromic acid or the galvanocautery was that the diminution in the size of the tonsil was followed by irregular contraction with narrowing of the orifices of the crypts, out of proportion to the diminution in the size of the lumen near its base. Such contractions might not prevent the incarceration of detritus. The author consequently employed silver nitrate solutions ranging in strength from 4 to 8 per cent., making the injections every five to eight days. The amount of reaction had depended on the strength of the solution and had varied from slight to severe pain. Under this plan progressive diminution of the tonsils had taken place and the results had been gratifying. In one case the organs were reduced to one-quarter of their former size. A blunt strong needle such as was used by dentists for injecting gums was the best one to use. It might be straight or curved. Dr. Goodale believed that the effect of the silver was, theoretically at least, in harmony with the normal process of retrograde metamorphosis of the organ, in that it was a sclerosis proceeding from the base to the periphery and led to a symmetrical diminution in the size of the crypts.

Hemorrhage Following Quinsy; Ligation of the Common Carotid Artery; Recovery; with a Study of Fifty-one Cases of Hemorrhage in Connection with Pharyngeal Suppurations.—Dr. James E. Newcomb of New York City read a paper with this title. His patient was a man of 55 years, seen in consultation with Dr. J. D. McBarron. He had had quinsies all his life, but an immunity for the past ten years. The attack in question came on without any special features and on the fourth day the presence of pus was evident, and it seemed to be located rather far out in the soft palate. The patient's kidneys seemed to act well, but there was distinct arteriosclerosis. Incision of the quinsy was followed by escape of healthy pus and almost immediate bleeding. The latter was easily checked, but recurred several times, and finally became so profuse and persistent that a radical measure was deemed necessary. It was impossible to locate the bleeding point and the condition of the parts involved rendered any plan of suturing out of the question. It was found that the ulcerative process had worked backward and that the soft palate had perforated. Ligation of the common carotid artery was decided on and was done by Dr. C. N. Dowd. Recovery was without incident. No disturbance of cerebration resulted. Dr. Newcomb had found fifty additional cases reported in which hemorrhage occurred in connection with suppuration in the pharynx. Of this number forty-one occurred in connection with quinsies. They might be classified as follows: (1) Spontaneous opening of the abscess, with immediate hemorrhage, 11, with 7 fatal and 4 recovering; (2) spontaneous opening, with secondary hemorrhage, 15, with 8 fatal and 7 recovering; (3) opening by incision, with immediate hemorrhage, 7 cases, with 4 fatal and 3 recovering; (4) opening by incision, with secondary hemorrhage, 8 cases, with 4 fatal and 4 recovering. In addition there were 5 cases following retropharyngeal abscess, with 2 fatal and 3 recovering; 3 cases in connection with scarlatinal suppuration, 1 fatal and 2 recovering, and 2 cases in connection with gangrenous tonsillitis, both fatal. Summarizing, there were 51 cases, with 23 recoveries and 28 fatalities, or 54.8 per cent. Operations had been done as follows: Ligation of the common carotid, 16 times, with 11 recoveries and 5 deaths, once of external and internal carotid with recovery, and once of all three vessels with recovery. Two points were considered in detail by the author, first that relating to the invasion of vessel walls by suppurative processes. For a long time it was not believed that such a thing happened, but now it was universally admitted. In the case of quinsies the sudden diminution of pressure of confined pus when rupture of the abscess took place (or incision was made) on a weakened arterial wall, might lead to immediate rupture of the latter. In the second place we had to consider the differential diagnosis of swellings in the tonsillar region when accompanied by evidences of inflammation. We might have simple inflammation, tonsillar tumor, or aneurysm. The choice of operation would depend on our diagnosis. Autopsy records had shown that in the class of cases considered in this paper the internal carotid had often been involved. Ligation of the external carotid alone would not be sufficient to check bleeding. The dangers of ligation of the common carotid were not to be overlooked, but they were to be met according to the rules of surgery.

Dr. W. E. Casselberry thought that more stress should be laid on the dangers of ligation of the common carotid. It was disastrous to ligate the vessel for hemorrhage and get a paralysis of the opposite side. While the emergency named in Dr. Newcomb's paper had never occurred in his own experience, he had always thought that ligation of the external carotid would suffice as it did in tonsillar hemorrhage.

Dr. W. L. Ballenger said that he had learned by experience that in dissecting tonsils if we avoided injuring the musculature of the pillars and of the bed of the tonsillar fossa, we would not have severe hemorrhage, but if we did injure these structures, severe bleeding was apt to follow. In opening quinsies he separated the anterior pillar as if he was going to remove the tonsil and then by pushing the pillar out of the way and separating it from the superior constrictor muscle, the abscess could be located with accuracy.

Dr. J. O. Roe preferred the Hilton Fagge method of opening these abscesses with curved scissors and never used a knife.

Dr. Newcomb, in closing, said that the question of danger to brain integrity in ligating the common carotid was the same, no matter for what emergency this operation was done. The autopsy records in the material collected by him showed in several instances the internal carotid was the vessel which had been perforated. Ligation of the external carotid in such cases would be useless and he again emphasized the fact that the conditions in suppuration and after ordinary operation for tonsillotomy or tonsillectomy were entirely different. In one case we were working in healthy tissue, notwithstanding the hemorrhagic complication; in the other we were working in tissue which had lost its vitality and to which the application of styptic measures was conditioned by this fact. In an ordinary post-tonsillotomy hemorrhage, the bleeding site was often visible, but this was not the case in hemorrhages in connection with pharyngeal suppurations. There was no objection to a primary ligation of the external carotid, but it would not always stop the bleeding.

At the executive sessions of the Congress the following gentlemen were admitted to membership: As Corresponding Fellow: Dr. Gustav Killian of Freiburg, Germany. Active Fellows: Dr. J. F. Barnhill of Indianapolis, Ind.; thesis, "Some Essential Principles in the Surgery of the Accessory Sinuses"; Dr. B. Alexander Randall of Philadelphia; thesis, "Some Neglected Points in the Anatomy of the Pharynx"; Dr. Harmon Smith of New York City; thesis, "Multiple Papilloma of the Larynx in Children"; Dr. J. Gordon Wilson, Chicago; thesis, "A Study in Variations of the Frontal Sinuses with a Note on the Topography of the Cribiform Plate."

The following officers were elected for the coming year: *President*, Dr. A. Coolidge, Jr., Boston, Mass.; *First Vice-President*, Dr. Emil Mayer of New York City; *Second Vice-President*, Dr. Francis R. Packard, Philadelphia; *Secretary and Treasurer*, Dr. J. E. Newcomb, 118 West Sixty-ninth street, New York City; *Librarian*, Dr. J. H. Bryan, Washington, D. C.; *Member of Council*, to serve four years, Dr. H. S. Birkett, Montreal, Canada; *Delegate* to the Triennial Congress of 1910, Dr. W. K. Simpson, New York City; *Alternate*, Dr. J. H. Bryan, Washington, D. C. The Congress of 1909 will be held at Boston, the date to be determined by the Council.

Cystic Mastitis and Mammary Carcinoma.—G. Verga, after examining twenty cases of cystic mastitis found that in five there was evidence of carcinomatous metaplasia. He concludes that cystic mastitis presents itself under various forms; in the first connective tissue inflammation predominates; in the second there is proliferation of the epithelium in its different varieties, acinous, papillary, and adenomatous. The second form is frequently associated with cancer, which becomes implanted on the mastitis. Clinical examination is not sufficient to make a diagnosis of metaplastic carcinomatous mastitis. An accurate histological examination is necessary to establish the diagnosis. The surgeon should always be on the look out for the transformation of a cystic mastitis into a carcinoma.—*La Riforma Medica.*

Medical Items.

Contagious Diseases. Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending September 12, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	423	153
Diphtheria	189	19
Measles	65	1
Scarlet Fever	91	3
Smallpox	1	—
Varicella	14	—
Typhoid Fever	132	17
Whooping Cough	5	3
Cerebrospinal Meningitis	4	6
Malarial Fever	—	—
Totals	924	202

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending September 11, 1908:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
Alabama, Mobile	Aug. 23–29	1	..
California, San Francisco	Aug. 23–29	2	
Indiana, Indianapolis	Aug. 24–30	3	
Iowa, Sioux City	Aug. 25–31	3	
Montana, Butte	Aug. 26–Sept. 1	1	
Ohio, Zanesville	Aug. 1–31	1	
Wisconsin, La Crosse	Aug. 23–29	6	
Milwaukee	Aug. 23–29	2	
SMALLPOX—FOREIGN.			
Arabia, Aden	Aug. 4–10	..	..
Borneo, Sandakan	June 13–30	..	1
Brazil, Rio de Janeiro	July 26–Aug. 2	519	231
Santos	July 20–26	..	1
Pernambuco	July 16–30	..	29
Banada, Halifax	Aug. 23–29	1	
Ceylon, Colombo	July 16–25	14	2
China, Amoy	July 15–21		Present
Ecuador, Guayaquil	July 25–Aug. 8		8
Egypt, Cairo	Aug. 6–12	2	1
India, Bombay	July 27–Aug. 4	..	8
Calcutta	July 19–25		5
Indo-China, Cholen	July 19–25	1	1
Saigon	July 19–25	..	1
Italy, General	Aug. 10–16	115	..
Genoa	July 1–31	3	..
Messina	July 19–25	..	Present
Naples	Aug. 2–15	9	2
Java, Batavia	July 19–25	3	..
Mexico, Mexico City	July 19–25	..	23
Norway, Christiana	Aug. 9–15	22	..
Philippine Islands, Manila	July 12–18	15	5
Portugal, Lisbon	Aug. 9–15	4	..
Russia, Riga	Aug. 9–15	2	..
Warsaw	Aug. 9–15	..	4
Spain, Barcelona	Aug. 4–10	..	1
Turkey in Asia, Bagdad	July 19–25	20	4
CHOLERA.			
China, Hankau	July 19–25	8	5
Present among Europeans, and July 27 epidemic among natives.			
Hongkong	July 19–25	4	3
Japan, Moji	Aug. 8	2	1 case from Yamaguchiken
Yokahama	Aug. 17	3	1 On British Steamer in quarantine.
India, Calcutta	July 19–25	..	9
Madras	July 24–31	..	13
Indo-China, Cholen	July 19–25	9	9
Philippine Islands, Manila	July 12–18	1	1
Provinces, gen'l	July 12–18	1,445	788
Russia, Roscov	July 26–Aug. 14	87	37
St. Petersburg, Gov't Dist.	Sept. 9	15	..
Government Districts:			
Astrakhan	Aug. 1–7	92	38
Saratov	Aug. 1–7	152	74
Samara	Aug. 1–7	4	3
Don, territory	Aug. 1–7	14	10
YELLOW FEVER.			
Cuba, Antilla	Sept. 8	1	1
Santiago, Santiago Province—Firmeza	Aug. 22	1	
Santiago, from Mayari	Sept. 7	1	
Ecuador, Guayaquil	July 25–Aug. 1		1
Mexico, Laguna del Carmen	Aug. 29	2	
Veracruz	Sept. 7	7	1
PLAGUE—UNITED STATES.			
California, Los Angeles	Aug. 11	1	
PLAGUE—FOREIGN.			
Azores, Terceira	July 1–Aug. 11	29	15
Brazil, Rio de Janeiro	July 26–Aug. 11	1	
British East Africa, Port Florence	July 5–11	21	18
Chile, Antofagasta	July 19–26	3	
Iquique	July 23–29	3	3
China, Amoy	July 21	..	Epidemic
Hongkong	July 19–25	17	14
Ecuador, Guayaquil	July 25–Aug. 1	..	2
India, General	July 31–Aug. 6	621	461
Bombay	July 29–Aug. 4	..	31
Calcutta	July 19–25	..	22
Rangoon	July 21–27	..	32
Indo China, Cholen	July 12–25	19	19
Saigon	July 18–25	1	1
Japan, Formosa	July 26–Aug. 1	1	1
Peru, General	July 21 Aug. 3	40	21

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Original Articles.

TUBERCULOSIS OF THE EAR.

By W. SOHIER-BRYANT, A.M., M.D.,

NEW YORK.

In these days of widespread popular and professional interest in tuberculosis every point in the course of the infection, every organ and tissue affected, and every symptom which can assist early diagnosis have acquired special importance. Heretofore the ear has not attracted as much attention as its importance in this connection warrants. The ear interests us not only because it may be the seat of tuberculous infection, but chiefly because it can give the first sign of an incipient pulmonary tuberculosis.

The etiology depends upon the entrance of bacilli into the tissues of the ear. The entrance takes place (1) via the tympanopharyngeal tube by direct extension from the pharyngeal mucosa, (2) by direct extension from the epimastoid lymphatic glands, (3) by metastases from distant points of infection. The predominating form of the etiology varies with the age. In the tympanic form a non-tuberculous infection may precede the tuberculous. In infants the lymphatic extension from the mastoid glands is the most common road of infection. In adults entrance of the bacillus via the tubal route is more common. The least common is the metastatic form. Tuberculosis of the ear is essentially an early complication of more general tuberculosis because the ear is in direct connection with the upper air tract which in the vast majority of cases is recognized to be the road of primary tuberculous infection. Aural tuberculosis occurs early in the course of the disease for two reasons. First by reason of the entrance of bacilli through the tympanopharyngeal tube and second because of the proximity of the mastoid to lymphatic glands which may become infected early because they are connected with the upper air tract. The tuberculous infection of the ear by way of the lymphatics is more common in young children because in them these glands are more subject to infection.

The clinical picture varies with the mode, seat, extent, and stage of infection. So far as the final stages of tuberculous ostitis are concerned it makes little difference how the infection has entered the ear, but the initial symptoms vary with the road of infection. The lymphatic invasion is at first a periostitis with later involvement of the subjacent mastoid bone and still later tympanic involvement. In the tubal route of infection the first symptom is otitis media which may exist for a time without tuberculous characteristics. In the metastatic infection the mastoiditis is the first symptom.

The characteristics of tuberculous otitis media are its insidious onset, with impaired hearing and tinnitus. Pain is insignificant. The membrane perforates readily; the discharge is thin, usually odorless, and only slightly purulent. Redness may be present or not. Febrile disturbance is slight. Later on the tympanic membrane melts away and the perforation of the membrane increases in spite of ordinary treatment. There may be one, two or three simultaneous perforations of the membrane. The membrane continues to melt away, leaving the malleus hanging free of all membrane attachment; the ossicles become loosened and fall out and the discharge increases with the ulcerating area. Granulations are conspicuous by their absence. Finally there is complete tympanic destruction with abundant thin discharge. The tympanic walls become necrotic and sequestræ are formed after involving large parts of the labyrinth and petrous pyramid. Facial paralysis is a noteworthy accompaniment of this form of advanced aural tuberculosis.

Characteristics of the lymphatic infection are at first enlargement of the lymphatic glands of the mastoid region; next an infiltration of the epimastoid tissue usually without redness and with little tenderness. Later the periosteum becomes thickened. The general swelling increases. The outer table of the mastoid process is invaded. Softening and suppuration of the cold abscess type with comparatively slight pain and reaction occur and suppurating sinuses are formed. The tympanum is early invaded.

The characteristics of the mastoid form of tuberculous ear infection are that the signs of mastoiditis precede the tympanic or epimastoid changes. Its course is the same as described for the epimastoid infection except that the bone changes are here the first symptoms.

Resolution of the tympanic inflammation may occur spontaneously or after general treatment aided by appropriate local measures. As the tympanic appearances fluctuate with pulmonary tuberculosis they are a very good index of its course. An absolute diagnosis of tuberculosis is made on the tympanic appearances months before signs of tuberculosis can be found anywhere else.

The gross anatomy and histology of the tuberculous process in the ear are the same as in other parts of the body made up of mucous membrane, osseous tissue, and lymphatic glands. The two peculiarities which the ear has are, first that it is a multiple sense organ and secondly that in it the three tissues mentioned are very intimately associated. The bone is lined with a mucoperiosteum and the dura mater forms the inner periosteum. The cold abscess is the rule in ear tuberculosis. The softening and erosion of the mucous surfaces or periosteum and the disintegration of bone and the suppuration progress with little pain and redness or without much temperature. Though the presence of tubercular bacilli can usually be demonstrated in the pus and tissues, sometimes they are most difficult to detect. It is exceptional to find them in the thin secretion of the middle ear.

The clinical diagnosis must usually be relied on,

especially in the early cases. It depends on the peculiar picture which the middle-ear inflammation presents. One sees an indolent, serous or seropurulent, more rarely a purely suppurative, inflammation, melting away of the drum membrane, multiple or kidney-shaped perforations, exposure of the manubrium mallei, etc. Continuation of the ulcerative process in the face of ordinary treatment is pathognomonic of tuberculosis. Alternating decrease and increase of the activity of the process independent of obvious causes is always pathognomonic of tympanic tuberculosis.

It is probable that all the mastoiditis cases which begin with superficial inflammation on the outer surface are tuberculous and that tuberculosis is probably the cause of the severe mastoiditis occurring in infancy, just as it is the cause of the breaking down of the lymph glands. Glandular enlargement of the tragus or mastoid lymphatics always suggests tuberculosis if syphilis is excluded. Tubercle bacilli have been found in cases of otorrhea before tuberculous infection had been suspected. The differential diagnosis from syphilis is based upon the same differential characteristics found in lesions in other parts of the body.*

The treatment is fundamentally constitutional as it is in all tuberculosis. Local treatment of the tympanic form of infection is dry with especial care to cleanliness and the avoidance of all solutions. The powders which are most effective are pyoctanin and boric acid or iodoform. The treatment of the mastoid form is early and through operation.

Without treatment the prognosis of aural tuberculosis is for a continuation and gradual extension and for a development of a more general pulmonary tuberculosis sooner or later. With treatment the prognosis of the local condition is good for amelioration of the symptoms and for a final cure if operative eradication can be accomplished, if there is no other seat of tuberculous infection, or if the constitutional resistance can be increased to normal. When the ear tuberculosis is merely a complication of a more extensive involvement elsewhere, the ear prognosis depends on the prognosis for the more general infection. In the mastoid form of tuberculosis, prognosis is good after radical operation. The postoperative recovery is better than in nontubercular mastoiditis. The prognosis of the pulmonary tuberculosis may be made on the course of the middle-ear affection.

Case 12,016.—*Positive tuberculosis diagnosis made by the middle-ear symptoms five months and eleven days before the pulmonary diagnosis was positive.* Man, 32 years old, the picture of health and activity, with clear complexion, and high color, leading a very active business life. A more than moderate user of alcoholics, but not intemperate. August 20.—Three days previously he used a nasal douche, blew his nose, and infected the right ear. Acute otitis media followed with serous leaking the next morning. Drumming in the right ear for twenty-four hours; now high-pitched singing, sizzing, and ringing tinnitus and stuffed feeling in the ear. Tympanic membrane dark red, leaking serum. September 6.—Various forms of treatment have been used by others, among them myringotomy and bichloride of mercury syringing. There is now a purulent discharge and the mucous membranes are all dark red. Commenced dry treatment. September 9.—Politzer's acoumeter heard in the right ear at 27 inches. Low tone perception markedly impaired. High limit for tone perception 80,000 single vibrations. A little serum only in the tympanum. Free perforation of the drum membrane. Valsalva inflation goes through. September 10.—Politzer's acoumeter heard at 6½ feet. September 26.—Perforations reduced to a pin point. There was less congestion of the tympanum, which was nearly dry. The dry treatment of the ear soon overcame the damage done by the syringing. October 1.—Politzer's acoumeter heard at 9 feet. Perforation closed. Upper half of tympanic membrane red and a little bulging. October 4.—Small, invisible perforation; covered it with a paper patch. October 8.—Removed paper patch and found a little pus under it. October 15.—Perforation closed. High pitched ringing tinnitus and stuffed feeling still present. October 19.—Politzer's acoumeter heard at 15 inches. Ear looks better. October 24.—Politzer's acoumeter heard at 7½ inches. Perforation wide open. Tympanum dry; some dry discharge in meatus. October 29.—The ear is in a bad condition. Purulent discharge and perforation larger; it is situated at about the center of the membrane. Landmarks not visible. Tube clear as usual. A diagnosis of tuberculosis was made on the varying and resistant course of the tympanic inflammation. November 1.—Double perforation, one anterior and one posterior about the level of the umbo mallei distinctly seen. *Approaching tuberculosis of lungs positively prognosticated.* November 4.—Tympanum nearly dry. Perforations show no tendency to heal. November 9.—Tympanum dry. One perforation seems closed; the other smaller. Corrosive sublimate cotton dressing. November 12.—The cotton dressing removed; it was full of dry discharge. Perforation larger. November 19.—Double perforation again. Crust all over tympanic membrane. November 26.—Watch heard at 3 inches. Double perforation present. December 3.—Tympanum dry and membrane pale. Perforations smaller. Crusts on tight. December 10.—High pitched sizzing, ringing sounds have been constant from the beginning of the trouble. Hears occasionally very high pitched whistles. Perforations smaller. Watch heard at 2 inches. Noted that patient's fingers were all very much clubbed. December 17.—Watch heard at 5 inches; Politzer's acoumeter at 5 feet. Crust removed, then watch not heard. Only one perforation. Membrane dark red, especially above. Malleus getting drawn in by cicatrization. Patient perspires easily. December 23.—Politzer's acoumeter heard at 9 inches; watch heard on contact. Bone conduction in median line lateralized to affected ear. Perforation much enlarged; it is kidney-shaped, concave above, located below umbo. Promontory pale pink; rest of tympanum paler. January 27.—Patient writes that the ear is exactly as it was; no perceptible discharge; no especial feeling of discomfort; there is a clear aperture in the drum; the hearing is no better and no worse; "otherwise I am so busy now that it will be impossible to call as you suggest." February 6. Politzer's acoumeter heard at 15 inches. No discharge. Clean perforation. A scab in fundus of meatus. After wiping with cotton, Politzer's acoumeter heard at 11 inches. No change in weight. A little cough and expectoration in the morning. February 16.—Patient's wife says patient has lost weight lately. One brother died of tuberculosis. Slight bronchitis found by family physician. February 23.—Politzer's acoumeter heard at 10 inches. Crust removed from perforation, then acoumeter heard at 8 inches. Tympanum red. Membrane

*Crockett, E. A.: "Tuberculosis of the Middle Ear and Mastoid," *Journal of the A. M. A.*, Vol. XLVII., 1906, p. 1293.

nearly all destroyed. February 28.—Patient writes that he is overwhelmed with work and feels first rate. March 7.—Typanum clean. Total destruction of tympanic membrane. Malleus bound tight on promontory. Attic cut off by a cicatricial curtain, but antrum and tube wide open. Singing and faint sizzing tinnitus. Politzer's acoumeter heard at 12 inches. Tympanum not as congested. Patient appears thinner and looks tuberculous. Color, hectic. April 8.—*Tubercle bacilli found in sputum.* In spite of repeated physical examinations by the family physician nothing more than the bronchitis had been detected. The cough had gradually increased of late. This worried his wife, but he never mentioned the cough to me, even denied it. April 29.—Patient left New York for Colorado. The patient could not be controlled; previous to the detection of tubercle bacilli, he made no alteration in his previous habits; even after the bacterial diagnosis until his departure for Colorado he made little change in his habits except more careful and extended diet.

Case 14,548.—*Tympanic tuberculosis complicating pulmonary tuberculosis; shows fluctuations of the tympanic inflammation coincident with changes in the general condition, the advantages of dry treatment, especially with pyoctanin in the tympanum, and the marked constitutional improvement on relieving the distress caused by the ear.* Ear trouble began September, 1903, some months before the pulmonary tuberculosis appeared. The patient has been in a tuberculosis sanatorium off and on since September, 1904. Before I saw the patient he appeared to be almost if not quite cured of his pulmonary tuberculosis. Then the tinnitus began, nearly driving him crazy. In spite of the sanatorium treatment he lost ground rapidly. Man, aged 27 years. November 7, 1906.—Right ear; the drum membrane looked cicatrized, flat, and cloudy. Left ear was full of some foreign substance, suggestive of blood and epithelium; it was wine-colored, softish, looked like raisin skins, and had a fruity odor. Cleaned ear out; no sign of pus or discharge. Anterior inferior quadrant of drum membrane perforated. Thick mucus in tympanum. Canal red. Dry treatment; boric acid. Patient complains bitterly of exasperating and varied tinnitus. Has lost weight of late. Can do nothing, the noises are so bad. Dr. G. S. Dixon made the following pathological report on the material taken from the meatus of the left ear: "Squamous epithelium held together by dried cerumen and cemented by dried serum. The amount of cerumen is small." November 21 patient writes: "Last week was very trying. The noises in the ears were terrible and in consequence I became nervous, overwrought, and unable to sleep at all and my head feels as though it were in a vise. November 23.—Left ear again full of fruity, ill-smelling substance. November 26.—Involvement of left lung, anteriorly and superiorly. Weight, 140 pounds. December 4.—Lungs better. Left ear has a clean meatus. Thick scab on edges of perforation, which is large, occupying lower third of membrane. Tube clear. Removed scab and relieved tinnitus. Patient says the tinnitus was relieved for a few days after the last treatment. Note the constitutional gain following the improvement of the ear. December 8.—Tinnitus much better. Small crust had reformed. Lungs improving. Dry treatment; iodoform. December 13.—Perforation contracting. December 18.—Ear discharging a little mucus. Dry treatment; boric acid. January 7, 1907.—Ear good until a week ago, when the patient "took cold." Now profuse seropurulent discharge. Destruction of lower half of membrane. Tinnitus does not bother patient now. January 11.—Discharge stopped after last visit. February 1.—Ear discharging a little. Dry dressing; boric acid. February 9.—No discharge. Perforation reduced in size. Valsalva inflation positive. February 22.—Tympanum contains clear fluid, consistency of saliva. February 27.—Much yellow, ropy fluid in tympanum. Dry treatment; xeroform. April 1.—Tympanum full of fluid. Some granulations in superior posterior region of tympanum. General tympanic surface uneven and a little dirty. *Diagnosis of aural tuberculosis* is made on the resistant, fluctuating, and progressive course of the tympanic inflammation. The perforation occupies nearly the whole of the tympanic membrane. Watch heard at 4 inches. Tube open. April 8.—Tympanum full of thick mucus. April 12.—Ear has been discharging a good deal. Dirty gray fundus of perforation. April 17.—Discharging a little more. April 27.—Discharging yellow, syrupy mucus. Patient makes an objective pharyngeal tinnitus snapping by movement of tubal mouth; this can be heard at a great distance and is very annoying to the patient. May 13.—Much exfoliation of epithelium in tympanum. Watch heard at 11 inches. May 21.—Less discharge, but more epithelium. May 28.—Looks well. Much epithelium in ear. Tinnitus and discharge annoying for two days. June 8.—No discharge, but tympanum damp. Pyoctanin insufflation. June 24.—Cleaner than usual. Pyoctanin. July 7.—Tympanum dry and cleaner. Some desquamated epithelium in ear. July 20.—Tinnitus less. Tympanum dry. September 9.—Tympanum damp; no discharge. Pyoctanin. October, 1907.—Weight, 156¾ pounds. Dullness the same. No elevation of temperature while in the sanatorium. October 12.—Tympanum moist; no discharge. Pyoctanin. November 26.—Very little tinnitus. Ear dry. Watch heard at 1 1-4 inches. January 2, 1908.—The right ear discharged a few days ago and loud tinnitus. Canal full of fetid detritus. No perforation detected. Left ear slightly fetid, serous discharge. Slight epithelial exfoliation. Pyoctanin in both ears. January 11.—Ears fairly clean; both moist. Pyoctanin. January 18.—Right ear, membrane clean and bright. No perforation. Left ear, a little yellow serum in tympanum. Pyoctanin. February 1.—Lungs about the same. Weight, 158½ pounds. Temperature had continued normal. February 8.—Slight tinnitus in both ears. Left ear, a little yellow pus at fundus. March 7.—Gaining weight fast. Began to gain three months ago, when he went back to sanatorium after a loss of weight while at home. Ears not so noisy. Left ear, dry and pretty clean; there has been no discharge. Watch heard at 2¾ inches. Right ear looks very well. Watch heard at 26 inches. March 28.—Very little annoyance from left ear. Dry, clean, and white. Moist tubal râles. Pyoctanin. Right ear all right. April 18.—Tinnitus annoying. Right ear clean. Left ear blue at fundus. Pyoctanin. No discharge. Entire loss of the tympanic membrane, which has melted away. The manubrium mallei stands out clear without cicatricial adhesions, which all have melted away. Signs are still present in lungs. May 2.—As before, excepting the loss of the lower fourth of the manubrium mallei. May 4.—Involved area of lung has decreased from the eighth to the sixth rib. Still has normal temperature; weight, 163 pounds.

Summary: Tuberculous invasion of the ear is primary or secondary. Primary invasion is direct through the Eustachian tube or through the mas-

toid lymphatics. Tympanic tuberculosis is a very early sign of a more general infection. It also gives an accurate indication of the course of a concomitant pulmonary tuberculosis. Tuberculous mastoiditis has similar characteristics to tuberculous inflammation of other bones. Prognosis for the ear tuberculosis is good with proper hygiene and local treatment, and early through operative treatment in cases of bone involvement. Pyoctanin dry treatment is the most efficacious for tympanic tuberculosis. The evil effects of a tympanic tuberculosis may cause pulmonary tuberculosis to take a lethal course.

57 West Fifty-third Street.

THE CHEMICAL RAYS PROMOTERS OF LIFE AND ENERGY: THEIR MODE OF ACTION, AND THEIR THERAPEUTIC USES.*

By MARGARET A. CLEAVES, M.D.,

NEW YORK.

"The daily tribute to the sun
Lives on, in tree and fruit and flower;
Lives on, with subtle change of power,
When the last hour of the day is done.

And what kindly sun has given,
Reborn in many a varied form,
Is in the wind, the sea, the storm
And when the lightnings flame through Heaven."

In this little verse, a tribute to Friendship† from the pen of that gifted writer Weir Mitchell, is embodied infinite scientific truth.

Many years ago an earlier poet sang in "Lallah Rookh"

"Sunshine, though broken in the rill,
Though turned aside, is sunshine still."

Both have typified in their verse the transformation of the Sun's energy. To the living organism it bears the same relation as to "tree and fruit and flower", and the chemical rays existing abundantly in the solar spectrum are verily the promoters of life and energy.

Experiment and observation have confirmed the doctrine of the correlation of forces and the conservation of energy, and one by one the different classes of energy which present themselves in terrestrial phenomena have been traced to their solar origin. This familiar truth of the transformation of energy, is too little heeded by us in our daily professional life.

We expose the body superficies or some portion of it to the action of light, radium, the Roentgen ray; we utilize some one of the various manifestations of electrical energy, we exhibit drugs, inject serums, ferments and antitoxins, use our mental force or magnetic power in psychical suggestion or control, but how often do we reflect that we are simply using energy of a given kind which is being transformed into the physiochemical energy of life.

Whatsoever we bring to our aid, whether the forty or fifty drugs which have stood the test of time, whether physical measures or psychical suggestion, energy is transformed, and by this transformation physiological conditions are stimulated and established to a degree of more or less completeness according to the extent of impairment and the time, degree and care with which therapeutic measures are used. It is only by discriminating analysis and weighing of the observations and results of the well grounded physician and skilled therapist and by superimposing the fundamental knowledge of the physics and physiological action of the measures used that medicine can advance to the exactitude of a science.

The daily use of light clinically for fifteen years, especially light rich in the chemical (blue indigo and violet) leads me to regard it as an agent of no small import in the many chronic perversions of physiological action requiring medical care and emphasizes my confidence in it, a confidence first inspired by its known relation to life.

In whatever I bring forward as to its value, I wish it distinctly understood that neither light nor electricity are used to the exclusion of other measures, nor on the other hand are these used to the exclusion of drugs, serums, ferments, psychical suggestion, and above all the most careful directive and educative work in matters of diet, hygiene, and sanitation.

Chemical action is not confined to frequencies of short wave length, any more than thermal action is confined to the frequencies of the red region.

Under suitable conditions the green, red, and infra red will produce photographic action. The only physical distinction to be made between light rays, heat rays, and actinic rays is that of wave length.

By reason of the different wave lengths a different action upon the living tissues takes place; it is with the component parts of the structure, as it is elsewhere in the physical world, the effects are those of heat, light or chemical action according to the state or condition of matter upon which the energy from the sun or an artificial source is radiated.

Radiation does not leave the sun nor an artificial source as heat, but as radiant energy. The wave lengths within certain limits fall upon the eye and they are called light; the same wave lengths will decompose the silver bromide of a photgraphic plate, hence they are called actinic rays; while equally well they will raise the temperature of a blackened thermometer bulb, therefore they are heat rays.

It is because of these physical facts that physiological action is stimulated and therapeutic results are secured in different degrees by the use of the various light mechanisms at the command of the physician.

The chemical rays of light are not used to the exclusion of the more purely thermal rates of vibration, but it is the former which are to be regarded as the promoters of life and energy and which yield the most profound and greatest range of therapeutic results. Purely chemical or cold light is used to the exclusion of the thermal rates, as, for example, in the Finsen method, or in the use of ultra-violet energy. Even so heating effects are produced.

The relation of life to light is so primary and intimate, and its power to produce physiological stimulation so great, that no matter what the source of light used, result will follow. Despite this truth, however, that source of light and arrangement of mechanism should be used which will tend to secure the best effect.

In a consideration of the subject of light the solar spectrum is the basis. It affords a greater quantity of energy of the blue-violet region than any artificial light and is very rich in ultra-violet at its source but fortunateiy the latter rates are largely absorbed by the atmosphere in transit from the sun. While the solar spectrum as a whole yields the maximum energy requisite to life and therapeutic result it is impractical to depend upon it for the latter where concentrated and well localized applications are essential, especially in northern climates and crowded

*Read before the New England Electro-Therapeutic Association, Boston, June 12, 1908.

†Dr. S. Weir Mitchell, *Everybody's Magazine*, April, 1908.

cities. In the electric arc, there is to be had a miniature sun, giving more of the very valuable chemical energy of the blue-violet than any other artificial light. It is always available wherever there is electric power, lending itself readily to therapeutic needs, and at the same time with proper adjustment of mechanism yielding an abundance of ultra-violet energy which can be used very near its source.

On the other hand incandescent lamps of varying candle power, single or in groups, likewise yield blue violet or chemical energy, but to an inconsiderable extent as compared to the electric arc. With an increase in candle power requiring heavier wiring and more amperes than the ordinary incandescent light circuit there is increased spectral energy, which means an increase in the blue violet. If an incandescent light were rich in ultra-violet energy, as it is not, this energy would still be unavailable on account of the glass enclosing bulb.

Spark light, however, from a static machine or coil is rich in ultra violet energy, and spark lamps with quartz lenses afford these energtic short waves in abundant quantity. They, however, lack in quantity the penetrant energy of the blue violet.

The light of vacuum tubes, energized either by means of a coil or static machine, is also chemically active, but the glass enclosing bulb while prohibiting the passage of the ultra violet permits that of the blue violet.

To secure the best physical action and therapeutic result, a source of light which yields a complex of all the frequencies, especially an abundance of the penetrant energy of the blue violet, should be chosen, for quantity is essential.

The physical action of light is comparable to that of the constant or galvanic current. In my use of light and especially the light of electric arcs of from 10 to 80 amperes I have constantly been impressed with the similarity of observed action and result from the use of light and that of the constant current. The one acts equally well with the other in many conditions. This is true however of all our directive and corrective physiological stimuli.

It is ninety years since Grotthuss formulated the two laws of light which fundamentally account for its catalytic actions: (1) Only those rays of light which are absorbed can produce chemical action. (2) The action of a ray of light is analogous to that of a voltaic cell.

It is therefore in accord with physical facts to compare the action of light with that of polar electricity (constant or galvanic current). It is the accumulation of the products of electrical decomposition at the poles which differentiates the use of the one from the other in definite morbid entities. Grothuss' conception of light and his conception of photo-chemical processes as electro-chemical ones were largely brilliant prophecies which to some extent are only now receiving their scientific confirmation and experimental foundation. In a series of papers on the electro-chemistry of light, Wilder D. Bancroft* points out that in many instances it would only take a slight change in the wording to make the work of Grothuss quite modern. Instead of saying as Grothuss did of the decomposition of silver by light, that the silver combines with the +E of the light, the electro-chemist of to-day would say that in the electrolysis of a silver salt the positively charged ion is converted into silver rather by losing its positive electric charge or by having the positive electric charge neutralized by a negative charge.

The E. M. F. of light is very low indeed. But the tissues of the living organism in health lend themselves to the action of radiance, are, so to speak, transparent to them and therefore a high E. M. F. is non-essential to characteristic action. Because of its greater E. M. F. and polar action the constant current influences more profoundly deeply seated and well organized inflammatory products.

The transference of the ions of soluble electrodes such as zinc, mercury, copper, and silver at the anode may be compared to the sensitization of the tissues by light sensitive substances as eosin.

In the chemical action of light we are dealing with phenomena analogous to the formation and decomposition of chemical compounds under the influence of the electric current.

It is a well known fact that the rays of the spectrum producing the greatest heating effect are not the rays of the spectrum which produce the greatest chemical effect. While it is true that all can and do produce chemical action depending upon the substances to which they are placed in relation, the rays which are most active chemically in relation to the living organism are the same as those active in the blackening of silver and are to be found at the upper end of the spectrum.

Chemical action, which is the highest form of vibrational activity, is best induced by the shorter frequencies of vibrational activity of the oscillating light frequencies. As the living organism is a chemism it is but rational that the most profound and deep seated effect should be produced by the highly chemical and penetrant frequencies of light vibration. Such is the case, although all the frequencies are necessary to direct and conserve the best physiological activities; likewise all lend themselves to therapeutic result, but not equally.

So far as light frequencies are absorbed they energize, for absorption means work accomplished. No energy is lost, and the extinction of energy in space or its absorption and consequent disappearance is one of nature's fundamental truths. When absorbed it is converted into other forms of energy of equal value. When the waves of light fall upon a growing plant work is done, and the green leaf absorbs all the frequencies of light except the green, which is reflected. In the light absorbing substance a transformation takes place, beautifully shown in the green leaf by the chlorophyll function.

In the unity of result secured by the use of electricity, radiant energy and the internal secretions in the promotion of nutritive processes there is a common action explainable on common ground, an action already foreshadowed and fundamental to cell metabolism.

It is not that we fail to obtain result from our chosen therapeutic measures, but that we fail to understand clearly the relation between the lack of chemical control in the living organism and the physiological action of the measure used. The physiologist Pawlow* of St. Petersburg has voiced the belief "that the world of pathological phenomena is nothing but an endless series of the most different and unusual combinations of physiological occurrences which never make their appearance in the normal course of life. It is a series of physiological experiments, which nature and life institute, often with such an interlocking of events as could never enter into the mind of the present day physiologist, and which scarcely could be called into existence by means of the technical resources at our command. Clinical observations will consequently always remain a rich mine of physiological facts."

*The Electro-Chemistry of Light. Wilder D. Bancroft. *Journal of Physical Chemistry*, April, 1908, p. 209.

*Pawlow: "The Work on the Digestive Glands," Thompson's translation, p. 46, 1902.

Of equal importance to the physiologist and the clinician are the problems of nutrition, respiration and tissue metabolism.

In so far as I have looked into the recent work of Sajous,* his deductions, it seems to me are worthy of recognition as a basis for physiological therapy. The principles which he has evolved from his analysis of all the known facts, are not new to the thought of the more advanced and best thinkers in the profession, but only now have they been logically followed to a conclusion in their threefold relation, physiological, pathological, and therapeutic. In their acceptance a rational explanation of the action, not only of the various remedies which are known to produce definite effect but of physical measures as well, is afforded.

The principles involved may be outlined as follows: It is not yet understood how stimulation causes the dilatation of blood vessels. All disorders are functional or organic, and function is impaired by all organic diseases. The function of the leucocytes is to convert the constituents of the ingested proteids into living proteids. The granulations of the leucocytes supplied to tissue cells are living substance.

The adrenal active principle endows the constituents of proteid with life. The white cells are highly organized, though diminutive secreting organs. By reason of the various ferments contained in them, each cell may, says Carles,† be regarded as a minute laboratory.

The correspondence between the chemical properties of adrenal extracts, adrenalin and other adrenal extractives, with those of the active principles of the oxidizing substances oxidase wherever found, experimentally shows that a ferment of which the active principle of the adrenal secretion is a type, is the active agent in the oxygenation process of all plants and animals.

The observations and experiments of recent physiologists‡ (Haldane and Smith) on mice, birds, dogs and other animals, they found that the normal oxygen tension in arterial blood is always higher than in alveolar air; and they were consequently led to conclude that the transmission of oxygen between the alveoli and the blood cannot satisfactorily be explained by mere diffusion.

The physiological function of the internal secretion of the adrenal is loosely to combine with the oxygen of the air in the pulmonary alveoli and to endow the blood with its oxygenating properties. To this internal secretion of the adrenals, Sajous has given the name of adrenoxidase, a term which embodies its origin, the adrenals, and its general distribution as suggested by oxidase.

The presence of oxygen saturation and alkalinity in the leucocytes is necessary to secure their staining by methylene blue. In this is found the proof of the presence of adrenoxidase, as it shows that they contain the oxidizing substance and blood salts. The presence of oxidase in leucocytes is also demonstrated by means of the guaiac test. The presence of trypsin and other ferments is recognized as a fundamental feature of phagocytosis. The dynamic element in the vital process is believed to be the adrenal principle.

A portion of the pancreatic ferments causes the formation of an intestinal secretion which passes through the splenic vein and into the portal system, likewise the splenic internal secretion.

*Internal Secretions and The Principles of Medicine. Sajous.

†Carles. Paris, 1904.

‡Haldane & Smith. *Journal of Physiology*, Vol. XXII., p. 231, 1897.

In the portal system the leucocytes absorb the pancreatic ferments and splenic internal secretions which they supply to the tissue cells and with which they carry on their intrinsic functions.

The nervous system in keeping with other tissues is composed of cells likewise developed and nourished by leucocyte granulations and traversed by the oxygen laden adrenoxidase. The myelin of nerves is not a nerve insulating material of sheath, but a compound rich in phosphorous which, when in contact with the oxygen-laden adrenoxidase circulating through them, generates nerve energy.

A thorough analysis of all the data anatomical, physiological, pathological, and therapeutic leads to the conclusion that the pituitary body is the general and governing center of the spinal system, which includes the gray substance of the base of the brain, pons, bulb of the spinal cord and the nerves derived from them. The anterior pituitary body is a lymphoid body, which through the intermediary of a center located in the posterior pituitary body, the upper dorsal sympathetic ganglion and the splanchnic nerves govern the functional activity of the adrenals.

The abdominal main path to the adrenals is the great splanchnic nerve. It is further concluded that the anterior pituitary body governs through the posterior pituitary body all of the oxidative processes of the body. The functional activity of the thyroid glands is also controlled by the posterior pituitary center, thus constituting the adrenothyroid center.

By the functional union of the pituitary body, adrenals and thyroid the adrenal system is formed.

In the higher mammals the rank of protective organ has been accorded to the pituitary body. It is reasoned from all the evidence in hand that one of the functions of the pituitary body is to detect any toxic substance that may be present in the blood and that it is the foundation of the organism's autoprotective mechanism. The thyroid and parathyroid secretions jointly form the opsonin and agglutinin of the blood; the adrenal system composed of the pituitary body, the adrenals and the thyroid apparatus constitute the immunizing mechanism of the body. It may be reasoned that as the adrenal system has for its purpose to protect the body against disease, that by enhancing the functional activity of the adrenal system we can overcome disease. Through the functioning adrenal system there appears in the blood and phagocytes an excess of autoantitoxin, a chemical homologue of diphtheria antitoxin and other antitoxins. This autoantitoxin, and all other antitoxins, is composed of the internal secretions of the adrenals, adrenoxidase; Ehrlich's amboceptor of the pancreas, trypsin; Ehrlich's complement of the spleen and leucocytes, nucleoproteid; and by the thyroid and parathyroid, thyroidase, Wright's opsonins. The increased bacteriolytic and antitoxic proportions of the blood and phagocytes are due to an excess of this autoantitoxin.

The role of heat center has been attributed to the pituitary and owing to a nervous connection with the adrenals which has been proven to exist, the adrenal secretion should be capable of raising the temperature when in excess in the blood. Physiologists have observed a slight transitory disturbance of the ratio of heart beats, also of the respiration and of the body temperature, under the effect of adrenal extractives. Removal of the adrenals and destruction of the pituitary body are followed by a steady decline of temperature until death results. Jacques Loeb has predicted that through the oxidases one may be able to control life as the artist governs the keys of the piano.

From his very complete analysis of extensive data scattered throughout the literature bearing upon the science of medicine and illumined by his years of observation and experience, Sajous deduces the following facts:

(1) That adrenoxidase (the oxidases) is the agent through which life may be controlled.

(2) That it is the center of the adrenals in the pituitary body which, through the adrenals and their adrenoxidase-forming secretion, controls life.

(3) That the adrenal center is an organ having for its purpose to test the blood and protect it against the intrusion of noxious substances.

(4) That noxious substances introduced into the blood can, by provoking a reaction of the adrenal center, enhance the activity of metabolic processes.

(5) That inasmuch as we can therapeutically (all drugs being toxic as far as the test organ is concerned) increase or abate fever, we can also control tissue metabolism and its derangements.

(6) The test organ is therefore to be regarded as a keyboard through which we can "favor or retard the action of the oxidases," *i.e.* the vital process itself.

In the absence of other and more natural basis for our therapy it seems that we can do no better than to accept these conclusions of Sajous. If correct they will stand; if not, future research and observation will refute them.

To the therapist familiar with the physics of light and its physiological action as well as experienced in its use as a therapeutic measure, is afforded a clear and rational explanation of its mode of action as well as that of other measures.

In all uses of light the point upon which stress is constantly laid is in its enhancing the oxygenating power of the blood. In all my work with light, and in all my writing concerning it, this has been the constant theme. The hyperemia, superficial or more or less deepseated, secured as a result of exposure of the body superficies to light serves not only to render more active the sluggish circulation, to the relief of arterial tension, but serves as well to increase activity of the adrenal function. This would mean a pouring out of the adrenal secretion to combine with the body's oxidase forming the adrenoxidase, and through this agent physiological processes may be controlled. Better oxygenation of the blood means better respiration, better circulation, and better tissue respiration or metabolism and a better functioning control organ, by means of which each and every cell takes on physiological activity.

There is always secured by the body's exposure to the action of chemically active light, when intelligently prescribed and administered, a sense of warmth, quiet and wellbeing. Especially is this true of the electric arc. The stimulus thus imparted to the chemical activities extends its influence to the nerves and nerve centers, for after all they are fed in the same way by the circulation as other tissues.

May not the similarity of action and result in functional and to a certain extent organic conditions from the use of electricity, light, *x*-ray, radium, in a word radiant energy, and the internal secretions be due to the ability of all these agents when used within physiological limits to stimulate ferment action, the same stimulus which is secured by the exhibition or injection of suitably selected internal secretion preparation. The sun gave life and the sun perpetuates life—without it we should not continue our existence. All glandular activities have to do with the ferments upon whose integrity depends life, and the therapeutic aids which minister to this integrity command our earnest attention. There is much shadowed forth in this connection to which I do not wish to give expression, because the proof at hand does not warrant it. This is true, that all about us, close at hand lies a wealth of unobserved and as yet unrelated fact, awaiting only the mind of the intuitive genius to tear aside the intervening filmy veil. Too strong sunlight is not good and in the tropics the skins of the people are densely pigmented to prevent hurtful effects. It is not irrational to believe that in this natural condition we have a wise provision of nature to prevent a destructive action upon the ferments. If the action of light is too strong, an inhibitory effect may be the result. In the time at command it is only possible to suggest these lines of thought for your earnest study and investigation.

The biological importance of the chemical rays has been fully established by a host of conclusive experiments. They are absorbed, they energize. Absorption means work accomplished and this work in the living organism is the direction of the chemical processes necessary to life and energy.

It is easy to follow the further rationale of their action according to this interpretation of physiologic action. The degree of result obtainable from their use must of necessity depend upon our correct reading of the conditions to be treated, as well as our technique and dosage. The malarial plasmodium is deprived of white light by reason of the opalescent qualities of quinine. It is easy to understand, therefore, why quinine is the remedy in malaria, and why sunlight is bad. The blood cell, so to speak, is shadowed from light by the characteristic flourescent properties of the specific drug.

The range of effects from radiant energy are from life to death—from light to dark. Injury may come, death may follow or reversion to physiological processes may be secured. Therapeutic result, however, is far more frequently obtained than damage done.

Résumé: (1) The chemical frequencies of light are the promoters of life and energy.

(2) Thermal are never used to the exclusion of chemical frequencies in light therapy.

(3) Chemical frequencies are directive or destructive according as they are used. Especially is this true of the irregular disorderly impulse of the *x*-ray as compared with the rhythmic energy of the visible spectrum.

(4) The *x*-ray and radium radiations are of great value in many skin conditions, even superficial epitheliomas, in some instances mitigating the symptoms and staying the progress of deep seated malignant processes as well. They are, however, on the other hand capable of exciting malignancy and inhibiting physiological function.

(5) Bactericidal energy has been located by experiment in the middle third of the ultra violet region. Skin reaction is established by ultra-violet energy.

(6) The best results are secured in deep seated well organized skin lesions by a complex of the penetrant blue-violet and ultra violet.

(7) Where profound sudation is desired over and above penetrating effects, a source of light affording thermal with a minimum of chemical energy is indicated.

(8) When deep seated effects are desired, sources of light rich in blue, indigo, and violet are indicated.

(9) The spectra of the different sources of energy vary in degree not kind; hence the interlocking of effect secured and result established from the various light sources.

(10) When the office equipment affords but one light mechanism preference is yielded the electric

arc as providing the maxima of energy required in initiating and establishing necessary physiological processes whether the departure from the normal is characterized by a skin expression or not.

(11) More or less profound hyperemia is established as a result of the use of light, depending upon its length of application and the degree of penetrating power. Upon this depends the rationale of its action.

(12) The physiological action of the chemical rays is fundamental to nutrition.

(13) The chemical rays are an invaluable therapeutic adjunct in the host of chronic conditions characterized by loss of chemical control; they lend themselves to conditions of malnutrition or perversions of nutrition, to both simple and secondary anemias, controlling hemorrhagic conditions associated with the latter, as uterine and rectal, for example. They are almost a specific in the annulment of pain, relieving for a time even that from pressure of malignant growths, quieting and steadying nerve action in simple nervousness, storing up energy for the neurasthene, establishing more or less hyperemia in organic cord conditions and to that extent holding and preventing extension of the disease, contributing alike to the relief of a simple depression or excitability and to a maniac-depressive insanity. They are likewise effectual in absorbing effusions from serous cavities and subcutaneous structures, whether secondary to malignant processes, an inflammation, a leaky heart or a hydrocephalic effusion associated with rachitis. They also prevent and cut short the progress of infective processes, and cure or improve the many skin expressions of disturbed metabolism. Equally they may arrest and control respiratory disturbances from a simple catarrhal cold to a bronchial asthma or a pulmonary tuberculosis. They are in short an agent of infinite value either alone or supplementary to other measures when intelligently directed and skilfully applied. In an office affording every luxury of equipment, I feel that of physical measures the constant current and electric arc contribute very largely to the securing of therapeutic result.

CUGUILLERE'S SERUM IN THE TREATMENT OF TUBERCULOSIS.

By EUGENE CARAVIA, M.D.,

NEW YORK.

Ever since Jaccoud, in a series of lectures published in 1881, proclaimed the curability of pulmonary tuberculosis in all its stages, a general endeavor to find a curative treatment for the white plague has occupied the minds of scientists all over the world. It seems, though, that notwithstanding the great advance in the knowledge of tuberculosis, its treatment has not made much progress. Jaccoud's general outline of diet, hygienic measures, aërotherapy, and hydrotherapy is still in vigor, and, with but few modifications, is the Credo of the majority of practising physicians, who have practically discarded the long list of drugs and the various tuberculins and sera.

Have we gone back to the pessimism of Laënnec, who wrote that "the cure of tuberculosis is possible for Nature, but not for the physician"? Are we, like the nomadic populations, to depend entirely on the influence of the sun and the moon and the air, and some symptomatic palliative remedies? Is the physician to abdicate the rôle of a therapeutist?

The following description of Dr. Cuguillère's serum may give a negative answer to all those questions; and notwithstanding the fact that some cases of pulmonary tuberculosis may owe their cure to diet and fresh air and sun, and some others to this or that other drug, to this or that other tuberculin or serum or method of treatment, Dr. Cuguillère's serum is the only one thus far which has stood severe and most scientific experimental tests on animals, and the only one which has given the most constant and positive clinical facts.

Dr. Cuguillère's vegetable serum is in the ninth year of its existence. Its principle is based on Koch's writings, who in order to conquer tuberculosis set himself the task of solving three propositions: (1) Determine and cultivate the pathogenic agent of tuberculosis; (2) Find out and classify all the agents able to attenuate its culture or to kill them *in vitro;* (3) Find out a way to obtain the same effects in the animal and human organism.

Everybody knows how successful he has been in the first proposition by determining the staining reaction and cultivating the bacillus known by his name. To solve the second and third propositions, Koch used successfully, but *in vitro* only, physical (heat, light, electricity) and chemical (acid bases) agents. But those agents could not be used in living beings.

Another line of experimentation brought Prof. Koch to use a certain number of metals which have the power to kill rapidly and surely the cultures of *B. tuberculosis.* Rollin found that a nonoxidizable metal without radioactivity, like platinum in metallic state, will totally prevent the development of *Aspergillus niger.* Koch found that cultures of *B. tuberculosis* are killed in the presence of even an infinitesimal solution of the salts of gold. Other metals exhibit the same properties. Metalloids, like sulphur, chlorine, iodine, bromine, are as much, if not more, active.

But those agents also have been found without action on the bacillus in living organisms. "A healthy organism," says Cuguillère, "tolerates with difficulty the absorption of metallic salts. An organism infected with tuberculosis is not able to retain those necessary for its own defense. It demineralizes itself, and, consequently, it seems impossible to assimilate new ones."

Then Koch abandoned this line of investigation and declared that tuberculosis would be curable by the introduction into the organism of an organic remedy, hence his new researches on products elaborated by the tubercle bacillus.

Cuguillère agrees with the opinion that tuberculosis could be cured by a living serum, but he thinks that instead of toxins and antitoxins, this serum can be made to carry colloidal metals already assimilated, that have become organic, living, and possessed of their maximum activity. Consequently, it is the mineral and vegetable kingdoms that furnish the active principle of his serum, that is, organic sulphur taken from fresh juices of Brassica, Allium, watercress, horse-radish, and other herbs known and for many years used as antiscorbutic and antirachitic remedies.

Cuguillère's serum is a yellow liquid having a strong odor of garlic. It produces a burning sensation which disappears a few minutes after the injection. Its formula as given at the Congress of Tuberculosis in Paris, is:

Allylum sulphide,* 1.0; 1. Tincture of myrrh, 1.0; 1. Hayem's glycerinated serum, 100.

It is not possible to give in an article of this kind a detailed description of all experiments on animals and of all cases of human tuberculosis treated with

*The synthetic allylum sulphide is inactive.

Cuguillère's serum. It will suffice for our purpose to give a summary of some of them, taken from the writings and communications of Dr. Cuguillère at the Medical Congress held in Biarritz in April, 1903, the Congress of Tubereulosis in Paris in 1905, and the Société d'Applieation des Sciences Médicales, 1906, of Dr. Faure in Le Progrés Véterinaire of 1905 and 1906, of Drs. Escoyez and Cuvelier of Belgium, Dr. Carcano of Milan, Dr. Cutiliero of Lisbon, at the International Congress in Paris in 1905, and the International Congress of Medicine, Lisbon 1906, supplemented by a few personal cases.

The experiments on animals took place under the direction of V. S. Faure at the Chateau de Savignac sur l'Isle (Gironde, France), the property of the Marquis de Castellane, who is in the habit of submitting to the tubereulin test all bovine animals thirty days after buying them, in order to eliminate from his dairy all diseased ones.

1. Holstein cow, 8 years old, deficient general condition, very thin, with dry skin adherent to the ribs, dry cough. Resp. 48 a minute, rectal temperature 38° 6 to 38° 9, lymphatic glands on the sides, four times their normal size, hard, rolling under the finger, indolent; intermittent meteorism, obstinate diarrhea, nasal mucosities scarce; percussion on the ribs provokes coughing and signs of distress, kidneys sensitive to pressure; auscultation reveals the symptoms of double pleurisy at the lower parts; the middle and superior parts of the lungs present certain points with diminished vesicular murmur, others where it cannot be heard at all, while in others the murmur is increased, hard; ambulant sibilant râles. Rectal exploration reveals an increase in size of mesenteric glands. Diagnosis, pulmonary and glandular tuberculosis. Diagnosis confirmed by an injection of tuberculin. Condition aggravated three weeks later when another injection of tubereulin gives a reaction of 2.3°. After the first injection of 20 c.c. of Cuguillère's serum the temperature fell to normal and the appetite improved. Weekly injections of the same serum were given in doses varying from 20 to 50 c.c. for six weeks. At the end of that time there was no reaction with tuberculin; average temperature was 38.7° C.; notable general improvement; glands on the side reduced to almost normal size; coughing rare, resp. 20. Vesicular murmur a little harder than normal, excellent appetite, perfect digestion. Nothing abnormal in the size of the mesenteric glands. Injections of serum were continued three months longer. No reaction with tuberculin; increase in weight 75 kilograms. The animal seemed cured. It was decided to kill the animal to determine its condition.

Autopsy.—Sublingual and bronchial glands present a normal aspect; mesenteric glands show evident traces of cured tuberculous lesions, the cicatricial tissue contains encysted fine granulations of a very clear yellow color, calcareous, identical with calcified tuberculous granulations. Lungs, only some light foci of pneumonia. Absolutely nothing on the pulmonary pleura. Parietal pleura shows remnants of pleurisy, with here and there some filaments, small floating shreds of fibrous appearance and grayish-white color; but these were not considered as the remnants of tuberculous pleurisy.

2. A second cow with a fistula from a tuberculous abscess near the parotid surrounded with lymphatics, forming nodulous strings; enlarged sublingual, prepectoral, and superficial glands also in the abdominal wall. Cough, resp. 130, sibilant and mucous râles, slight pleuritic friction, cavernous murmur on the left anterior lobe; very decided diffuse dulness on percussion except anteriously on the left, where exaggerated resonnance almost tympanitic is found. General condition bad. Tuberculin reaction positive. Treatment with Cuguillère's serum weekly for three months—10 to 80 c.c. Owner cannot keep the animal isolated, and decides to kill it.

Autopsy.—Lymphatic glands normal in size, presenting on incision some rare yellowish granulations. Pleural adhesion on the left pulmonary lobe, of the size of a 10-cent piece. On the pulmonary pleura, patches the size of a 50-cent piece to the width of the palm of the hand, transparent and smooth, elevated only ¼ to ½ millimeter above the surface of the pleura; on incision the patches creak, have the aspect of fibrous tissue. On the parietal pleura those patches are more rare, smaller, and thinner. On the surface of the left anterior lobe are two patches 4 cm. in diameter, presenting in their centre fibrous filaments. On the corresponding parietal pleura are similar lesions but 1-3 smaller, which are the remnants of persistent adhesions ruptured at the time of the removal of the lungs.

The curative progress of the lesions was far more advanced in the pulmonary than in the parietal pleura, while in the first case the cure of the pulmonary pleura was more advanced. A transverse incision of the lung shows healthy pulmonary lobules that have never been invaded by tubereulosis; others show no trace of tubereulosis but are reduced to 2-3 their normal size. They are traversed by numerous bands of fibrous appearance; similar to so many pulmonary lobules which have disappeared, leaving a thick cellular tissue of fibrous appearance; at some points 3, 4, or 5 lobules are reunited in this way, being the remnants of a cured tubercle whose morbid product have been expectorated. At others, there are well defined masses varying from the size of a walnut to that of an apple, with walls of fibrous appearance and white yellowish, spongy, areolar, soft contents, divided by laminae starting from the wall and having a similar fibrous appearance. On other points there are real caseous masses with thick pus, resembling Roquefort cheese and having a thick fibrous wall with concentric layers, the thickness of which increases as one approaches the periphery.

Elsewhere there are tumors of dimensions varying from that of a walnut to that of a large apple; their section shows a tissue of fibrous appearance, traversed by bands of similar nature, but of a more grayish color, with here and there some projecting, yellowish granulations. Even here those lesions are surrounded by a very thick fibrous envelope with concentric layers of variable dimensions, layers much more numerous when the disease is nearer its disappearance. Finally the left anterior lobe, on the surface of which the lesions were late in the healing process, was completely collapsed; the pulmonary tissue was replaced by cicatricial tissue formed of thick and numerous lamellæ of fibrous appearance.

The liver was larger than normal and congested, containing tubercles of variable dimensions, surrounded by an inflammatory areola (a reactive inflammation intended to separate diseased tissues from healthy ones). Similar conditions were seen in the spleen: tubercles in process of healing.

Finally the lesions of the parotid gland were also significant of the progress towards recovery. The fistula was reduced to simple fibrous string; the tumor shown during the treatment in the anterior and lower part of the ear, was an encysted tuberculous abscess with evident signs of healing. This autopsy was instructive, showing much better than an autopsy of a cured animal the astonishing effects of this treatment.

Dr. H. Martin Roux (of the Bichat Hospital in Paris) made a microscopical examination of the lungs, glands, and liver of three different cows, treated with Cuguillère's serum, and found an evident process of healing by sclerosis and an abundance of phagocytes preceding the sclerosis. In all the organs tubercles of various size were encysted in thick fibrous envelopes. Roux was unable to detect, by Ziehl's method, a single Koch bacillus.

Similar experiments were reported on a number of tuberculous cows, after positive tuberculin injections, confirming the correctness of the diagnosis. The treatment by Cuguillère's serum was followed until the tuberculin test gave a negative reaction; and always the autopsy brought to light the same curative changes in more or less advanced degree of the healing process.

The cheesy matter found in healing or healed tubercles from animals treated with Cuguillère's serum was injected into rabbits and guinea pigs, not one of which contracted tuberculosis. Guinea pigs were then injected subcutaneously and into the peritoneal cavity with a dilution of human and bovine tuberculous pus. The three guinea pigs injected with bovine tuberculosis and three others inoculated with human tuberculosis reached after a while apparently the same stage of tuberculous cachexia and were submitted to the Cuguillère treatment. Three months later an autopsy showed that all the animals were cured and the cure was more decided in those inoculated with human tuberculosis.

Effects produced by the injection of the serum on bovine animals: Dr. Faure states that after 3 or 4 injections, the general condition is changed completely, and the changes are more notable when the animal is in a more advanced degree of tuberculosis. Without any grooming, the hair becomes smooth and bright, the skin more elastic, the appetite improved. There is a notable diminution in the volume of superficial glands proportionate to the number of injections; fluctuation, if it exists at the beginning of treatment, disappears; glands become hard and of fibrous consistence. The cough short, dry, painful, becomes stronger and more frequent and loose. Expectorations are more numerous and the products of excretion are so abundant that big, mucous, tracheal, sonorous râles may be heard at a distance. All those signs grow less and less in intensity and disappear completely the fifth or sixth day after the injection. With the increasing number of injections, all those effects disappear permanently after a time varying according to the intensity of the disease. Auscultation shows a decrease of initial symptoms, like gurgling, sibilant rales, pleuritic friction. At the end of the treatment, breathing is more hard, here and there absence of respiratory murmur; but never sibilant or mucous rales. This is explained by the complete absence of acute lesions, because, as the autopsy shows, near the lesion is healthy tissue without inflammatory zone of transition.*

It is well to remember that animal tuberculosis, as a rule, is not complicated by streptococcic (the chief ally of Koch's bacillus) or other infections. Hence, the uniform remedial action of the vegetable serum.

Let us pass now to human beings and cite a few cases of surgical tuberculosis, the first were furnished by Dr. Cuguillère himself in a paper read before the International Congress of Medicine held in Biarritz, April 19, 1903.

*Dr. Cuguillère and his colleagues, including the writer, will welcome the opportunity to repeat those experiments on animals under the supervision and control of any institution, society or body of physicians who will in the interest of science furnish subjects for experimentation.

1. Fungous osteoarthritis of the foot. Miss B. C., of Beziers. History of tuberculosis in the family. Tuberculosis of the tarsus from the age of six until the age of twenty-five. Four seasons at Balaruc (a thermal sodium chloride spring in the Herault, France) without effect. After twelve weekly injections, spontaneous elimination of tarsal necrosed bones. A season at the seaside activates this recovery maintained for the last four years. Foot composed of the calcaneum and metatarsal bones; complete mobility of the fibrous articulation.

2. Osteoperiostitis of the tibia. Miss L. L. Disease unyielding to seaside treatment. Recovery after six injections of serum. Later a season at the seaside.

3. Mr. L. Coxalgia. Impossible to produce ankylosis, unyielding to seaside treatment. After six injections patient walks with the help of a light cane. Followed by another course of thalassotherapy. Cuguillère never employs absolute immobilization; moderate exercise with massage and injections of his serum brings the complete resorption of fungosities.

4. Miss L. Y. Caries of the ribs. Recovery after five injections. Thalassotherapy after.

5. Mr. M. Osteoarthritis of the right knee; suppuration four years. Six seasons at Balaruc without effect. After twelve injections and one month's stay at Balaruc, recovery. Existing ankylosis previous to injections, partially relieved.

6. Tuberculous pleurisy. Miss B. C. Costal abscess open in pleura and externally. Pleural cavity containing 150 c.c. of fluid. Seaside treatment without effect. Resection proposed. Instead the serum was used to wash the cavity eight times. Fibrous adhesions formed. Recovery maintained after short season at the seaside and confirmed by radiography three months later.

It must be noted that the recoveries were due to the injection of the serum only. The seaside treatment was recommended as an additional tonic, and Dr. Cuguillère has done without it in later years. Cervical adenitis of a tuberculous nature was also cured by the serum, as well as tuberculous tumors of the breast, peritonitis, salpingitis, and lupus.

Dr. Cuvelier of Lens, Belgium, in a paper read before the International Congress of Tuberculosis held in Paris, October 2 to 7, 1905, presented the history of six cases of coxalgia, tuberculosis of the wrist, elbow, knee, treated with Cuguillère's serum. Some of them recovered, while the others were on the road to complete recovery at the time the paper was read. Since then, however, they all have recovered and Cuvelier says that Cuguillère's serum assures him a success in every case of surgical tuberculosis that he treats, voicing thus the unanimous experience of all those who have adopted this method of treatment.

What veterinary surgeon V. Faure has done in bovine pulmonary tuberculosis, Dr. Escoyez has undertaken to do in human pulmonary tuberculosis. His position in a Belgian sanatorium enabled him to employ various medications. He used phosote, similar to but less toxic than creosote, the open-air treatment, and Denys' tuberculin. Although he had good results with the latter, since 1904 he has used Cuguillère's serum because he has found that—(1) Its curative action is more rapid than that of Denys' tuberculin.

(2) It produces the degeneration of the microbes and phagocytosis the same as tuberculin. After a series of injections, varying according to the virulence of the bacillus and the gravity of the pulmonary lesion, all bacilli become granulated and are ingested by leucocytes.

(3) Cuguillère's serum acts in advanced cases where tuberculin is powerless. In extended lesions, tuberculin favors the generalization of congestion and hastens death because the organism is unable to react against the increased amount of toxin introduced by the tuberculin injection, or aggravated uselessly the preexisting symptoms.

(4) Cuguillère's serum increases considerably the appetite, facilitates digestion, and increases weight; with tuberculin there is a decrease in weight while the treatment lasts; an increase comes after its cessation.

(5) Treatment is easier by Cuguillère's serum. There are complicated rules in the employment of tuberculin, subject to the presence or absence of fever and its reaction or toxic effects; the employment of the vegetable serum (which is not toxic) is very simple, the minimum dose being 1 to 2 c.c. and the maximum 5 to 10, and very seldom 15 c.c. There is no reaction in apyretic patients; where fever is present there is a rapid and positive fall after 3 or 4 injections, and more rapid if the progress of the disease is more acute. Consequently, according to Dr. Escoyez, it will not be the temperature which will guide the physician in the determination of the dose, but the reaction produced in the lungs, the increase of cough and expectoration. But Dr. Cuguillère finds valuable indications also in the temperature. After the injection there is a reaction shown in the rise of the temperature the day when the injection of the serum is made or the day following. Cuguillère considers a sudden fall after the rise a good prognostic sign. Experience teaches him also that the dose must be increased when it fails to produce a rise in temperature any more.

(6) In desperate cases the vegetable serum alleviates the condition of the patients and lengthens their lives.

At the International Congress of Tuberculosis (Paris, 1905) and at the International Congress of Medicine (Lisbon, 1906), Dr. Escoyez reported the histories of forty cases of pulmonary tuberculosis treated with Cuguillère's serum. Since then he has treated 107 additional cases, making a total of 147. Seventy-one of these cases could not be considered because they died from other causes; 15 because they did not continue treatment, and 54 because, on account of their advanced condition, they received inoperative doses as an encouragement only. Of the remaining 76 at the time this summary was prepared 41 were radically cured; 14 were probably cured (general and local conditions excellent but rare bacilliferous expectoration due to the incomplete collapse of the affected portion of the lungs), 6 markedly improved, 3 improved, 3 were stationary or progressive, 8 died. The deaths were due to complications like peritonitis, grippe, and cardiac affections. With the radically cured the percentage was 53.8 per cent., and if we add the 14 practically cured, the 6 greatly improved, and the 3 improved, we have a total of 64 successful cases or a percentage of 84.2 per cent. Dr. Escoyez has classified his cases into six types: those who had (1) lesion of one apex; (2) lesions of the apex with more extended infiltration; (3) deep lesions involving at least one-half of the lung; (4) one lung involved in its entirety; (5) both apices, and (6) both lungs. The cases that died belonged to types 4 and 6.

Other Belgian physicians, Dr. Carcano of Milan, Italy, Dr. Cutiliero of Lisbon, Portugal, Dr. Rabaine, etc., have treated a large number of cases of pulmonary tuberculosis with good results.

The writer has had four cases of so-called local tuberculosis and four cases of pulmonary tuberculosis, short histories of which, though incomplete, are here presented. Two cases of cervical and submaxillary adenitis of two and three months' duration yielded to five injections each. Recovery, with general health improved. No relapse seven months after the completion of treatment.

Case I.—Mrs. B. L., Brooklyn. White swelling of the left knee-joint started 18 months before the patient was submitted to treatment by Cuguillère's serum. She had been treated previously. The joint trouble had been diagnosed and treated as rheumatism, and in June, 1907, she was operated upon by means of incision and curetting. Examination showed tuberculous granulations. At my first visit the circumference of the affected knee was 18 inches; that of the other knee 15. The patient had pains when she tried to walk; the knee-joint as well as the tibia very tender on slight pressure. Treatment was begun October 1, 1907, and continued until January 9, 1908, consisting of one injection of Cuguillère's serum of 4-5 c.c. every week. On January the circumference of the affected knee was 14½ inches; no tenderness on pressure. A vibrator was applied on purpose to test the tenderness of the tibia and knee-joint, and the patient asked for an increase of strength of the vibrator. She walked without a cane when last seen on February 27, 1908.

Case II.—Mrs. Q. Had a tumor the size of a walnut on the left breast which had been growing for twelve months. As she was under the charge of another physician no treatment was given. Five weeks later she returned to the office, saying that her physician had advised a radical operation of the breast. The tumor was now the size of a lemon and reached down to the areola of the nipple; it was painful and firmly adherent to the skin, but could be isolated so that it was plain that the mammary gland itself was not involved. My opinion was that the tumor was of tuberculous nature involving only the lymphatic glands. The fact of an abscess of the breast and suppurating axillary glands on the right side, operated on by incision some time previous to the actual induration in the left breast, confirmed my diagnosis. Eight injections reduced the tumor in size to 1½ inch vertically, and 1¼ inch transversally. The same measurements were found five weeks later, without further treatment. Patient seemed pleased to have avoided radical operation and in absence of local pain and visible tumefaction, discontinued treatment.

Case III.—My first two cases of pulmonary tuberculosis terminated in death. The first patient, when seen two months after the onset of the disease, had lost 21 pounds. His temperature was 104° F. Had daily chills, coughing and expectoration day and night, almost continuous perspiration (patient was obliged to change his flannel three or four times during the night); diarrhea; dulness over both lungs, more marked in upper lobes back and front, râles, bronchial breathing and bronchophony; numerous tubercle bacilli in the sputum. He had only six injections, which stopped the diarrhea and sweating, and quieted the coughing and expectoration; could sleep better, and the maximum temperature was 101° F. Owing to my absence from the city patient remained without treatment for seven weeks. On my return I found the patient in bed with hardly any appetite and all the symptoms greatly aggravated, with very weak heart, pulse 130 and more, and without resource for the necessities of life. No further serum injections were given; only palliative treatment until an additional acute congestion of the lungs brought his end.

Case IV.—The other case was one of an eighteen-

year-old girl, a patient of Dr. Thomas, with whose kind permission I began the injections. The patient was very low, just coming back from a sanatorium at Liberty, N. Y., and both physicians acknowledged that nothing could be expected from any kind of treatment. A pleurisy of tuberculous origin eight months previously had been followed with lung invasion. Weight 82 pounds. Very marked and striking retraction of the left lower posterior part of the thorax cavernous murmur with abundant râles at the apex and in the middle and lower lobe, two large caverns separated by a thin zone of doubtfully healthy lung tissue. The entire right lung was full of numerous rales of all descriptions, there was diarrhea (20 passages a day), appetite was lost, and there were perspiration, tachycardia, edema of lower limbs (no albumin in the urine), emaciation. Treatment prolonged life two months, relieving some of the symptoms, but the end came after precordial pains and repeated faintings.

Case V.—The two other cases are still under treatment but rapidly approaching complete recovery. The first one, a woman thirty years old, began treatment three months after the onset of her disease. Dullness at the apex and in the lower left lobe in the back, bronchial murmur and numerous moist râles, coughing and expectoration with occasional but very moderate temperature (101° F.), night sweats, loss of 25 pounds in weight, a few tubercle bacilli in the sputum. The woman was in the third month of her fourth pregnancy. After seven months of an uninterrupted treatment with 3 to 5 c.c. of Cuguillère's serum she regained the lost weight, her appetite became excellent, the general condition was good, and the local signs, except for very few dry râles in the lower part of the apex disappeared. She had a normal confinement, the baby weighed 7½ pounds at birth and now weighs 12 pounds; it is nursed by its mother. During the treatment the patient was doing all the housework, cooking, washing, ironing, and sweeping. As an additional treatment for a short time she had a few injections of Deutschmann's serum, which reduced the number of streptococci found in the sputum. At the last bacteriological examination no tubercle bacilli were present, according to the Board of Health; Dr. Jeffries of the Polyclinic was likewise unable to find them.

Case VI.—The last case is that of Miss S., who was taken ill in the latter part of January with what her physician thought was the grip. When she left the bed she was still weak and cough and expectoration continued with practically no rise in evening temperature. There was dulness under the left clavicle, at the apex, and in the back and below the crest of the scapula, with hard breathing mucuous râles; she had intense pain on the left side of the thorax, and in the knees and feet. The tubercle bacilli were reported at two examinations to be few and moderate in number respectively. Treatment began nine weeks ago. Only a few occasional dry râles can now be heard with slightly reduced dulness. The patient coughs very little and expectorates so little that she was an entire week collecting a sufficient amount of sputum for a bacteriological examination; tubercle bacilli, however, still present. General condition is excellent. Intratracheal injections with Cuguillère's serum were attempted in this case, but owing to a great sensitiveness of the patient's throat they could not be made. At every séance small amounts of the serum were repeatedly placed at the base of the tongue, and by sudden deep breathing the patient was made to draw it through the trachea. This had an evident action on the tickling cough and perhaps on the character of the expectoration. The liquid has apparent antiseptic and healing properties when applied to superficial ulcerations. Hence this trial, which I intend to follow up in future cases.

Are we entitled to draw any favorable conclusions from this presentation of the treatment of tuberculosis by Cuguillère's serum? Does it have any real therapeutic value? The answer is not difficult. How is it that with other methods of treatment so many drugs have been advocated? Because the treatment of the majority of practitioners is symptomatic only. Cuguillère's serum attacks the disease itself and its direct cause, Koch's bacillus, which it destroys. It helps recovery by promoting the fibrous transformation of the tubercle in whatever organ or organs it exists. It needs no additional drugs to suppress and prevent hemoptysis, to reduce temperature, to stop diarrhea and night sweats, to arouse the appetite, to strengthen the heart's action, to increase the weight, to stop cough, expectoration, and pain, to facilitate the resorption of pleural, peritoneal, or articular effusions.

To be sure, many persons with pulmonary tuberculosis have been cured and are being cured with other drugs and sun and air, and some have been cured without the help of any treatment, but with Cuguillère's serum the recovery is almost mathematically certain, provided the organism has sufficient vitality and recuperative powers and has not fallen into decay. The difference between Professor Dettweiller's 14 per cent. radically cured cases by sanatorium treatment and Dr. Escoyer's 53.8 per cent radically cured by Cuiguillère's serum, is eloquent in favor of the serum, especially when we take into consideration the absence in Escoyer's patients of all the comforts afforded to sanatorium patients. But the unanimous testimony of all physicians and surgeons who have employed the serum on new or far advanced cases of *surgical* tuberculosis that they had 100 per cent. recoveries, places on Cuguillère's serum the highest therapeutic value, not possessed by any single remedial agent, not even excepting diphtheria antitoxin.

It may be admitted without difficulty that a large number of cases of pulmonary tuberculosis, which have gone beyond human help, will meet the inevitable. But at the same time, it can be said that consumption will be a thing of the past if, with the absolute certainty of permanent recovery in all cases of surgical tuberculosis (without immobilization in bed, Paris plaster, or other appliances—except where the vertebrae are involved), every case of established or suspected pulmonary tuberculosis and every case of so-called "bronchial cold" lasting over a month or two is submitted to the treatment by Cuguillère's vegetable serum. In case of a recurrence of the infection, a few more injections will control the disease.

Many readers of this article will undoubtedly question the accuracy of its statements; but let them repeat the experiments on animals, in one or more cities, under the most exacting conditions that they may name; then let them use the treatment, on skin, glands, bone, joint, prostatic, and testicular tuberculosis, so that they can see with their own eyes and feel with their own fingers; let them treat ovarian tuberculosis of which so little is heard as to their nature, and of which so many go under the surgeon's knife; and they will have abundant personal information that will enable them, with positive convictions, to begin treating laryngeal and pulmonary tuberculosis.

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MALNUTRITION AND SOCIETY.*

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Recent comprehensive works on dietetics, scientific in character; valuable experimental work under way; an increasing number of articles upon the subject in current medical literature; prominence given the food factor in the treatment of certain diseases, notably gastric and intestinal disorders and tuberculosis; professional discussion of the researches of Chittenden, and of certain dietetic fads —as Fletcherism—emphasizing some one phase of the nutritive process, indicate increasing professional interest in the food factor in the prevention and cure of disease. That, however, this interest is, as yet, wholly inadequate is conceded. Voicing this inadequacy of interest, W. Gilman Thompson, in his "Practical Dietetics," quotes approvingly the assertion of Bennett in 1858, that "of all the means of cure at our disposal, attention to the quantity and quality of the ingesta is by far the most powerful"—a statement which, in the light of recent noteworthy sociological investigations, is hardly open to the charge of being a stimulative, if too enthusiastic statement of the possibilities of regeneration through food. It is not surprising that, professional interest in nutrition concretely considered being inadequate, consideration of it in its vast social relations, from the sociological rather than the medical standpoint, has been neglected. This is the more unfortunate as it is to the medical profession that the social worker must go for data justifying remedial measures and holding forth promise therein.

In the medicosocial, rather than the strictly medical, discussion of malnutrition we are more concerned with its chronic manifestations consequent upon deprivation of food in quantity, from necessity, or in quality, from vicious choice, than with inability to assimilate food provided or excess of food, although the exhaustive treatment of the subject demands recognition of the importance of these phases. Of the excess of food a lay authority on dietetics says: "It is the belief of most students of economics and sociology"—and, I may add, of medicine—"that it is the overfed among the nine-tenths not submerged, who are being eliminated by the various diseases of modern life—apoplexy, heart disease, Bright's disease, etc.—and that the sterility of the better-placed portion of the community is largely due to the plethora of food and drink."

No one period of life possesses a monopoly of interest in malnutrition; but in its relation to childhood, the years when formative processes are under way, lies its chief importance. Centuries ago, Hippocrates said truly: "Old men bear want of food best; then those that are adults; youths bear it least, most especially children; and of them the most lively are the least capable of enduring it."

For twenty-five years, and more, in several European countries, and recently in our own, malnutrition as a social problem, a part of that of poverty in general, has at various times and in differing phase come up for discussion and solution, interest having been directed thereto through exhibition of physical inefficiency in candidates for army and navy, in industrial workers and among children in the public schools. Investigation and advocacy of remedial measures have, therefore, been instituted by predatory as well as humanitarian interests. To-day the vast extent of the problem is conceded. Discussion centers about measures of relief.

In Great Britain, the only country for which I have been able to obtain the history of a movement toward the discovery of the extent to which malnutrition exists and its remedy, two lines of investigation have been followed—the charitable-social and the scientific-social. Under the former head are to be classed the several investigations of the London Charity Organization Society and the London School Board, and under the latter head those of certain medical men, notably Crichton-Brown, Paton, and Dunlop, and of four investigatory bodies of national scope, chief among them "The Interdepartmental Committee on Physical Deterioration," 1904.

That to-day in the United States there exists a vast and rapidly growing problem of malnutrition is inconsistent with our youth, our resources, and our political institutions, but is none the less indisputable. The most convincing books by American authors covering this field of investigation are "Poverty," by Robert Hunter, and "The Bitter Cry of the Children," by John Spargo. To one unfamiliar with conditions obtaining among the poor of our large cities their terrible arraignment of modern social conditions comes as a challenge to denial of the validity of their conclusions. But the preponderance of authoritative opinion in the discussions which these books have elicited in recent periodicals approves them as fair and trustworthy.

Investigation of the problem of malnutrition is most difficult. It eventuates largely in the weighing of personal opinion. Statistics, as at present tabulated, do not differentiate malnutrition from other evils incident upon poverty—inadequate clothing, insanitary homes, parental neglect; nor can the effects of overfeeding among the luxurious class be considered apart from their various dissipations, sloth—mental and physical—and hothouse environment.

Dr. Alfred Eichholz, an important witness before the Interdepartmental Committee on Physical Deterioration, who for six years had devoted himself to the investigation of the problem, estimated the number of the children in the London elementary schools who were actually underfed as 16 per cent., it increasing to 33 per cent. in certain poverty-stricken districts. Dr. Macnamara, member of Parliament, another witness, for thirty years associated with the London schools as teacher and member of the school board, estimated that 20 per cent. of the working-class children are habitually underfed. The *Spectator* in comment declares: "We do not in the least question the statement of Dr. Macnamara, that 20 per cent. of the children of the working classes are suffering from malnutrition."

Of conditions in the United States, Hunter says in "Poverty": "There must be thousands, very likely sixty or seventy thousand, in New York City alone, who often arrive at school hungry and unfitted to do the work required"; an assertion which he reiterates and fortifies in the *Reader* as, "the day-by-day and week-by-week undernourishment of seventy thousand children." Spargo, in an investigation in sixteen New York schools in which he could get the cooperation of principals and teachers, found 23 per cent. underfed. Correlating his results to those of Lechstrecker in New York, and of certain investigators in Philadelphia, Buffalo, and Chicago, a total of 40,746 children is obtained, of which number 34.65 per cent. either went breakfastless to school habitually or got miserably poor

*Delivered before the Nebraska State Medical Association, May 21, 1908.

breakfasts of bread alone or bread with tea or coffee. The breakfast test has been found the most practicable one by teachers and social workers, the breakfast of the child of poverty typifying his every meal. Let me instance a table given by Spargo of the meals for one day in a "typical family" in a district of Irish unskilled laborers in New York City:

Family	No. Children in School	Breakfast	Lunch	Supper
No. 1	2	Bread and tea...	None.....	Bread and tea.
" 2	1	None.....	Soup from charity.....	Bread and coffee.
" 3	1	Coffee and dry rolls.....	Bread and coffee.	Bread and tea.
" 4	3	Bread and tea...	None.....	Bread and tea.
" 5	2	None.....	Soup with soup meat.....	Piece of bread.
" 6	1	Bread, coffee and jam.....	None.....	Bread tea and jam.

Food was and is the prime necessity of mankind, and effort to obtain it supplied the chief impetus in early human development. Natural food supply determined social aggregation and the character of prevailing customs and laws in primitive society. Latest scientific authority demonstrates "a connection between an abundance of nutrition and females and scarcity and males in relatively higher animal forms and in man"; that, in other words, "nutrition is one of the most important factors in determining sex." Natural selection, operating through food abundance or food scarcity, determined in large part birth and death rates among primitive peoples.

Vital statistics show that more children are born among the poor than among the rich, which fact would apparently negative the direct influence of sufficiency of food upon fecundity. In the endeavor to reach a fair estimate of this influence, the relative significance of many facts must be weighed. The larger birth rate among the poor doubtless depends, in part, on their having been not weaned away from primal healthy interest in home and children through luxurious living and the cultivation of selfish interests; upon lesser desire to avoid the responsibility of a family, or the lack of blood-money to procure an abortion, or a greater dread of consequent illness which they can ill afford. Possibly more often unlettered and, it may be, unthinking than the well-to-do, they recognize less clearly the social responsibility incurred in numerous progeny. An increasing birth rate in times of plenty indicates, certainly, not alone the influence of more abundant food supply, but also increased assumption of marriage and lessened temptation to criminal abortion. A decreased birth rate among luxurious livers is inconclusive as regards the relation of excess of food to sterility, other factors, as mental and physical sloth, entering in.

Correlated to the question of the influence of nutrition upon fecundity is that of the influence of the nutrition of the mother upon the fetus *in utero*, discussion hereupon constituting a chapter of intensest interest in the deliberations of various investigatory bodies in recent years. The theory of the postnatal origin of physical degeneracy and mental and moral as well, as opposed to that of its antenatal origin, has nowhere been so authoritatively and convincingly expressed as by distinguished scientific and medical witnesses before the Interdepartmental Committee on Physical Deterioration. This theory, briefly stated, is as follows:

"Nature gives every generation a fresh start." She lays no handicap upon the unborn child, inheritable disease being excluded. Among the very poorest classes the number of children born strong and healthy is as great as among the well-to-do. It rests with society to secure such postnatal environment for the child as shall develop physical efficiency in all alike—a theory, if true, of vast social significance.

The chief medical witnesses championing this theory were Prof. D. J. Cunningham, professor of anatomy in the University of Edinburgh and president of the Anthropometric Committee of the British Association, who maintained the existence of a mean physical standard which is the inheritance of the people as a whole, and the non-transmissibility of acquired characteristics the result of poverty; Dr. Eichholz, who testified, "The number of children born healthy, even in the worst districts . . . would seem not to be less than 90 per cent. I have sought confirmation with medical colleagues in public work . . . and have always been strengthened in this view. . . . In fact, it almost appears as though the unborn child fights strenuously for its own health at the expense of the mother, and arrives in the world with a full chance of living a normal physical existence;" and Dr. Edward Malins, professor of obstetrics in the University of Birmingham and president of the London Obstetrical Society, who maintained that the testimony of experienced persons was on the whole in accordance with the views expressed by Dr. Eichholz, and that 80 to 85 per cent. of children were born physically healthy, whatever the condition of the mother might be antecedently. The report of the Interdepartmental Committee says: "The chief physician to the Royal Maternity Charity issued a circular to medical gentlemen who assist him in different slum quarters, and he put to them this question: 'What number per cent. of newborn children among the poorest classes would be capable of living a normal physical existence were it not for neglect, poverty, and ignorance?' . . . He got answers giving a percentage for the total of 86 per cent."

In refutation of this theory the researches of Dr. Noel Paton, of Edinburgh, are referred to frequently in the deliberations of the committee, and are cited in Spargo's work. Paton, in the *Lancet* for July 4, 1903, reports the results of the regulated feeding of fourteen pregnant guinea pigs, seven being abundantly fed and seven underfed. The average weight of the litters of the well-fed was 28 per cent. above that of the litters of the underfed, the least difference between individuals being 10 per cent. Paton quotes Prochownick's results of the regulated feeding of forty-eight pregnant women with contracted pelves, with the aim of making labor easy by reduction of the size of the child. In 28 male children the weight at birth was 11 per cent. below the average; in 24 females, 14 per cent. below the average. Paton concludes as follows: "These observations, though few in number, are so concordant that they warrant the conclusion that the size of the offspring depends very directly upon the diet and nutrition of the mother during pregnancy. . . . To the physiologist the point of chief interest seems to be the demonstration of the extent to which the tissues of the mother can be utilized for the construction of the embryo. The nourishment of the maternal tissues seems to take precedence over the nutrition of the fetus."

These conclusions seem to me hardly to be warranted, they resting upon too few data. Besides, weight and nutrition are by no means synonymous,

there being a considerable latitude in weight consistent with good nutrition. To get the opinion of our foremost obstetricians and pediatrists upon this point, I addressed letters of inquiry to the professors of obstetrics in the following medical schools: Harvard, Johns Hopkins, University of Pennsylvania, Columbia, Cornell, Northwestern University, Chicago University, University of Michigan, Jefferson, and to the professors of pedriatrics in Harvard and Columbia Universities. The replies, briefly summed up, are as follows: Of the obstetricians three maintaned the causal relation of malnutrition in the pregnant woman to antenatal degeneration in the fetus; four denied this relation; one agreed "in general" with the postnatal origin of degeneracy; and one was unwilling to express an opinion for lack of sufficient data. Of the pedriatists, one attributes much less weight than he did formerly to the influence of antenatal conditions, and the other was unwilling to express an opinion without further data. Thus opinion among these authorities is slightly in favor of the postnatal theory of the causation of degeneracy.

In a recent comprehensive and valuable study of "The Effects of Urban Congestion on Italian Women and Children in New York City," by Dr. Antonio Stella, printed in the MEDICAL RECORD of May 2, 1908, the author says: "Almost all Italian infants are born strong and healthy, and their weight is often above the average, even when their mothers look pale and sickly and live in the poorest districts." Among our immigrants it is well known that the Italians are the most notoriously ill-nourished, they endeavoring to maintain themselves here on the same poor diet which sufficed in Italy. "Nothing," says Hunter, "could show the misery resulting from unemployment and underfeeding more clearly than the physical condition of the Italians in this country."

The direct and powerful influence of poverty upon the death rate is established, but to give to each factor in poverty its due proportion of responsibility is, with our present data, impossible. The fact that infantile mortality has not decreased with general mortality following upon the vast sanitary reforms of recent years indicates the preponderant importance of the food factor, as does also the decreased infantile mortality in localities here and abroad where pure milk depots have been established. It is obviously impossible to determine the relative importance of malnutrition in the child, with consequent increased vulnerability, and bacterial contamination of the milk supply. All authorities testify to the marked lack of resistance to disease of the poorly nourished child. Feeble powers of digestion and assimilation consequent upon malnutrition impose defeat of its cure—a hopelessly vicious circle. As diseases in which the nutrition factor is most active in causation, Spargo cites measles, inanition, convulsions, phthisis, bronchitis, pneumonia, croup, debility and atrophy, and diarrheal diseases—a classification which is medically sound. Of the 151,732 deaths among infants and children from the above diseases during one year in the United States, Spargo attributes 51.57 per cent. to poverty and, more specifically, to malnutrition. Statistics are not available giving the percentage of frequency of rachitis. Dr. Stella says that 75 to 80 per cent. of Italian children in New York City develop rachitis, and of these 65 per cent. are breast-fed. Admittedly, by all authorities, rachitis is a large factor in morbidity and mortality from other diseases. Of the rachitic child Osler says: "The condition of the child is such that it is readily carried off by intercurrent affections, particularly those of the respiratory tract." Ashby puts rachitis first in the causation of infantile convulsions, in which he has the support of pediatrists generally. The mortality from measles is affirmed by Ashby, Rührah, and many other authorities, as practically nil among the well-nourished children of the well-to-do classes. Dr. S. A. Knopf puts underfeeding first and bad housing and insanitary conditions second as factors in the causation of tuberculosis. Lawrason Brown, in Osler's "Modern Medicine," puts food first in the prevention and treatment of tuberculosis. And I might go on indefinitely, digging out inadvertent references in textbooks on clinical medicine to sustain the thesis that deprivation of food in quantity or quality, or both, is the most important aspect of poverty in its relation to morbidity and mortality from disease.

Dr. Ralph D. Vincent, physician to the Infants' Hospital at Hampstead, organized in 1903 to "grapple with the problem of the infant," testified before the Interdepartmental Committee on Physical Deterioration: "It is food, and food alone, that is responsible. Sanitary conditions do not make any real difference at all." Of admissions to the New York Babies' Hospital in one year, in 75 per cent. of cases malnutrition was found to be the most prominent feature (Quoted by Spargo). The replies of the superintendents of six large dispensaries, in which 25,000 children are treated annually, when asked what proportion of the cases treated, conservatively estimated, were primarily due to inadequate nutrition, yielded an average of 45 per cent. (Quoted by Spargo).

The direct causal relation of poverty to physical degeneracy, "the physical superiority of the well-to-do over their less fortunate fellows," is established beyond question. As to the relative importance of the food factor in inducing physical degeneracy, the report of the Interdepartmental Committee on Physical Deterioration says: "Among the factors that make for juvenile degeneracy, with the single exception of Mr. Edward Rees . . . all the witnesses concurred in claiming the first place for food. 'Food,' says Dr. Eichholz, 'is the point about which turns the whole problem of degeneracy.'" The results of the feeding of school children in the largest cities of Europe, and to a slight extent in New York City; comparison of the children in pauper, reformatory, and industrial schools, where they are fed as well as instructed, with children in the elementary schools; feeding experiments in certain schools for defectives and certain summer camps for city children—all prove the direct relation of proper feeding to the development of the physical and mental capacity.

Of recent arraignments of the public school systems of England and the United States as inadequate to accomplish their aim, let me quote: "The State, whose sacred duty it is to protect the poor and helpless, has been robbing the children of the poor and leaving them to perish for lack of that maintenance to which they are entitled. . . . This injustice brings its own punishment, for our national system of education is spoiled, and the children grow up feeble and diseased to fill our hospitals, workhouses, and gaols" (Sir John Gorst). "It is grotesque to lavish money on education for those who are unfit physically and mentally to receive the education offered them" (Dr. Macnamara). "Education, whether physical or mental, is seriously retarded, if not practically impossible, where the body is improperly or imperfectly nourished. What a farce it is to talk of the schools pro-

viding equal opportunities for all, when there are hundreds of thousands of children in our city schools who cannot learn because they are hungry!" (W. H. Maxwell, Superintendent New York Public Schools). "Hunger," said Livingston, the great explorer, out of his experience among primitive tribes, "has a powerful effect upon the temper." "Courage, cheerfulness, and a desire to work depend mostly on good nutrition," said Moleschott. And I might quote more to the same purport.

Physicians are all familiar with that condition of irritable weakness due to starvation in convalescents from acute disease, and with the morbid fears and fancies and undependable intellectual and moral judgments of undernourished chronics. The child the victim of underfeeding is in like case. I quote: "Not graves alone, but hospitals and prisons are filled with the victims of childhood poverty. They who survive go to school, but are weak and nervous, dull, and backward in their studies. Discouraged, they become morose and defiant, and soon find their way into the reformatories for truancy and other juvenile delinquency. Later, they fill the prisons, for the ranks of the vagrant and criminal are recruited from the truant and juvenile offender. Or if, happily, they do not become vicious, they fall in the struggle for existence . . . and sink into the abysmal depths of pauperism."

Conceding that, outside inheritable disease, degeneracy, physical, mental, and moral, is largely the result of postnatal environment, it behooves society to remove or to reform those environmental conditions which are responsible therefor. Chief among them is the modern industrial system. Spargo, in "The Bitter Cry of the Children," cites a cartoon which appeared in an anarchist paper, *La Revolte*, "showing a woman, haggard and fierce of visage, seated upon a heap of child skulls and bones, in her gnarled and knotted hands holding the writhing form of a helpless babe, whose flesh she is gnawing with her teeth, with underneath, in red ink in rude characters, these words: 'The Wretch! She Devours Her Own Children!'"—an entirely just characterization, not alone of France, but as well of every civilized nation, acting through the modern industrial system. In our gross inconsistency we do not allow natural selection, operating through the barbarities of modern industrialism, to eliminate its victims. We maim the children, handicap them, force them into the ranks of the incompetent and delinquent, and then feed them on balanced dietaries in reformatories and penitentiaries.

Next in importance to reform of the industrial system is reform of the family. As at present constituted, the modern family is an anomaly. It alone among our social institutions is founded upon ignorance and incapacity. Outside the ranks of unskilled labor, for no other calling in life is preparation and training deemed unnecessary save for that of home-keeper. It is an anachronism that the feeding of the people should be in the hands of ignorant amateurs. What wonder that a large portion of modern households "spend their money for that which is not bread and their labor for that which satisfieth not!" Is it any wonder that the small remnant of children born into homes where cabbage is fed to a three-days-old infant, beer and bacon to one barely six weeks old, and sausage, bread, and pickles to a mature infant of seven weeks, should later, as school children, spend their luncheon pennies for pickles, adulterated candy, cream puffs, stale ice cream and decayed fruit—found by social workers and teachers to be the favorite dietary among the children of the poor?

Under the present constitution of the family, not until the State requires of candidates for marriage certificates of health, character, proficiency in housekeeping, and mature age, will conditions in the household markedly improve. The teacher of domestic science in the public schools will serve a useful purpose in the years of transition to the inevitable placing of the feeding of the people in the hands of experts. The highest function of the home is not that of the restaurant, and to deprive it of this function will neither pervert nor subvert it.

Among other measures that will aid in the cure of poverty, with its attendant evils of malnutrition and degeneracy, are the enfranchisement of women, bringing into the service of the State that class whose experience and training throughout centuries best fits them for the administrative side of government, in other words, social housekeeping; proper distribution of immigration; the establishment of pure milk depots under voluntary or municipal support, as are found in twenty cities of the United States (sixteen under philanthropic support and four under municipal), and in many of the cities abroad, the milk free or at such price as the financial ability of the customer can afford; the establishment of model restaurants, as has been done by the Baron de Rothschild in Paris, where food of the best quality is provided at moderate prices for the working classes; the feeding of school children under certain conditions; the assumption by the medical profession of its specific responsibility in the way of school inspection and in providing the necessary data out of its experience, for correct judgment and wise remedy in legislation, said legislation to carry with it provision for its enforcement—often a fatal lack.

That the chief items in this program of reform are socialistic in their nature is inevitable, their function being to offset those evils which have sprung out of the intensely individualistic attitude of modern society—every man for himself, every family by itself. The public school—a socialistic institution—does, in some measure, offset the pernicious influence upon the children of individualistic family tradition and practice, and is a potent factor in social reform. Outside acrimonious discussion and political warfare over the reform of the modern industrial system, no item in this program has given rise to more comment than the feeding of school children, which is carried on by voluntary or municipal agency in certain large cities of Great Britain, Italy, France, Austria-Hungary, Belgium, Denmark, Switzerland, Norway, and, to a slight extent, in the United States. Discussion as to the wisdom of this measure waxes warm between the advanced social workers on the one side and the socialistically inclined on the other. Obviously, the supply of social workers qualified to undertake the individual treatment of every child the victim of malnutrition, as is demanded by the former class, is utterly inadequate. Belonging to neither of these two classes are those in municipal or State authority who, in the interest of a false economy, would spare the rates at the expense of the child. The struggle with the dissolute and vicious parent is a long and wellnigh hopeless one. We cannot split hairs as to means and ways while the children are being "starved into death or stunted into physical and moral deformity." If we cannot regenerate the parent of this generation, we can predetermine the character of the parent of the next, in the words of a Norwegian councilman, by "saving the children from the hostile forces of un-

equal economic conditions, and securing them equal opportunity and helpful conditions for the development of their highest and best gifts." "That there should one man die ignorant who had capacity for knowledge, that I call a tragedy," said Carlyle. To prevent such we may well relax somewhat in the interest of expediency the rigor of rules for social regeneration which, in spirit ideal, in practice are inadequate.

In closing, let me quote Spargo's hopeful outlook toward the future: "I look to see in the near future some effort made to establish a standard of physical well-being for the children. I expect to see the community insisting that some provision shall be made whereby every child born into the world will receive sufficient food to enable him to possess enough vitality to overcome unnecessary and preventable disease, and to grow into a manhood physically capable of satisfactorily competing in industrial and intellectual pursuits."

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VAGINOURETEROSTOMY AFTER NEPHRECTOMY FOR PYONEPHROSIS DUE TO A "SIGMATE" CONSTRICTION OF THE URETER.*

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HAVING removed the kidney what disposition shall we make of the ureter? In endeavoring to answer this question in a way which will best conserve the interests of the patient, immediate and remote, several plans deserve consideration.

First, and oldest of them all, the ureter may be drawn up as far as possible, cut off short, ligated, and dropped back into its retroperitoneal pocket, sometimes to remain quiescent, in some instances to distend with pus or urine, and discharge through a lumbar fistula setting up inflammatory adhesions which greatly add to the difficulty of its subsequent removal. Of late years, except in few instances, this plan has been relegated to the land of "has been."

The second method, that of bringing the ureteral stump out through the lower angle of the lumbar incision and fastening it to the skin, has proven of great value in many hands, as it affords free vent to any pus which may accumulate in the ureter, and for the introduction of drugs which will heal or destroy the mucous lining of the ureter and facilitate atrophy of that tube. Schede treated 22 cases by this plan after extirpation of tuberculous kidneys, and of the 16 patients who recovered not one was troubled with a permanent fistula.

Ureterectomy.—According to Bovée, the first partial ureterectomy was done by Tuffier, in 1891, and the first complete removal, by Poncet, in 1895. The "American" operation, nephroureterectomy at one sitting, was first carried out by Kelly in December, 1895.

Since that time many operators have removed the ureter *in toto*, primarily or secondarily, chiefly where the ureter has been the seat of tuberculous

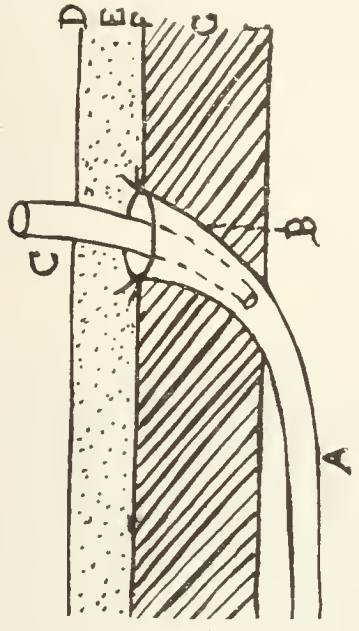

FIG. 1.—A, ureter; B, stump of renal pelvis sutured to lumbar fascia; C, drainage-tube; D, skin; E, subcutaneous fat; F, lumbar fascia; G, lumbar muscles.

disease, and in order to prevent or overcome tuberculous infection of the bladder or the danger of infecting the opposite kidney. Of the 17 cases collected by Bovée (*American Medicine*, June 6, 1903) only two ended fatally.

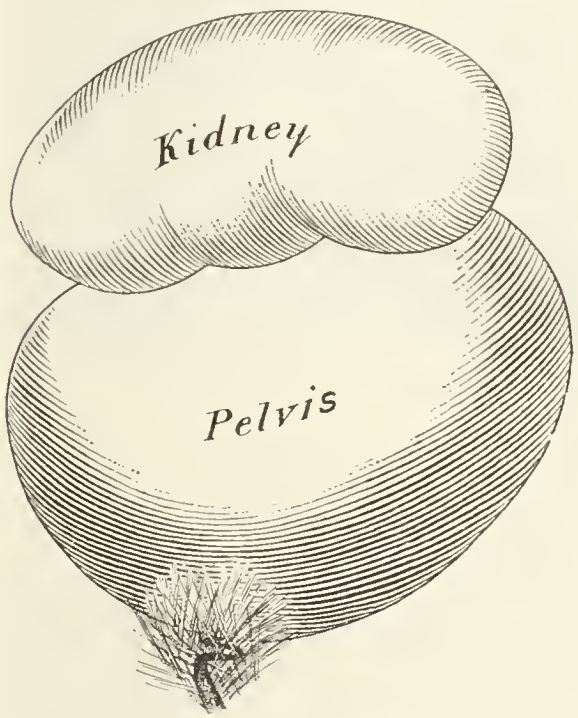

FIG. 2.—Hydronephrosis due to an S-shaped bend in the ureter, bound down by fibrous bands.

In view of the fact, admitted by all operators, that primary removal of the ureter adds to the length of time and difficulty of the operation and the likelihood of shock, and that in secondary operation, when called for in the presence of symptoms of retention in the ureter, the added inflammatory

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adhesions cause greater difficulty of removal and liability to infection, I have carried into effect the following plans after the removal of a pus kidney due to stricuture of the ureter, subsequent to hysterectomy. In order to secure ample drainage of the ureter should trouble arise, the lower inch of the kidney pelvis was cut away with the ureter and sutured to the lumbar fascia, thus leaving a funnel-like opening in the subcutaneous tissue, into which a drainage tube could be easily introduced (Fig. 1). Suppuration did take place, the skin was incised, and drainage was easily established. This was repeated three times, and only after the third black silk knot used to ligate the renal vessels was discharged did the wound heal. The patient has not been troubled since December, 1904. Evidently the ureter, though occluded about four inches from the bladder, gave no trouble.

At the time when this plan was reported (*American Medicine*, 1903, xi, 65-67) I suggested the practicability of vaginal implantation of the ureter: "After nephrectomy for tuberculous kidney, pyonephrosis without ureteral obstruction, it might be well to afford additional drainage and divert the ureteral secretion from the bladder by resection of the vesical end (after introducing a catheter into the ureter), exposing the ureter, through the vaginal wall, cutting across, closing the vesical stump, and suturing the proximal end into the vaginal wound, that the ureter may drain directly into the vagina, where it can do no harm."

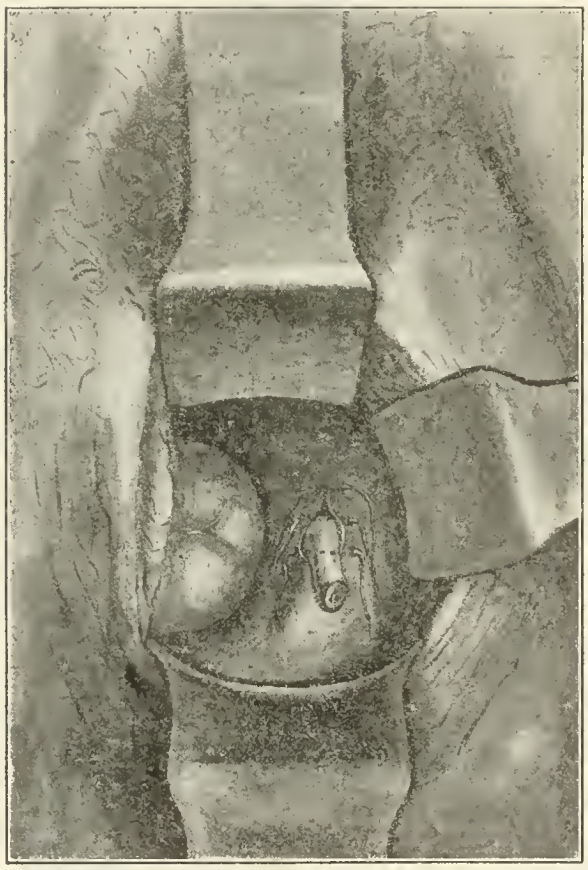

Fig. 3.—Vaginoureterostomy; resected ureter brought into vagina; untied sutures in place; upper suture surrounds ligated vesical end of uterer.

The following case afforded the opportunity to put this method into practice.

On December 29, 1905, at the request of Dr. L. Howard Moss, I first saw the patient here presented, who was then troubled by a cystic tumor lying on the left side of the abdominal cavity, its center opposite the umbilicus, movable up and down two or three inches; from the history it seemed to have arisen from the pelvic cavity. Through an anterior exploratory incision it was found to lie behind the peritoneum and to be made up of the dilated kidney and pelvis. I operated on January 17, 1906, at the Jamaica Hospital. Through a lumbar incision the pelvis was opened and emptied of more than 1,000 c.c. of urine, but no opening to the ureter could be found. On exposing the ureteropelvic junction the obstruction was found to be due to an S-shaped bending of the ureter which was bound down by dense adhesions bands (Fig. 2) completely precluding the outflow of the urine. As soon as these bands were freed from the adhesions, a probe was easily passed down to the pelvic brim. Owing to the large size and thinness of the kidney no attempt was made to suture it, but it was supported by gauze packing, and urine flowed freely into the bladder for several days until the packing was removed. Later the kidney seemed to drop and the obstruction recurred so that on April 25, 1906, the kidney was removed, leaving part of the pelvis and the ureter *in situ*. From that time there was some discharge from the lumbar sinus of pus mixed with urine.

On September 18, 1907, at the Baptist Deaconess Home, vaginal implantation of the ureter was carried out. A catheter was introduced into the ureter and passed easily to the cavity in the loin. With this as a guide, stiffened by a metal probe, an incision was made through the left vaginal vault exposing the ureter. While endeavoring to draw down the ureter with mouse-tooth forceps the bladder was torn into and through this opening the index finger was used to hook down the ureter, rendering resection quite easy. The ureter was cut off about one inch from its bladder attachment, the proximal end was brought down into the vagina and sutured there. Two catgut sutures were inserted through the vaginal wall including the bladder end of the ureter, closing it off permanently. The discharge from the lumbar sinus at once lost its urinous character and changed to thick pus. September 30, the vesicovaginal fistula was closed by silkworm suture and remained closed. The lumbar sinus has also closed. A small papilla in the vagina now marks the site of the ureteral implantation.

In conclusion: The extreme gravity of the operation and high mortality following nephrectomy, without coincident removal of the ureter, lead us to devise simpler methods than ureterectomy, and by implantation of the "pelvic funnel" into the lower angle of the lumbar wound, subcutaneously, we (*a*) shorten the time of operation; (*b*) reduce the likelihood of shock; (*c*) frequently secure primary union; or (*d*) drain in a simple, safe, and curative way.

Should the urine regurgitate from the bladder, or in case of tuberculous infection of the ureter, we resect the latter, close to the vesical end, and suture the proximal end into the vaginal vault.

When there is stricture of the ureter the combination of lumbar and vaginal implantation gives free vent at both extremities.

In tuberculous infection of the kidney and ureter it might be well to form a vaginoureteral fistula as a preliminary to nephrectomy in order to shunt the infected stream from the bladder, and to learn more particularly of the capacity of the other kidney.

The results of Schede's plan demonstrate that with proper drainage even tuberculous ureters heal and atrophy; therefore we need not hesitate, in men, to implant the ureter into the rectum.

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CARING FOR THE MOTHERS OF INFANTS.

THE upbringing of young children is a matter which has been arousing an extraordinary amount of interest in all civilized countries during the past few years. Perhaps this has been particularly the case in France and in Great Britain, for in both of these lands the birth rate is rapidly and progressively decreasing, while infant mortality is excessively high. Indeed, so far as France is concerned, the birth rate is at so low an ebb that population year by year is gradually becoming less and less, and in the large cities infantile mortality is high. In Great Britain the birth rate as yet considerably exceeds the death rate, but the proportion is continually undergoing considerable alterations and the population does not increase at the rate which was formerly the case. In America the birthrate among native born Americans shows a steady decrease, infantile mortality is high in most of the cities, and if it were not for the fecundity of immigrants and of those of alien stock, and for abundant immigration, this country would soon have to lament a falling off in the population, as indeed it has temporarily at present, owing to the large emigration and decreased immigration during the past year. In France and in Great Britain vigorous efforts are being put forth to check infant mortality. France was the pioneer in this respect, and in Paris and in provincial cities, municipalities and charities have striven in a spirit of emulation to save the lives of young children. Some few years ago a new departure was entered upon by a few Parisian philanthropists. A Madame Coullet was struck by the fact that if expectant and nursing mothers are not well nourished, their offspring must either die prematurely or live, in many instances, diseased in body and mind. Accordingly, Madame Coullet, in 1902, opened a restaurant in one of the poorest quarters of Paris, in which expectant or nursing mothers could procure a satisfactory meal free. The scheme has answered so well that there are now five Coullet restaurants in Paris in which are fed a very large number of women. No questions are asked of an applicant for a meal; it is sufficient that she is an expectant or nursing mother and hungry. Other charitable institutions conducted on somewhat similar lines exist in Paris.

In Great Britain it is only within the past two or three years that any earnest endeavors have been made to cope with the problem of how best to conserve infant life. It is notorious that the inhabitants of the British Isles are in a high degree conservative and hard to move from their old accustomed ways. The question, however, became too serious to be ignored, in fact bade fair to develop into a national menace. Perhaps two-thirds of the British people are dwellers in cities, and urban life is not best calculated to bring forth able and hardy citizens. For infants and young children the conditions in the poorer districts of cities are terrible, and at last it has been brought plainly home to medical men and sanitarians of Great Britain that it is absolutely imperative steps should be taken to save the lives and preserve the health of infants. During the past two years extraordinary activity has been exhibited in that direction in all parts of the country. In many provincial towns, schools for mothers have been inaugurated, and in some towns the example of Madame Coullet in Paris has been closely followed. In London, in one of the large, populous, outlying districts, several restaurants have been established in which expectant and nursing mothers are fed, in which babies are inspected and weighed by a medical man, and advice given in all that concerns the rearing of infants. In two or three other districts similar schemes are in existence, while in one very large and populous quarter situated in the heart of the metropolis, a far more ambitious scheme is now in working order. A charitable society working in cooperation with the borough health board, has inaugurated what is known as a "School for Mothers." A commodious building has been secured at which takes place the following routine of work: (1) Infant consultations. (2) Dinners for nursing mothers. (3) Educative classes. (4) Provident Maternity Club. (5) Home visiting. (6) Fathers' evening conferences. The chief aim of the society is to combat the ignorance that prevails among women of the working class with regard to the rearing of children, and especially to impress upon them the great advantage of breast feeding. It is recognized that if an expectant or nursing mother cannot nourish herself properly the child is not likely to be robust, so in those cases in which the mother is unable through poverty to procure nourishing food, such food is supplied at a nominal cost. The scheme, since its adoption in various parts of Great Britain, is said to have met with great success, and schools for mothers are multiplying in all directions.

THE CAMPAIGN AGAINST TUBERCULOSIS IN SWEDEN.

THE Swedish Committee of the National Tuberculosis Congress has issued a book, dedicated to the Congress, giving in detail an account of the antituberculosis movement in that country. The work, which has been prepared under the editorial supervision of Dr. Sture Carlsson, opens with a most interesting story by Dr. B. Bulire of the origin and work of the Swedish National Tuberculosis Association. The organized campaign against tuberculosis began in 1896 during the annual meeting of the Swedish Medical Society when one session was devoted to a discussion of the subject. One year later three large sanatoria were erected with the proceeds of the Jubilee Sanatorium Fund, amounting to 2,200,000 kr., or over $580,000, created to celebrate the twenty-fifth anniversary of the accession

of King Oscar II to the Swedish throne. In February, 1904, the Swedish National Tuberculosis Association was established and has since been most actively engaged in the struggle against the disease by means of lectures, the publication of leaflets, the collection of statistics, the establishment of sanatoria and hospitals, etc. During the first four years of its existence, 883 popular lectures were given by 38 physicians to audiences aggregating 147,600 persons. A tuberculosis museum was opened in Stockholm in April, 1906, and has been visited by 41,000 persons. The Association publishes a quarterly journal with a circulation of 25,000 copies, and 250,000 copies have been distributed of a pamphlet written for the purpose of combating the widely spread phthisiophobia, the existence of which so greatly increases the difficulty of combating the disease. The government is also assisting in the work, and the Riksdag has made an appropriation of over $100,000 for the year 1909 to assist the communities and associations in the erection of sanatoria, the intention being to renew the appropriation yearly for ten years. The legislature is expected to make a grant to assist in the expense of maintaining the sanatoria and hospitals thus established.

An important detail of the work, described by Dr. G. Neander, is the study of social-hygienic conditions undertaken by the Society. The object of this study is to determine the causes of the spread of tuberculosis within a limited district with a population known to have a high percentage of consumption, and also to endeavor to improve the general hygienic conditions in the community by combined dispensary and sanatorium work and by personal visits of physicians and nurses to the homes of the people.

Among other interesting contributions to the book may be mentioned Dr. E. Wadstein's account of the origin of King Oscar II's Jubilee Fund and of the public sanatoria before spoken of, and Dr. Sture Carlsson's description of other tuberculosis establishments. There are also other articles all treating of the tuberculosis question, and several of a specially scientific character, by Drs. Waller, Tillman, and Friberger, Professors J. E. Johansson, J. Svensson and O. Medin, the Hon. Sv. Palme, Director of the Thule Life Insurance Co., Mr. R. Moosberg, B. A., and Mr. T. Gelhaar, Post-Controller, who gives an account of the Charity stamps issued during the years 1904-08 by the National Association. The translation of the various articles into correct and idiomatic English has been most successfully accomplished. The work will be counted among the most valuable of the contributions to the Tuberculosis Congress, showing, as it does, how in Sweden the campaign against tuberculosis has been begun, and is being carried on, with success. When the limited resources of that country are taken into consideration, the results that have been achieved are worthy of no small praise, and this record of them can but encourage workers in other countries to continue in their warfare against one of the greatest scourges of mankind.

Inhalation of Mercurial Vapor in Syphilis.

The recent advance in our knowledge of syphilis following the discovery of *Spirochæta pallida* and the application of the principles of immunity to this disease has not changed the place occupied by mercury as to the specific drug in the therapy of this affection. On the other hand, the mode of action of the metal is now better understood, it having been shown, for instance, that in the so-called "inunction cures" the absorption of mercury takes place as much or more by the inhalation of the vapor than through the unbroken skin. The discovery of this fact gave origin to several new methods of administering mercury, one of the best being that devised by Kromayer, who employs a mask of soft wire which supports some gauze impregnated with the metal in a state of fine division. Bendig has tried this method in twenty cases of specific disease and reports the results in the *Münchener medizinische Wochenschrift* for September 1, 1908. In every case the effects of the treatment were very quickly obtained, two or three nights of wearing the masks being sufficient to produce a marked repressive effect upon the lesions of the disease; especially good results were obtained with the treatment of syphilitic sore throat of the secondary stage, which is perhaps the most irksome symptom of the disease for the patient and certainly most dangerous to his innocent neighbors. These results were, moreover, obtained without any untoward effects from the inhalation of the metal, only one case of mercurial stomatitis having been observed. Chemical examination of the urine showed that there was a progressive increase in the quantity of the metal absorbed as well as in the amount of the urine excreted by the patient. In Bendig's opinion a regular examination of the urine should be made to forestall the introduction of too much mercury into the organism as well as to recognize in time any untoward effects of the metal upon the kidney. In general the inhalation of mercury proved in many ways superior to the inunction cure. It was certainly less unpleasant to the patient than either the inunction or the injection of mercury, while it possessed the marked advantage of not causing the disturbance of the gastrointestinal tract so common after the internal administration of the metal. These considerations are sufficient to call for a trial of the method in institutions and in private practice, so that further experiences with its application may be reported in the near future.

Ultramicroscopic Examinations.

The principle of ultramicroscopic examination consists in an arrangement of condensors and reflectors which lead to the complete absorption of the central illuminating rays, the lateral rays being at the same time directed upon the field of vision in the microscope; these rays are reflected from every particle in the field of vision and thus bring them out very distinctly. Posner has applied this method of examination to the requirements of clinical pathology and reports satisfactory results in the *Berliner klinische Wochenschrift* for August 3, 1908. Urological pictures were especially distinct; the structures of various urinary crystals could be studied with ease, the composition of the different urinary calculi could be told quite readily, and such formed elements as casts, cylinders, and leucocytes appeared much more distinctly as brilliantly illuminated objects upon a dark background, than with the usual illumination of the Abbé system. One great advantage of the new method consists in its application in teaching, the pictures obtained being very well adapted for demonstration purposes to students whose powers of observation have not been sufficiently developed to perceive many important

details of form and structure in the less distinct pictures of the older system; moreover, the colors of the objects are not changed and the student is taught from the beginning to think of the organized elements of the body in their natural appearance. Dietrich, writing in the same number of the Berlin weekly, discusses the value of the ultramicroscopic examination in hematology. He sees a great advantage in the possibility of momentary registration of various changes in the blood by means of microphotography which the new system affords. The phenomena of hemolysis in various fluids, of morphological changes in diseased conditions, the formation of precipitates in the blood serum, all can be easily observed and permanent records of them obtained with the use of illumination by reflection of the lateral rays. Previous writers have already pictured the very effective appearances obtained in the study of bacteriological objects by ultramicroscopy. It may be safely concluded that this method has come to stay, not indeed to replace the older and well-tried microscopic examinations of stained and unstained objects, but to amplify such examination by introducing new pictures of the same objects seen under different conditions of observation.

Transmissibility of Tuberculosis by Means of Dried Sputum.

The question of the manner of the dissemination of tuberculosis is most important with regard to prophylaxis. The consensus of opinion seems to be that in most cases the infection is air borne, yet a number of experimenters have denied that the bacilli can retain their virulence long after the desiccation of the sputa containing them. Baumgarten, Cadeac, and Mallet made a series of experiments which led them to the belief that this was seldom the method of infection, since the bacilli very soon lost virulence in dry dust. Calmette found that it was difficult to give tuberculosis to animals by causing them to inspire dry infected dust. G. Kuss, on the other hand, writing in the *Bulletin Médical*, for August 5, 1908, gives the details of experiments made by himself which seem to prove that infected sputum is by no means harmless when it has become dry and pulverized. He endeavored to parallel in his experiments on animals the conditions under which people live, examining dust from fabrics that had been dried and then swept, that had been kept in dark corners, etc. The conclusions at which he arrived, after a carefully executed series of experiments, were that sputum under favorable conditions may become dry rapidly, in the course of a few days, and be easily reduced to a fine dust, especially by sweeping. Such dust is extremely virulent when desiccation has occurred rapidly and in darkness. It is easy to infect guinea pigs by making them breathe air filled with dust from sweeping such locations. Such tuberculosis is of the form that is produced by inhalation, and is more severe than tuberculosis caused by inoculation with a quantity of virulent dust. It is anatomically similar to primary infantile tuberculosis. We know that many bacilli, the lactic-acid bacilli, for example, live and preserve their virulence for a long time in dried media, and it is reasonable to assume, independent of experimental proof, that the tubercle bacilli are no less resistant under similar conditions. The experiments of Kuss seem to confirm this assumption, negativing the findings of Baumgarten and Calmette, and to establish the fact definitely that dry infected sputum is to be feared as a source of tuberculosis.

The Bacilli of Bovine Tuberculosis in Human Beings.

During the seven years that have passed since the well known declaration of Robert Koch denying the necessity of any measures to protect human beings from the bacilli of bovine tuberculosis, because of the extreme rarity of the transmission of this disease, the question has been eagerly discussed by numerous investigators throughout the world. Of most value in this connection is the careful study of the frequency of bovine infection, and such a study is published by Karl Steffenhagen in the *Berliner klinische Wochenschrift* for August 17, 1908. This author gives a summary of the findings made in the German Royal Department of Health, altogether one hundred and forty cases of tuberculosis having been investigated. Three patients were found to have suffered from an infection with both types of bacilli, one hundred and seventeen were infected with the human type, and twenty-one patients, all children, suffered from infection with the bacilli of cattle tuberculosis. Of the latter number there were thirteen cases of primary tuberculosis of the intestines and of the mesenteric glands, and six cases of tuberculosis of the cervical glands. The author warns against the use of these figures for estimating the relative frequency of infection with the human and the bovine types of disease because special care was taken to investigate children in whom the site of the disease and the history suggested the possibility of a bovine infection; thus in another series of twenty-seven cases of disease localized in the bones, joints, or meninges only one was due to bovine bacilli. However, it seems certain that in childhood the infection of the gastro-intestinal canal and of the cervical glands with the bovine type of bacilli is much more frequent than Koch's statement would lead one to believe. So far as children are concerned the protection of their food from infection with bovine bacilli is, therefore, imperative, and such protection means for the most part proper measures for obtaining pure milk or rendering suspicious milk harmless. The International Tuberculosis Congress, which is to be in session in Washington the coming week, will probably furnish additional information regarding this matter so full of importance for the welfare of the human race.

Cerebral Rheumatism.

Of all forms of rheumatism attacking other organs than the articulations, cerebral rheumatism seems to be the most rare. It occurs in most cases when the temperature has fallen and the articular manifestations have improved. The attack is characterized by acute delirium, delusions, and insane impulses. In a case reported by Marcel Labbé in the *Tribune Médicale* for July 4, 1908, the patient suddenly disturbed the whole ward during the night by rising, making a noise, and turning the electric lights on and off, ending by chasing all the attendants out of the ward in fear of their lives. He was restrained, and died the following day. In cases of cerebral rheumatism that terminate fatally the brain and meninges are congested and present no other microscopic lesions, but cellular changes are demonstrable. Two cases reported by R. Lépine in the *Lyon Médical* for July 12, 1908, had failed to have efficient salicylate treatment, and the author refers the complication to that fact. Labbé, on the other hand, believes that it generally occurs in alcoholic subjects, who are thus predisposed to cerebral le-

sions. The study of the cerebrospinal fluid does not indicate a preponderance of rheumatic poison in the nervous system. Whether *Bacillus perfringens,* described by Achalme, is the cause of rheumatism is not yet determined, although there have been observations by other authors that seem to support this view. It is an habitual inhabitant of the intestinal canal of man. It is not found in the cerebrospinal fluid, however, in cerebral rheumatism. Whatever the active agent in the disease may be, it must attack an individual predisposed to cerebral lesions, by heredity or acquired nervous condition, in order to affect the cerebrum severely. Lesions of the liver and kidneys are also present to lessen resistance to the effects of the poison.

The Fauna of the Croton Water Supply.

We have been assured from time to time that the water supplied by the city to the boroughs of Manhattan and The Bronx contains no dangerous or even unwholesome matter, and in proof thereof the authorities point to the favorable showing made by the vital statistics of the Board of Health during the past summer. Accepting this statement as correct, we might go further and assert that the water is not only harmless, but even nourishing. Annelid worms, rotifers, small crustaceans, and fairly large gasteropods are far from uncommon visitors in the morning bathtub—also, no doubt, in the midnight drinking-cup. The Croton water was once filtered before distribution, and ran from the taps free from at least the grosser forms of animal life and from the mass of vegetable fibers and organic sediment with which it is now filled. If one were not innocent and free from guile, one might almost be tempted to think—but of course the makers of house filters have no interest in the study of the Croton fauna.

News of the Week.

Tuberculosis Congress Exhibit.—The exhibit planned to precede the opening of the tuberculosis congress was opened to private view on September 19 and to the public on the 21st, in the new National Museum at Washington. The exhibit includes maps and charts showing the extent of the campaign against tuberculosis, the location of dispensaries and hospitals and the methods of treatment. Elaborate displays are also made of window tents, cots, beds, and models of buildings and sanatoria. The congress opens on September 28.

Cholera in Europe and the Philippines.—In St. Petersburg there has been a large increase in the number of cases reported. Up to September 17, 1,278 cases had been reported in the city, of which 365 had been fatal, while throughout Russia the number of cases was 6,747, with 3,130 deaths. Since that time new cases to the number of over four hundred a day have appeared and the mortality percentage has largely increased. The disease has also made its appearance in Berlin in the person of the wife of a Russian state councillor who arrived recently from Peterhof. Several suspects have been taken to the Virchow Hospital for observation. The recrudescence of the disease in the Philippines is causing some uneasiness, but it is thought that the epidemic can be kept under control. Two cases were discovered on the U. S. transport *Sheridan* as it was about to sail from Manila for San Francisco. There has been an average of about fifty cases a day in Manila, but the number of new cases is now decreasing.

Yellow Fever in Havana.—Surgeon-General Wyman of the Marine Hospital Service has ordered the reestablishment of the quarantine against Cuba because of two cases of yellow fever reported from Havana. The cases, which appeared about the middle of September, were the first reported since January 31. It is thought that the patients contracted the disease at the eastern end of the island, where a number of cases have occurred. Yellow fever is also reported from Mexico.

Plague in Ecuador.—Advices from Guayaquil state that the recent epidemic of bubonic plague in that city has been stamped out, the last patient having been discharged from the hospital on September 16. Neither are there any cases of yellow fever in the city at present.

New York Death Rate.—For the week ending September 12 the death rate in New York was again remarkably low. The total number of deaths during the week was 1,219, or a rate of 14.38 per 1,000. In the corresponding week last year there were 1,329 deaths, the rate being 16.18. Of children under five years of age there were 428 deaths during this week in 1908, as against 534 in 1907. The number of births reported during this week was 2,332.

Decrease in Immigration.—Advance figures from the Department of Commerce and Labor show a large decrease in the number of immigrants during the past year. For the month of August, 1908, the total immigration was only 27,782, while in the same month last year the total was 98,825, the figures for the immigration from Russia, one of the countries from which there has usually been the largest flow, was for these months respectively 5,194 and 21,649. During the month of June, 1908, the total immigration from Russia and Finland was 6,280, and the emigration of persons returning to those countries was 5,573, a net gain of 707 only. The immigration from Italy, another country supplying many immigrants, was 3,226 in June, 1908, as against 17,573 in June, 1907. This fall in immigration began soon after the financial panic in the United States in the latter part of last year.

New Hospital for the Insane.—Because of the completion of the new buildings of the Hudson River State Hospital at Poughkeepsie fifty men and 250 women patients from the Kings Park State Hospital and the Central Islip State Hospital for the Insane were transferred to Poughkeepsie on September 16. The patients in charge of nurses and doctors were taken to Long Island City in special cars and thence transferred to a steamer which carried them direct to Poughkeepsie. The opening of these new buildings not only relieves the congestion in the hospitals nearer the city, but allows them to devote more time to the treatment of curable cases.

To Protect the Health of School Children.—The Indiana State Board of Health recently issued a letter to the people with the title, "Why not protect the health of school children?" In this the importance of pure air and proper heating and ventilation is urged, the evils of air starvation are detailed, and the lighting and air supply of schoolrooms are considered.

Examination of School Children.—The physicians of Fargo, N. D., have volunteered to make physical examinations of the school children of that city without cost to the Board of Education or to the pupils. Especial attention will be paid to the eyes, and it is hoped that the physical standard of the children may be greatly improved.

Outings for Nurses.—The pupil nurses of the Mt. Sinai Hospital have been enabled to enjoy the sail up the Hudson through the kindness of Mr. Isaac Stern, president of the hospital and a director in the training school, who has loaned his yacht, the *Virginia,* for these outings.

Almost a Century Old.—Joseph Scofield, a resident of Stamford, Conn., died at his home on September 17, at the age of ninety-nine years and two months. He was born in Lewisboro, N. Y., and had lived in this region all of his life.

Court Orders Amputation.—Because of the opposition of his parents to the operation, surgeons of the County Hospital of Chicago were compelled to obtain an order from the Court directing the amputation of the arm of a fourteen-year-old boy recently. Gangrene following a fracture made the operation necessary, but neither the boy nor his parents would consent.

Old Hospital to Be Burned.—The abandoned isolation hospital belonging to the city of Newark, N. J., is to be burned the next time the wind is favorable. It has been considered unwise to sell the old structures because of the risk of contagion, in spite of disinfection, and the question of how to dispose of them has bothered the city for some time.

Old Ambulance Horse Dead.—After serving but a few weeks less than thirteen years, Ed ly, the oldest ambulance horse attached to Bellevue Hospital, died recently. The old horse had seen many exciting times, for he was on duty when the Windsor Hotel was burned and again at the burning of the Park Avenue Hotel, and carried many patients to the hospital at the time of the accident in the Park avenue tunnel and of the *Slocum* disaster.

Charitable Bequests.—The will of Mrs. Jane A. Townsend, who died last August while in England, provides for the endowment in perpetuity of three beds in the Presbyterian Hospital, New York, in memory of her deceased children. Fifteen thousand dollars is set apart for this purpose. The Presbyterian Home for Aged Women also receives a bequest in this will of $34,500. The will of the late Robert W. Lord gives $2,000 each to the Children's Hospital and to the convalescent home of the hospital and $600 to the Woman's Charity Club Hospital.

St. Agnes Hospital for Crippled and Atypical Children.—The Sisters of St. Francis have established an hospital at White Plains, N. Y., for the treatment of cripples and mental defectives. The property, which was formerly the Westchester County Temporary Home, consists of sixteen acres with modern buildings well adapted for hospital purposes. It will have accommodations for 150 patients and will be supported by voluntary contributions. Applications for admission may be made to Dr. John Carling, 126 East 34th street, New York.

Dr. Julian H. Morris of Dallas, Tex., formerly professor of physiology in the medical department of Southwestern University, has been elected professor of physiology in the medical department of the State University of Oklahoma.

Dr. Jacob Frank of Chicago has donated four hundred volumes to the Columbus Hospital on medical and surgical subjects, in order to provide a reference library for the internes.

Honorary Ph.M. Degrees.—The Philadelphia College of Pharmacy, at the recent graduation exercises, conferred the degree of Master of Pharmacy upon Messrs. Samuel W. Fairchild of New York, Horatio Nelson Fraser of New York, John F. Hancock of Baltimore, S. A. D. Sheppard of Boston, and William McIntyre of Philadelphia.

Gift to John Crerar Library.—The sons of the late Dr. Nicholas Senn have presented to this library more than 2,000 volumes from the library of their father, to be added to the Senn collection.

Fatal Results of the German Army Maneuvers.—It is reported that as a result of the recent German army maneuvers near the western boundary of the empire, 21 soldiers died and 250 were made seriously ill. The men were called upon for excessive physical exertion, in preparation for which there had been no training, and in addition the sanitary service was most inadequate.

The International Stewards' Association in convention in New York during this month discussed at length the pure food laws and urged members to eliminate all traces of adulteration from all products of the earth. Dr. J. J. Leppa of Akron O., suggested the desirability of interstate cooperation to enact a uniform pure food law.

The Association of Military Surgeons of the United States will hold its seventeenth annual meeting at Atlanta, Ga., on October 13 to 16, 1908. The President of the Association is Assistant-Surgeon-General George T. Vaughan, and the Secretary, Major James E. Pilcher of Carlisle, Pa.

The Washington County (Vt.) Medical Society at its annual meeting on September 9, elected the following officers for the ensuing year: *President,* Dr. M. F. McGuire, Montpelier; *Vice-President,* Dr. O. G. Stickney, Barre; *Secretary,* Dr. E. A. Colton, Montpelier; *Treasurer,* Dr. L. A. Rushlow, Randolph.

The Tri-State Medical Society of Iowa, Illinois, and Missouri closed its sixteenth annual meeting at Ottumwa, Ia., on September 9, with the election of the following officers: *President,* Emil Ries, of Chicago; *Vice-President for Iowa,* J. F. Herrick of Ottumwa; *Vice-President for Missouri,* J. E. Chambers of St. Louis; *Vice-President for Illinois,* C. W. Barrett of Chicago; *Secretary,* B. F. Dorsey of Keokuk; *Treasurer,* Emory Lanphear of St. Louis. The next meeting will be held in Quincy, Ill.

The South Dakota State Medical Association in session at Yankton, on September 4, elected the following officers for the coming year: *President,* Dr. S. A. Brown, Sioux Falls; *Vice-President,* Dr. Smiley, Mitchell; *Secretary,* Dr. W. F. Moore, Tyndall; *Treasurer,* Dr. R. D. Alway.

The Missouri Valley Medical Association at its annual meeting in Council Bluffs during the first week of September elected the following officers for the ensuing year: *President,* Dr. C. B. Hardin of Kansas City; *Vice-Presidents,* Drs. A. B. Somers of Omaha and J. M. Bell of St. Joseph; *Treasurer,* Dr. T. B. Lacey of Council Bluffs; *Secretary,* Dr. Charles Wood Fassett of St. Joseph. The next meeting will be held in March, 1909, at St. Joseph.

The Medical Association of the County of Jasper (Miss.) met at Montrose on September 1, and perfected its organization. The following officers were elected: *President,* Dr. J. O. Denson of Bay Springs; *Vice-President,* Dr. G. W. Land of Lauin; *Secretary and Treasurer,* Dr. C. E. Burnheim of Bay Springs.

The Tri-Professional Medical Society of New York held its second annual meeting at the Hotel Astor, New York City, September 15. At the executive session the following officers were elected for the ensuing year: *President,* Dr. J. Monroe Lieberman (reelected); *Vice-Presidents,* Drs. G.

Morgan Muren (reelected) and George B. McAuliffe; *Secretary,* Dr. Walter T. Dannreuther; *Treasurer,* Dr. Daniel E. S. Coleman (reelected).

Obituary Notes.—Dr. Ernest A. Crockett of Lewiston, Me., died at his home on September 3, of typhoid fever, aged 37 years. Dr. Crockett was graduated from Jefferson Medical College in 1896 and had made a special study of diseases of the eye, ear, and throat. He was a member of the staff of the Central Maine Hospital and of the American Medical Association, the Maine Medical Association, and the Maine Eye and Ear Association.

Dr. William Thorne of Covina, Cal., died on September 2, after a short illness, aged 89 years. Dr. Thorne was born in England, but came to this country when fourteen years old. He was graduated from the University of Buffalo in 1850 and had practiced for over fifty years. He was a member of the American Medical Association.

Dr. Solomon S. Landon of Kansas City, Mo., died on September 10, aged 36 years. Dr. Landon suffered a mental breakdown a few months ago owing to the strain of overwork. He was graduated from the Medical School of the University of Kansas in 1896.

Dr. Hermon J. Smith of Lowell, Mass., died at the Lowell Hospital on September 12, from disease of the kidneys, in his seventy-third year. Dr. Smith was a member of the first class graduated from Tufts College, in 1858, and subsequently graduated from the Dartmouth Medical School. For three years he served as army surgeon during the Civil War and was for some years connected with the Lowell Hospital.

Dr. Emmet Porterfield of Indianola, Ia., died suddenly on September 10, of heart disease. He was a graduate of the Bellevue Medical College of New York.

Dr. George Kinney Johnson of Grand Rapids, Mich., died at his home on September 3, after a year's illness, aged 86 years. Dr. Johnson was graduated from the Cleveland University of Medicine and Surgery in 1846 and served as army surgeon during the Civil War. He was a member of the American Medical Association and Chief of Staff and consulting surgeon to Butterworth Hospital.

Dr. William T. Eckley of Grand Haven, Mich., died of heart disease on September 12, aged 53 years. Dr. Eckley was graduated from the School of Medicine of the University of Iowa in 1884, was a member of the American Medical Association and the Chicago Pathological Society, and formerly professor of anatomy in the medical and dental departments of the University of Illinois and Chicago School of Anatomy and Physiology. He retired from professional work about two years ago.

Dr. Alexander Wilder, for some years connected with the New York *Evening Post,* died at his home in Newark, N. J., on September 19, aged 85 years. Dr. Wilder was graduated from Syracuse Medical College in 1850 and also received degrees from the New York Homeopathic College. He soon, however, gave up the practice of medicine for journalism. He had written a number of books and is said to have translated the Bible into six languages.

Dr. John P. Brown, for thirty years superintendent of the Taunton Insane Asylum of Massachusetts, died at his home in Springfield, on September 19, of acute bronchitis, aged 74 years. Dr. Brown was a graduate of the Harvard Medical School and one of the most noted insanity experts in the country.

Dr. Henry G. Gaston of Harvey, Ill., died at his home on August 30, aged 80 years.

Correspondence.

OUR LONDON LETTER.

(From our Special Correspondent.)

THE SCIENCE CONGRESS—DR. F. DARWIN'S INAUGURAL ADDRESS—MR. LLOYD GEORGE ON SICKNESS INSURANCE—NOTIFICATION OF INDUSTRIAL DISEASES, OF TUBERCULOSIS—VISIT OF GERMAN DOCTORS—JAMAICA EXPEDITION.

London, Sept. 4, 1908.

This is the week of the British Association for the Advancement of Science, which for the fourth time in its seventy-eight years of existence meets in Dublin. It goes without saying that the Irish capital is keeping up its great reputation for hospitality, and the social side of the great meeting is profusely provided for. At its last visit, 1878, Trinity College could accommodate the association, but to-day more room is needed, and the Royal College of Surgeons, the Royal Dublin Society, the R. T. Academy, the Royal College of Science, and the Royal University have all contributed more or less room for the sections or other proceedings. Over 2,000 members arrived on the first day (Wednesday). Out of respect to the memory of the Earl of Rosse, a vice-president, all proceedings were suspended while his funeral was taking place in the middle of the day. You know that next year's meeting is to be held at Winnipeg. Professor J. J. Thompson has been nominated to preside then.

Invitations from Sheffield and Portsmouth for 1910 and 1911 respectively were received and accepted.

In the evening the president, Dr. Francis Darwin, delivered the inaugural address in the great hall of the Royal University, which was crowded in every corner. He referred casually to the fact that forty years ago another botanist, Sir J. Hooker, was president, and then said he thought the first duty in that position was to speak on subjects to which his own researches contributed. He therefore wished to give a general idea of how changes in environment act as stimuli to plants and compel them to execute certain movements. He said that what is true of such temporary changes of shape is also true of permanent alterations which we call morphological. These two departments of study must be classed together. This leads to the thought that the dim beginnings of habit or unconscious memory found in the movements of plants and animals must be correlated with morphological changes in the development of the adult from the ovum. Connecting thus the phenomena of memory and inheritance, he asked his audience to listen to one more defense of what many of them might consider a lost cause—the doctrine of the inheritance of acquired characters. In illustration he cited sleeping plants; their change is known to be produced by the alernation of day and night. But if put in a dark room after it has gone to sleep such a plant next morning will be seen in the day position and will assume the night one as evening comes on. Here we have what seems to be habit built up by the alternation of day and night—the plant normally dropping its leaves at the stimulus of darkness and raising them at the stimulus of light—and this habit continues in the dark room. The *post hoc* comes to be equivalent to the *propter hoc* in the formation of habit. An illustration from animal life was quoted from Keeble, the *convoluta* which comes to the surface of the sea at the ebb and sinks again as the tide rises. The remarkable fact is that when kept in an aquarium it continues for a short time to perform rhythmic movements in time with the tide. As a human habit he instanced that of a man who goes the same walk every day, turning back at a given milestone; at length he will turn back automatically at the same spot. This is habit; but the point at which he turns is the result of association, and as many would object that in its simplest form association implies a nervous system, the president said it should be remembered that plants have two qualities characteristic of animals—extreme sensitiveness to certain agencies and the power of transmitting stimuli from one part to another of the plant body. To the objection that association implies consciousness, he said it was not possible to know whether plants had it or not. Its possession as a faint copy was consistent with the doctrine of the continuity of all living things. As regards reaction to environment, he claimed that a plant and a man must be placed in the same class in spite of the fact that as regards complexity of behavior the difference is so enormous. He then contrasted his theory with the views of Weissmann on heredity, holding that it was strong where those were weakest.

It is not often that a cabinet minister interests himself in medical subjects, so perhaps one should make the most of an interview granted last week by Mr. Lloyd George, Chancellor of the Exchequer, on his return from Germany. He declared the provision for sickness in connection with the German pensions plan to be "far and away the most remarkable part of that scheme," and pointed out that the sick funds are administered by a joint committee of workmen and employers and the "State does not contribute a penny towards sickness, but it is all compulsory; workmen and employers must contribute, and this extends even to domestic servants." A part of the plan which he considered most beneficent was that providing for the erection of sanatoria, especially for lung cases. In view of the Chancellor's impressions and the awakening of the public press since the King and royal family evinced their deep interest in the campaign against tuberculosis, attention is again being called to Dr. Bulstrode's valuable report to the Local Government Board. I have referred to this more than once, but as it is now obtaining more notice some of the particulars may not appear belated. By means of the far-reaching system of compulsory insurance against sickness and incapacity the German workman attacked by tuberculosis has a legal claim for treatment and maintenance, as well as support for his family. Thus he can avail himself of this provision at the outset of his attack and it is recognized that the earlier the disease is diagnosed the better are his prospects. In connection with invalidity insurance, nearly £9,000,000 has been employed in the construction of hospitals, sanatoria, convalescent institutions, and pensions.

Very few of the numerous establishments founded to provide for tuberculous workpeople would have existed if insurance institutions had not provided funds. As tuberculosis is very largely a disease of the working classes, the insurance system opens to them advantages which formerly were beyond their means, relieving them of their financial difficulties, removing their occupational disabilities, and thereby exerting a favorable influence as regards both the prevention and cure of the disease. It is therefore not at all remarkable for a cabinet minister who looks into the subject to be impressed with its importance. Some quidnuncs are asking if Mr. Lloyd George is fearing that the Government made a mistake in trying the non-contributory pension scheme. But he scarcely gave the interviewers a glimpse into his mind on the matter and a speculation of the kind is not appropriate to a medical journal.

Notification in some form or other is a question pretty sure to crop up wherever a goodly number of medical men assemble. So at Sheffield it was brought forward by Dr. Alex. Scott of Glasgow, who is a thorough-going advocate of this measure. He had a paper in which he urged the compulsory notification of all industrial diseases, whether arising from the nature of the patient's employment or from accident. Of course the question of compensation was often involved, but that was not his chief point—which was rather that early intimation of outbreaks of disease would be obtained, the sufferers would get early treatment, and certain accidents would be prevented. Further, it would promote cleanliness among workers and show them the importance of sanitary precautions. He instanced various neuroses, cardiac affections, and other diseases which were so often due directly to occupation. Fibrosis of the lung due to dust had been carefully investigated by a department commission, but was not scheduled in the compensation act. In his sanatorium 40 per cent. of the beds were occupied by cases of miner's phthisis, though tubercle bacilli were not detected in about 33 per cent.

Dr. Alcock pointed out the difficulty as to persons who had a tendency to some disease which would probably develop when they began work, and asked if they were to be compensated like healthy men. If so, masters would insist on rigorous examination and refuse them work.

Dr. Mechan wanted to know where notification was to stop. It was held by some notificationists, and the contention had been upheld by courts, that a man with chronic cardiac disease who died when employed should be compensated by the employer. What a prospect for him! In eleven years the sums paid for compensation had increased 200 per cent.

Dr. Legge said Dr. Scott was, as usual, ahead of the time, and at present the goal to which he pointed was unattainable. Perhaps when insurance became universal his interesting proposals might be found possible.

Dr. Scott replied that he advocated early examination, which he held would decrease, not increase, compensation. Notification should be made first of all to the patient, then the employer should receive a friendly word, which would often enable him to change the sufferer's work and so very often save his life.

In the Public Health Section there was a discussion on phthisis in which both compulsory notification and the provision of sanatoria for poor patients were advocated. It was opened by Dr. Alex. Walker of Edinburgh, who regarded phthisis as emphatically a poor person's disease. It was among those who were fed, clothed, and housed badly that the power of resistance was at the lowest. This class did not comprise merely the pauper or the legally poor, but numerous worthy persons with small earnings and hard, unhealthy toil, whose industry and frugality often helped to make them an easy prey to the disease. The immense majority of cases occurred in low rented houses. The air of our cities was impregnated with the microbe in its dried state, which is the most dangerous, not to say irresistible. Between the ages of 15 and 50 phthisis was the cause of 30 per cent. of the mortality from all causes. This would indicate that 200,000 persons were to be found in various stages of the disease and at least one-fourth of them would be in the early stages, and 40,000 would be poor. For this army we have only thirty-five sanatoria with 15,000 beds and accommodation for about 6,000 patients per annum.

The amount of money required must be large, but Dr. Walker did not countenance extravagance—rather he urged the necessity of "setting our faces like flint against the besetting temptation of these enterprises." The first sanatoria were built for rich people, but palatial buildings were not needed for the poor. Dr. Walker quoted cases running up to £750 per bed, which he pronounced disgraceful. Others had only amounted to £80 or £90 per bed. The results had no relation to the cost. If anything the cheaper had been the more efficient. If the money already spent had been well spent, it would have provided beds capable of accommodating 20,000 patients.

Dr. Niven of Manchester, who followed, described the measures adopted in that city, where compulsory notification is established. As soon as a case is reported, disinfection is carried out, and instructions given as to expectoration and other matters. He said tuberculosis at birth was very rare. The majority of persons were free from the disease or hereditary predisposition until exposed to infection. The conception of tuberculosis contracted from milk in infancy and remaining latent might be dismissed. He did not deny the possibility, but the number of such cases must be small compared with those who contracted the disease in adult life. It was more and more evidently a pauperizing disease. It was essential to afford aid to consumptive families, but the condition must be notification and obedience to instructions.

Sir Charles Cuffe argued that there was no chance of stamping out phthisis unless notification was enforced.

Dr. McWalter opposed, as although sanatorium treatment was desirable it was too costly. People who spent £800 a bed on buildings deserved to be shot. One of the greatest misfortunes to consumptives was the discovery of the bacillus, but for which we should be treating them rationally, for they were beginning to see that the organism was not the only cause.

Dr. Walker thought the last speaker rather reactionary and Dr. Squire suggested passing a resolution in favor of compulsory universal notification. The proposal was dropped, as Dr. McWalter opposed it.

Dr. Brown of Ayr feared notification would interfere too much with the lives of people and insurance questions might arise.

Dr. Wilson of Lanark testified to good results of compulsion in his district. They were not going to stamp out the disease, but the work was beneficial and on right lines.

Dr. Scurfield favored compulsion and in Sheffield it had caused no difficulties. Hospital accommodation ought to be provided, too.

Sir Alfred Jones, chairman of the Liverpool Tropical School of Medicine, is organizing an expedition to Jamaica to investigate the insect life and the diseases of the island. Mr. R. Newstead, lecturer on entomology and parasitology at the school, will leave in November and will be accompanied by a medical expert.

Yesterday 350 German doctors came on a visit to the Isle of Wight. They landed at Ryde, and after inspecting the Royal County Hospital went by train to Ventnor, where the streets were decorated in their honor and they were received by the municipal authorities. They visited other establishments. At the Royal Na-

tional Home for Consumption they were welcomed by the medical staff and committee, and the senior physician, Dr. Robertson, gave an address on the treatment carried out in the institution. Luncheon was provided in the pavilion, after which Professor Rosin gave an address on seasickness. A lecture was delivered in the town hall by Lieutenant Damant, R.N., on caisson disease. The visitors also went to Osborne.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

CHOLERA—SPREAD OF THE DISEASE BY BACILLI CARRIERS—SANITATION OF THE ISLANDS—GOOD RESULTS BEGINNING TO BE MANIFEST.

MANILA, July 29, 1908.

CHOLERA, of which mention has heretofore been made, still continues its onward march, although the number of cases has not been materially increased. As the disease appears in new provinces it is gradually disappearing in the provinces in which it first appeared.

From January 1, 1908, to the present time there have been 8,599 cases and 5,401 deaths reported. Of this number there occurred in Benguet 8 cases and 4 deaths; Bulacan, 115 cases and 8 deaths; Misamis, 606 cases and 201 deaths; Nueva Ecija, 295 cases and 236 deaths; Pampanga, 177 cases and 155 deaths; Pangasinan, 5,334 cases and 3,176 deaths; Capiz, 766 cases and 571 deaths; Ilocos Sur, 415 cases and 316 deaths; Iloilo, 18 cases and 13 deaths; Laguna, 4 cases and 3 deaths; Nueva Vizcaya, 6 cases and 6 deaths; Rizal, 169 cases and 139 deaths; Tarlac, 149 cases and 103 deaths; Union, 244 cases and 180 deaths; scattered in various provinces, 293 cases and 213 deaths. Within the past week the disease has been carried from Capiz province over the mountains into Iloilo province and has now made its appearance in Jaro and Santa Barbara.

Undoubted evidence has been obtained that certain persons in Manila are "cholera carriers," one such individual being now isolated in San Lazaro Hospital who is apparently in perfect health but whose stools contain the spirilla of Koch.

In view of the criticisms which have been made from time to time with regard to the unsatisfactory sanitary condition of a large part of the towns throughout the Philippine Islands, it may be of interest to note the following statement taken from the report of the Director of Health for the fiscal year ended June 30, 1908: "The efforts of the bureau during the year were directed more and more toward the laying of a sound foundation upon which to erect a sanitary superstructure that will endure. The efforts of the earlier years of modern health work in the Philippines were necessarily restricted to battling with actual outbreaks of great devastating diseases like cholera, plague, and smallpox, rather than with the conditions which made these diseases possible. In other words, symptoms had to be treated rather than causes. Persons actually suffering with cholera had to be cared for rather than to install a permanent system of water supply which would make a cholera outbreak impossible at a later day. The resources of the islands are such at present that greater sums than those set aside during the past few years are not available. It has, therefore, become the policy of the bureau to take each peso that becomes available for health work and vaccinate, say, forty people with it, thus protecting them against smallpox; or free a certain number of individuals of intestinal parasites, thus saving them from many other diseases; or invest it with others in artesian wells, rather than to use it for sweeping sidewalks, penning up pigs, or cleaning back yards. All of these latter measures are highly desirable, but when there is only sufficient money to accomplish every needful thing it would seem that there is but one course to pursue, and that is to invest it in those things which will give the greatest permanent result."

This policy has given rise to considerable adverse criticism, which time only can counteract. In the future the permanent results will speak for themselves. The achievements of the reduction in the number of cases of smallpox and leprosy, and the lowered mortality where artesian wells are in use, are already beginning to attract attention, and will soon demonstrate the superiority of this new departure over the old empirical "clean-up" policy.

Briefly, then, it is believed that the direct road to the goal of a permanent low morbidity and mortality rate in the Philippine Islands is through improved water supplies, vaccination, elimination of intestinal parasites, systematic warfare against tubercle bacilli, the eradication of the malarial mosquitos, and through improved hygiene to combat infant mortality.

A PLEA FOR ESPERANTO.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—As a student of Greek from both the literary and philological points of view, and as one who by more or less assiduous application has obtained the pleasure of being able to enjoy the grandeur of Æschylus and the glories of Pindar, I am much interested in the proposition in the MEDICAL RECORD of August 15, concerning the possibilities of Greek as a world language. As is noted in this discussion, the suggestion of Modern Greek as a second tongue for all the nations of the civilized world is not novel, and Greek has the advantage of being more of a neutral language than is English, German, or any other language spoken by a people politically and commercially prominent, the adoption of whose tongue as a world language is out of the question on account of racial jealousy.

But there are certain practical difficulties in the way of Modern Greek as an international language. Even though a language of great difficulty may be easily acquired in one's infancy, the fact remains that no child can acquire any language unless it hears this language spoken. That is to say, a prerequisite of either teachers or relatives who know the language well is necessary for the child's learning it. Therefore the international language must be sufficiently easy to learn that for a few generations at least, or until it has already become completely international, adults may be able to master it well enough to teach it.

Even admitting that Modern Greek is less difficult than French or German, it is not so easy that our teachers can promptly acquire a complete and accurate knowledge of it, and be intelligible if "its use were continued in the school curriculum in the teaching of History and of Physics, Chemstry, and the other scientific branches." There exists no national language whose mastery to such a point does not demand years of careful study, and the swiftness with which one may obtain a smattering of such a language, and "enough to get along with" has nothing to do with really learning the language. Yet the contention for Greek is only that "if it were taught in all the elementary schools of the world as a living tongue, not as an exercise for translation merely, the coming generation would use it as fluently and naturally as it would the national speech."

Shall we, then, import native Greeks to teach their language? Even if this were at all possible on the wholesale scale necessary, it would mean the wiping out of Greece as a European nation, for we should need all and more than all of the two million or so Greeks as instructors in the United States alone, assuming even then that one Greek could teach his tongue to forty Americans; and if we could not leave any Greeks in Europe to teach Greek to the Europeans, leaving out of the question now the Japanese and other Asiatic peoples, the newly acquired language would not be of as much practical value as English itself.

We must, then, have an international language that shall be easy of complete acquirement, if it is to be really an international language. Esperanto, as admitted, is easy. It is a living language, for it is already spoken by several hundred thousand people, although it is still in its infancy. How many people will be speaking it in but a year from to-day can be estimated only by noting with what speed the ranks of its followers are constantly increasing. It has a rapidly growing literature, consisting of far more than "a few translations and ephemeral articles." And, most important of all, it can be taught to the coming generation, for the adult population is learning it first, not in one spot alone, but in North and South America, in Europe, in Japan and India, and the Philippines, and in Greece, too. The originally small number of Esperantists in all these regions is increasing, and they are not merely theorists and dreamers, but really become masters of the language.

They can do so because its grammar is simple, logical and regular, and fifty times as easy as that of Latin, English, German, French, or Greek. Its vocabulary was not arbitrarily created, but the great majority of its words are already familiar to Europeans and Americans. The sounds and pronunciation are international, and so simple that persons of different race and language can readily and promptly converse in Esperanto, after having learned the language from books alone. And no better way of testing this last statement can be suggested to the doubter than that he learn a little Esperanto, and then attend the Fifth International Congress of Esperantists at Chautauqua, N. Y., next August, and see for himself.

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AN IMPOSTOR.

To the Editor of the Medical Record:

Sir:—I wish to warn the profession against a colored man who represents himself as authorized to collect money for the Colored Aged Home of Irvington, N. J. I wrote to the Home to inquire about this man, and was informed that they have no collector in New York. I would suggest that any physician on whom he may call would do well either to call up 3100 Spring and give him in charge, or else to get his name and address, and then notify the Home, writing to John H. Williams, 57 Brunswick street, Newark, N. J. He was about middle age, rather slight, moderately tall, reasonably well dressed in dark suit, wore a moustache, but, I think, no beard. He carries a notebook, in which, I am sorry to say, will be found my name as a contributor. He has also several letters, one, I think, purporting to be from the Mayor of Newark.

Will somebody kindly catch him? I will be glad to appear against him.

Forbes R. McCrery, M.D.

123 East Fortieth Street, New York.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 10, 1908.

Primary Carcinoma of the Appendix.—C. O. Kepler reports one case where patient was a woman of 43 years who some five years before had had an abdominal tumor removed, but whose present illness followed a series of attacks of right iliac pains with irregular vomiting. A diagnosis of appendicitis was made, and after some delay operation was performed. It was found that the appendix was the seat of a primary carcinoma. Microscopic examination showed submucosa and mucosa replaced by a young connective tissue in which were set alveolar masses of an epithelial new growth. Alveoli were in places large, generally small, and showed here and there attempts at gland formation. The new growth had involved the circular layer of muscle which was in places almost wholly replaced. The longitudinal layer of muscle was deeply infiltrated with new growth which had spread widely in the subperitoneal connective tissue. Infiltration of the tissues with lymphoid and plasma cells was general and marked. The authors refer to the papers of Elting and Rolleston and Jones, whose conclusions are quoted in full.

Omentopexy to the Intestine Deprived of Its Mesentery.—C. L. Scudder reviews the work of various surgeons along the line indicated, and records the results of experiments upon dogs, noting the behavior of the bowel after being shorn of its mesentery and dependent for its blood supply on the omentum. He regards the procedure of omentopexy to the gut thus deprived of the mesentery as of very limited use in surgery. He regards resection and anastomosis of the bowel as the preferable course following a removal, accidental or intentional, of the mesentery from the bowel. It is conceivable that an omentopexy might prevent necrosis of the bowel if a limited portion of intestine (2 or 3 cm.) were deprived of its mesentery. The value of an omentopexy to the bowel would be increased if a plastic of omentum were made to either side of the denuded area. Experiments were made upon four dogs to determine the result of detaching the mesentery from a measured length of gut and replacing the detached mesentery by omentum, and it was shown that in this animal if the vessels in the mesentery are tied far from the mesenteric attachment, the gut remains viable even when considerable mesentery is detached. The nearer to the gut the ligation is made of the mesenteric vessels, the less detachment of mesentery can be made and viable gut remain. From 16 to 20 centimeters of gut may be denuded with subsequent omentopexy safely. Ten centimeters may be denuded with omentopexy, with gangrene. In the instances which recovered after two denudations and two omentopexies, the gut at the seat of operation was slightly smaller in size and a little thicker from edema.

New York Medical Journal, September 12, 1908.

Jaundice Due to Disease of the Biliary and Pancreatic Passages.—This subject is considered by J. J. Gilbride, who reports one case of cancer of the pancreas in which there was an absence of hydrochloric acid and pepsin from the stomach contents. Under the general title of the paper, nothing particularly new is presented. His own patient was a man of 52 years, whose symptoms had begun some four months before he came under observation and consisted of fullness and weight in the abdomen after eating, with belching and enlargement of the abdomen. Jaundice was present. A diagnosis was made of cancer of the liver with obstruction of the common or hepatic duct. The fact that the stools were clay colored and very offensive suggested that the pancreas might be also affected. The stomach contents showed absence of free HCl and pepsin. No lactic acid was present or no Oppler-Boas bacilli. The patient grew progressively worse and died after an illness of about five months. The autopsy showed a moderate amount of free fluid in the abdomen. There was a cancer of the pancreas and liver with involvement of right free border of lesser omentum. The glands along the common duct formed a chain of hard nodules. The stomach and intestines were normal. There were no gallstones. The gallbladder was distended, but healthy in appearance. The primary growth was in the pancreas. The pleurisy in this case was due to involvement of the diaphragm, and the attacks of cramp-like pain resembling those of biliary colic were probably due to pressure from without upon the common duct, as attacks of this kind are occasionally met with when the common duct is pressed upon from without.

Dermatitis Due to the Irritating Effects of Metol.—N. T. Beers says that this remedy is a synthetic white powder, the use of which is practically limited to photography, in which art it is employed in developers as a reducing agent alone or with such agents as pyrographic acid or hydrochinone. In these days of amateur photography we are often called to treat conditions of the skin of the hands due to this agent. In a general way the substance is a direct irritant or vesicant, and presents no special appearances. Its effects are generally confined to the fingers and hands, and show no inclination to spread by contact or autoinoculation. The picture resembles a mild case of ivy poisoning. Certain prophylactic measures are suggested by the author for the benefit of photographers. The main indications for treatment are rest and protection. Several favorite prescriptions for the latter purpose are given by the author.

Neurasthenia Ventriculi and Gastroptosis.—According to H. Weinstein, the most constant and important symptoms of this condition are pain, pressure in the epigastrium, pyrosis, sour eructations, globus hystericus, nausea, vomiting, anorexia, abnormal appetite, a sensation of emptiness referred to the stomach, difficulty of deglutition, indefinite pain in the back, abdominal cramps, constipation, or diarrhea alternating with constipation, attacks of faintness and of impending dissolution, tachycardia, headache, and dizziness. In addition, there are various manifestations indicative of vasomotor affection. All these symptoms may be present in a given case, or only a few principal symptoms masked by a great number of bizarre and unusual sensations. In the endeavor to locate the tender area over the gastric region, a suddenly applied blow of the finger over the epigastrium will call forth resentment on the part of the patient as well as of the abdominal muscles, and pain will be complained of whether it is present or not. It should be performed in an easy and methodical manner by pressing the epigastrium with one finger very lightly at first, constantly and gradually increasing the pressure until pain is complained of. The importance of distinguishing between a mere hyperesthesia and pain due to organic disease cannot be overestimated as much from a positive as from a negative standpoint. The author adds that heartburn and sour eructations are apt to be present in those periods if a neurosis is overacid, but there are exceptions to this rule. In gastric prolapse there is often the sensation as of a foreign body in the throat. It is frequently aggravated after eating. It may be due to the dragging of the prolapsed organ on the esophagus. A sensation of emptiness in the stomach and of abnormal hunger is often present in overmotility, but it may also be due to a purely nervous condition. In prolapse of the stomach the colon is also displaced to a greater or lesser degree, and as a result there is constipation. Owing to decomposition of the fecal matter and formation of noxious substances, a colitis develops sooner or later with a resulting diarrhea.

Journal of the American Medical Association, September 12, 1908.

Renal or Vesical Calculi?—C. Beck reports two facts observed by him, which tend, he thinks, to modify somewhat our views as to the origin of calculi in the urinary tract. The first of his conclusions was reached by his finding in eleven cases of vesical calculus in the space of four years, that in nine of them the *x*-ray showed renal calculus coexisting. In the other two technical defects occurred, rendering the result doubtful. While the majority of authorities hold that most calculi originate in the kidney, some still hold

that a large percentage are of vesical origin. Prior to the use of the *x*-ray there was no proof to the contrary. Beck is satisfied that in the nascent calculus the solids that are normally dissolved in the urine are in some way precipitated, and he thinks that they are then much more liable to be arrested in the windings of the renal structure than in the regular surfaces of the normal bladder. They need not necessarily be in excess; some exciting cause, foreign substances, necrotic tissue, mucus, or blood clots may serve as a nucleus, and in this connection he refers to his observations on tuberculous kidneys in which the bacilli formed the starting point. Where no such conspicuous cause is known, however, the exciting cause of the precipitation is, as in the gall-bladder, unknown. In the overwhelming majority of cases it would be impossible to say, without the aid of the *x*-ray, whether the calculus is of renal or vesical origin, but Beck believes that, save in the unusual conditions or foreign substances, etc., mentioned above, the starting point is in the kidney, though the later development may be in the bladder. The cases of so-called ascending infection in vesical calculus are, he thinks, to be taken *cum grano salis,* as the pyelonephritis may be just as likely due to unrecognized renal concretions. If calculi are admitted to be of renal origin, the therapeutic importance of the fact is evident, after removing the calculus the nephrolithiasis is to be considered. Beck's second conclusion is based on his observation that in vesical tumors incrustations are sometimes so abundant that calculus is diagnosed. Even cystoscopy sometimes fails, moreover, when a calculus is encysted. The *x*-ray and the cystoscope are both essential for a certain diagnosis; neither is alone sufficient. He reports a case in which the *x*-ray alone led to an erroneous diagnosis of calculus due to calcareous incrustations of a carcinomatous tumor.

Non-Tuberculous Arthritis.—H. W. Marshall has studied the clinical material in the way of rheumatoid arthritis in the Massachusetts General Hospital, and in the private practice of Dr. Joel Goldthwait. Bacteriological specimens have been made of the stools of a dozen patients to determine the predominant type of organisms in the intestines, and blood cultures have been made from as many more cases, while agglutination tests have been tried a few times on bacteria isolated from the feces with negative results. The effect of fermented milk on intestinal putrefaction was experimented on in some private patients, but with rather inconclusive results. The advance made in the investigation, he thinks, can be best shown by a report of two cases representing types of the disease in acute exacerbation of the chronic trouble, for it was found that the slow processes of the very chronic cases were hard to identify. The first case was that of a woman aged 35, who had acute exacerbations since she was 2 years old, and was markedly relieved for a time by ether inhalation. Further experiments on six patients demonstrated that ether does influence the arthritic process temporarily, and this subject will be further investigated and reported on. Apparently, the ether circulating in the blood temporarily stimulates the protoplasm into normal activity and increases the nitrogen metabolism. In another type of cases ether aggravates the condition and these are probably infective. The second case reported was of this type and the patient was benefited by the use of fermented milk with daily enemata of normal salt solution which cleared the intestines of masses of hitherto unsuspected retained fecal scybala. Intestinal toxemia was here accountable for the conditions. Two other observations which strengthen the arguments for a metabolic type of arthritis are also mentioned. One was a woman whose symptoms cleared up during pregnancy and the other was a man who had a temporary relief during convalescence from lobar pneumonia.

Radium Salts for Cancer.—F. H. Williams gives his experience with the use of radium in the treatment of some superficial cancers and other cutaneous disorders. The chief therapeutic effects seem to be from the beta rays, fourteen times as much of which as of the gamma rays are given off, as shown by the fluorescence produced. Besides cancers, it seemed to be useful in acne, psoriasis, eczema, warts, and keloid, and gave rather encouraging results in two cases of trachoma. In 68 cases of epithelioma, with an average duration before treatment of four and one-half years, the lesions healed in 55 patients; 4 are under treatment; in 1 healing failed; and 8 stopped treatment, all, with one exception, doing well at the time. One case is reported. In his method, the capsule containing 50 mg. of pure radium bromide, on a handle a foot long or more, was applied over each area treated, for a period varying from one-half to three and sometimes four minutes, from one to three times a week (less often after healing has begun), according to the case. His conclusions are given as follows: "1. The radiations from radium are uniform in quality and quantity, and thus this remedy has a great advantage over the *x*-rays in efficiency and safety. 2. The gamma rays from radium are useful in some cases for relieving pain. They have great penetrating power. When they are used as an analgesic the beta rays should be excluded or the patient may be burned, partly because the proportion of gamma rays is so much smaller than that of the beta rays that the exposure must be much longer, when the gamma rays are used, to make them effective. 3. The beta rays from radium are the useful rays in the treatment of rodent ulcers, epitheliomas, and other superficial diseases. They can be applied in the mouth and other cavities. 4. Radium should be used early, and in suitable amount and strength. The treatment is painless and leaves least scar. 5. Radium does not produce as good results in cases in which an operation has first been done, or scraping, caustic, or other irritating treatment has been used, or the *x*-rays have been applied. 6. Improvement follows the use of radium more promptly in many cases than the use of the *x*-rays, and the total duration of treatment by radium, though sometimes long, is much shorter than with the *x*-rays. In some cases success has followed the use of radium when treatment by the *x*-rays has failed. 7. A surprisingly large proportion of external cancers, especially epitheliomas, having healed and remained healed for some years under treatment by radium, my experience thus far indicates that in certain cases of external new growths it is a better remedy than those previously at our command. 8. Recurrences follow all methods of treatment, and radium is no exception, but, so far as present experience goes, this is unusual, and they have yielded to further treatment by radium. 9. The disadvantage of radium is its cost to the physician."

Uterine Displacement.—H. J. Boldt says that with the advances in operative surgery, the practice of minor gynecology has almost been lost sight of. We should remember, however, that all patients are not alike suited for surgery and that no operation is entirely free from risk. He points out that a considerable number of acquired retroversions and retrodisplacements, not fixed by adhesions, are amenable to treatment by pessaries, which, however, should never be used until the uterus has been placed in physiological anteflexion. The cases best suited for this treatment are the recent postpuerperal ones, hence the importance of examination of these patients about a month after confinement. If the physician is specially trained in the Thure Brandt method and can give the time, and the patient is willing, much can be accomplished in cases with adhesions, especially old postpuerperal cases. There are also some backward displacements with light adhesions that can be broken up after the Schultze method under anesthesia at one sitting. In acquired pathological anteversions and anteflexions, pessaries are useless except for the relief of the vesical tension. Congenital anteflexions, usually with retroverted cervix, are due largely to shortening of the rectouterine ligaments and frequently associated with posterior perimetritis. Pessary treatment is useless in such cases, so far as Boldt's observations go.

Prognosis of Neoplasms.—G. McConnell questions the common opinion and the statement in textbooks that the number of actively dividing cells found by microscopic examination of malignant growths bears a definite relation to the rapidity of the progress of the disease. He has investigated a considerable number of tumors of various types, squamous epithelioma, carcinoma, and rodent ulcer, and found no such relation to exist sufficient to warrant conclusions from the previous history or later progress of the disease. He concludes that it is not wise for the pathologist to give a prognosis from his microscopic examination. It would seem advisable also not even to suggest that the tumor is taking on a rapid growth, as the clinician might thereby be deceived.

The Lancet, September 5, 1908.

A Localized Outbreak of Scarlatina Presumably Attributable to Milk.—C. A. Cameron refers to an outbreak of the disease in Dublin. In the course of six weeks 37 cases were reported. Of these 16 were reported within a period of 12 days, all living within a radius of less than three-quarters of a mile. Every one of the patients had been supplied with milk from the same dairy. Examination of the property of the

dairyman, employees, family, etc., failed to discover any recent cases of scarlet fever. One of the workmen had severe tonsillitis with fever. He was isolated and kept under observation, but no desquamation took place. Another workman had a slight sore throat. The cows were apparently free from any infection. Under these circumstances the health officer could not prevent the sale of milk from the dairy, but all the utensils of the latter were disinfected and as well the house in which the workmen lived. The author admits that his conclusion that the dairy was the source of infection is a rather lame one, for no case of the disease was found in connection with the dairy, and many of the customers of the latter were not infected; in fact, but a few of them. It does not follow, he says, that all the milk from the dairy was infected, nor were all those who consumed it in the particular receptive condition favorable to an outbreak of the disease. Yet he regards it as in the highest degree improbable that 16 cases of the fever should result from the use of this particular milk if it were free from pathogenic organisms.

An Outbreak of Cowpox.—An outbreak of cowpox in a dairy herd is reported by A. B. Green. During March of the present year the teats of several of the cows were chapped or cracked and two weeks later sores began to develop on the affected areas. Out of the herd of 27 cows 25 were affected. Soon sore places developed on the farmer's hands, on which papules formed with subcutaneous edema and reddened areolæ. Here some sores appeared later on the forehead and upper lip. In a few days the papules changed to vesicles which became umbilicated and exuded a clear fluid and in general followed the usual course of a severe and prolonged vaccination. Ten days after the first cases other cases developed in the laborers who assisted in the care of the herd. Examination of the exuded fluid revealed in the only pathological material, viz. the exudate from the hands of the farmer's son, the staphylococcus albus and aureus. Guinea pigs inoculated with this fluid developed typical vaccine vesicles. Two weeks later these animals were inoculated with highly potent calf vaccine and no specific reaction was noted. It seems evident, says the author, that the disease which affected the men's hands and the cows' udders was vaccinia. Endeavors were made to ascertain how the condition first appeared in the cows, but so far without success. No persons attending the cows had been vaccinated recently nor had any member of their families. The only other disease noticed among the farm animals was a few cases of foot-rot in sheep; and, from the experiments which the author has made, foot-rot material inoculated on guinea pigs, calves, and goats not only sets up no pathological conditions resembling vaccinia, but affords no protection against subsequent inoculations with calf vaccine. The farmer stated that his cows had on previous occasions suffered from sore teats, but according to his observations in not the same manner as on the present occasion. There is a possibility, therefore, that the vaccinia may have been endemic on the farm for some time. But the fact that no cow-men previously contracted vaccinia contradicted such a supposition.

Extensive Enterectomy for Gangrene.—The patient of A. E. J. Barker was a woman of 47 years, whose symptoms led to a diagnosis of appendicitis with perforation or possibly internal strangulation. The desperate condition rendered the employment of lumbar-puncture anesthesia advisable and 5 cgm. of stovaine and glucose were employed. The abdominal incision revealed a collection of dark, offensive fluid and a coil of mottled gangrenous bowel. On extension it measured 4 feet 9 inches. The healthy proximal and distal ends of the bowel were laid side by side and a lateral anastomosis made. The operation lasted seventy minutes and the patient felt no pain throughout. Recovery was uneventful, except for a slight disturbance from a stitch abscess. The history of the case showed that the gangrene occurred within 22 hours from the onset of symptoms. The section of bowel removed contained dark fetid blood under great tension, so that when the mass was felt through the abdominal wall it gave the sensation of a large cyst. The distal portion of the bowel for about a foot or so below the constriction presented a very interesting appearance such as the author has never before seen or known to be described. It was very irregularly constricted, portions being contracted and almost cord-like and portions dilated. Some unusual nerve phenomena must have been present, probably due to pressure by the band; otherwise it seemed to be perfectly normal in texture. No attempt was made to resect the bundle of intestine until the anastomosis had been effected. It simply lay outside the abdomen until the time came to cut it away and to suture the gap in the mesentery.

Exophthalmic Goiter; Pathology and Treatment.—Summaries of 16 cases are given by A. G. Gullan, who describes the cell changes which take place in the thyroid body and believes that its enlargement is a true hypertrophy from which results an increase of the specific secretion. To support this view he evidences the fact that the manifestations of exophthalmic goiter are the exact opposite to those of myxedema, which disease is undoubtedly due to a deficiency of thyroid secretion (athyroidism). The low ebb of metabolism in myxedema is clearly indicated by the infrequent low tension pulse, feeble cardiac action, mental and physical hebetude, subnormal temperature, dry swollen skin, constipation, diminution of the excretion of urea, and increase in body weight. Whereas excessive metabolism is shown in exophthalmic goiter by the frequent raised tension pulse, accentuated action of heart, mental and physical condition active and alert, temperature inclined to be raised, moist skin, looseness of the bowels, increased excretion of urea, and loss of body weight. There is no doubt that thyroid secretion is capable of causing intoxication. Assuming, then, that the hypothesis that exophthalmic goiter is due to intoxication from hypersecretion of the thyroid gland is correct, we have still no satisfactory explanation of the cause of the hyperactivity of the thyroid. It has been suggested that it is due to degenerative changes in the cervical sympathetic, or hyperplasia following an intestinal intoxication, but the intimate relation which exists between the thyroid and the generative organs—the gland often swells at the menstrual period, involutes or atrophies at the menopause, causing myxedema, hypertrophies at puberty or during pregnancy, causing exophthalmic goiter (this is illustrated in three cases of mine) inclines me strongly to the view that some abnormality in the function of the generative organs may be the starting point of the thyroid derangement. For medical treatment the author knows of nothing better than the antithyroid preparations. He advocates the use of rodagen in dram doses four times daily. It is expensive, however, and thyroidotoxin will doubtless give equally good results. Surgery appears to the author to be a logical and scientific method of treatment except that we cannot be certain that compensatory hypertrophy will not take place in the portion of the gland left behind.

Berliner klinische Wochenschrift, August 24 and 31, 1908.

The Specificity of Wassermann's Reaction in Syphilis.—Boas and Hauge deny the truth of the findings of Much and Eichelberg, who have claimed that the Wassermann reaction for syphilis can be obtained with the blood of scarlet fever patients. The authors have examined sixty-one cases of scarlatina in reference to this point; in one case the reaction occurred, but it was no longer present two weeks later. The reaction discovered by Wassermann is therefore specific for syphilis with very rare exceptions. The appearance of the phenomenon in the case of scarlet fever patients has not as yet been explained.

Pseudometastases in a Case of an Ovarian Dermoid.—Melchior reports a case of this condition and abstracts four others from the literature. His patient was operated upon for an ovarian cyst which proved to be a dermoid. The peritoneum was found to contain thick, porridge-like material which was escaping from a rupture in the wall of the cyst. Histologically the cyst was a typical dermoid, and contained hair, bone, and teeth. Three years later the patient returned with an inoperable carcinoma of the rectum. The autopsy disclosed the presence of a great many cysts with connective tissue walls attached to the peritoneum. The cysts were small in size, some possessed pedicles and the connective tissue of their capsules passed imperceptibly into the connective tissue of the peritoneum. The explanation of this picture the author finds in the rupture of the original cyst and the inflammatory reaction of the peritoneum with encapsulation of particles of the cyst's contents. Such encapsulated material on breaking off, may be the source of free foreign bodies in the abdominal cavity; the rupture of the original cyst may stimulate in severity of the symptoms the twisting of the pedicle of the cyst.

Acute Dilatation of the Stomach.—Borchardt says that the recognition of this condition is as important to the physician as to the surgeon. Its real significance depends upon the obstruction of the duodenum, with all the consequences which follow a high intestinal obstruction.

The oral portion of the duodenum and the stomach are dilated to an extreme degree, and are filled with bile-containing fluid which may collect in very large quantities, while the lower intestines are collapsed. The site of the obstruction is usually at the crossing of the duodenum by the superior mesenteric vessels; the cause may be found in the abnormal length of the mesentery, which allows the loops of intestine to descend very low into the pelvis and be fixed there, thus producing a pull upon the fixed portion of the duodenum. It is just as probable, on the other hand, that the dilatation of the stomach is the primary condition, due to some unknown change in that organ, and the obstruction follows this accident. The condition should always be kept in mind in cases of serious abdominal and general symptoms after narcosis, operations, errors of diet, and much vomiting. The symptoms begin with rising pulse, circumscribed swelling in upper abdomen, which soon reaches unusual degree, pain, vomiting, total constipation, and thoracic respiration. The temperature remains normal or only slightly elevated. The diminution of the meteorism following the introduction of a stomach tube differentiates the condition from peritonitis, but an acute disease of the pancreas is much harder to exclude. The prophylaxis consists in using the stomach tube in the very beginning of suspicious symptoms after an operation, etc.; the treatment consists of the same procedure, the stomach being thoroughly washed out. Ventral posture is favorable to the diminution of the obstruction, and should be always tried, except in the cases where the dilatation of the stomach has fully developed. Surgical treatment must be used if the simpler measures fail.

The Effect of Pancreatic Extract Upon Adrenalin Glycosuria.—Frugoni says that it has been proved that the injection of adrenalin can produce glycosuria, that such glycosuria may also be produced by painting the pancreas with adrenalin or by massaging the adrenals, and that the adrenalin glycosuria is accompanied by a hyperglykemia. His experiments show that such glycosuria may be prevented by a simultaneous or by a previous injection of an active extract of the pancreas. The latter substance is best injected intraperitoneally two hours before the adrenalin is used. In the test tube the pancreas extract changes the properties of adrenalin if kept in long contact with it, the toxic property leading to the appearance of diabetes being lost by the latter substance. The addition of certain salts prevents the loss of this property by the adrenalin, while the dialyzed pancreatic extract, on the other hand, is no longer able to modify the adrenalin in the above fashion.

Münchener medizinische Wochenschrift, August 25 and September 1, 1908.

Use of Fat-Free Tuberculin.—Jessen extracts the usual preparations of tuberculin with ether and then with chloroform, and mixes the resulting fluid with physiological salt solution containing 20 per cent. glycerin and 0.5 per cent. carbolic acid to make up any desired strength. This procedure removes the fats and waxes of the tuberculin which produce caseation and inflammation. The average dosage used is 1.100,000 c.c. and the injections are made at intervals of eight to four weeks. The site selected for the injections is usually the back where least local reaction occurs. Incipient cases are very favorably affected by tuberculin used in this fashion, advanced cases are sometimes likewise improved, but the progress of terminal cases cannot be stopped. No untoward effects have been noted.

Deformed Pelves.—Hegar says that deformed pelves are usually due to injurious influences that act after the birth of a child, though disturbances of development in intrauterine life may also be responsible for occasional cases. Among the most important of these influences is the loss of breast feeding, poor nutrition in early childhood, bad living quarters, too much schooling in unhygienic surroundings, early introduction to various diversions of social life, such as theaters, concerts, balls, etc., with the fatigue they occasion, and finally, chronic disease, such as rickets and tuberculosis. The effect of surroundings and mode of life is well shown by the large percentage of deformed pelves in Germany, contrasted with the comparative freedom from this condition among the active and athletic women of Sweden and Norway. It is the duty of the medical profession not only to assist the deliveries of women with deformed pelves, but to use every occasion to point out the means of preventing the deformity by protecting female children from the injurious influences enumerated.

Origin of Typhoid Epidemics.—Mayer tells his observations while on service in a sanitary station for fighting typhoid fever in South Germany. The disease may be spread by typhoid fever patients diagnosed as such, by light cases not recognized, by healthy persons harboring the bacilli, by convalescents or persons that continue to excrete bacilli a long time after the disease. Foodstuffs contaminated by the excretions of such persons, especially milk and green vegetables, have caused epidemics in several instances. August and September are the months in which most spread of typhoid fever takes place, while February, March and April show the lowest figures. High temperature is one cause of this phenomenon, hot, dry weather being especially favorable for the growth of the bacilli and the carrying of the infective material from place to place by the flies. Sanitary stations, therefore, should consider every case of diarrhea beginning in high summer as suspicious, while bacilli-carriers should be closely watched at these times and compelled to take the greatest care against spreading the disease. No remedies have been found that efficiently influence the excretion of bacteria by such persons; therefore, the hope at the present time lies in proper disposal of the sewage and excreta in the country as well as in the city.

The Dangers of Pessaries.—Cohn says that operative treatment of gynecological affections is properly taking the place of the use of pessaries, which often only led to neurasthenia in the unfortunate patient by reminding her constantly of her disease. The cardinal fault of the pessary is its character as a foreign body introduced in a cavity that responds to irritation by increase of secretion or by inflammatory reaction. The art of properly placing a pessary is very hard to learn and only a very good position of the pessary robs it of its dangerous or unpleasant effects. No material has been invented that does not irritate the mucosa of the vagina, does not get roughened on the surface or does not change its form in time. Often, too, the pessary is used by the general practitioner without clear indication for support, as in instances of infantile uterus, or as a placebo when no other treatment is available. Neugebauer's statistic has shown the frequency with which vesicovaginal and rectovaginal fistulæ are caused by this appliance; yet most of such cases are not reported in the literature. Ulceration is, of course, a more frequent consequence and when the increased secretion and the necessity of frequent douching is remembered the treatment by means of pessaries is plainly seen to be the least desirable form of dealing with gynecological affections except in a few well-selected cases. Still more harmful are the uterine pessaries which women use as anticonception remedies and which some physicians do not refuse to introduce. Such pessaries do not really prevent conception, but by irritation and inflammation they cause early abortion of the ovum. An abortion due to this cause is very frequently followed by endometritis and even general septic infection because the foreign body in the uterus favors the growth of pathogenic bacteria.

Deutsche medizinische Wochenschrift, August 27, 1908.

Fever in Tertiary Syphilis.—Dammert reports in detail a case of syphilitic infection in which various pulmonary and general symptoms occurred from time to time, always accompanied by intermittent fever. The diagnosis of tuberculosis, of malaria, of cancer of the liver were considered, but were disproved by the course of the disease. Finally, the administration of iodine and mercury was decided upon and the fever quickly and permanently disappeared. Dr. Pariser reports two additional cases in which specific therapy led to the disappearance of fever that had previously proved resistant to all other medication. All three patients showed remarkable improvement in general health, with increase in weight. The authors urge that the possibility of syphilitic fever should be remembered in all similar cases, with the history of a specific infection and some symptoms or signs, however slight, from the internal organs, especially the liver. The rise of temperature may be explained in such cases by the absorption of the products of breaking down gummata or the existence of a mixed infection.

Ova of Parasites in the Feces.—Telemann uses the following method of examining feces for the ova of parasites: Mix several small portions of the feces taken from different parts of the stool with a mixture of ether and hydrochloric acid in the proportion of 1:1. The ether dissolves the fats and fatty acids, the acid dissolves the soaps, mucus, phosphates, etc. Pass through a wide-meshed sieve to remove large undigested food remains. Centrifuge for one minute. The mixture separates into three layers, the upper consisting of the substances dissolved in the ether, the middle, of bacteria, small detritus, and the substances dissolved in the acid; the lower portion, often very small in quantity, contains food remains not dissolved in the ether or the acid, mixed with the ova of parasites. The ova are freed from fat and other material by the process and are easily recognized, even with low magnification.

Book Reviews.

Essentials of Surgery. An Outline of Surgical Pathology, Diagnosis and Treatment. For students and practitioners. By Alwyne T. Compton, F.R.C.S. Illustrated. Chicago: W. T. Keener & Co., 1908.

In this volume will be found the main points in connection with the etiology, pathology, diagnosis, and treatment of the chief injuries and surgical diseases. The general arrangement, headings, and classifications are unusually clear; there are several good diagrams, and the volume will readily enable the student to recall the chief points of such surgical affections as he has studied in a larger text-book, or seen in the wards.

A Text-book of Human Physiology. Including a Section on Physiologic Apparatus. By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Hygiene in the Jefferson Medical College; Professor of Physiology in the Pennsylvania College of Dental Surgery; Lecturer on Physiology and Hygiene in the Drexel Institute of Art, Science, and Industry. Third edition, revised and enlarged, with colored plates and 383 illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

In this new edition of Brubaker's Physiology the whole text has been subjected to careful revision, and some new diagrams and new material have been incorporated. The new material, occupying some fifty pages in all, will be found in the chapters on the chemistry of the proteids, the physiology of muscle tissue, absorption, the physiology of the heart and vascular apparatus, the nervous system, and vision. There is a large number of busy practitioners who desire to have the important facts of physiology and an up to date presentation of the same, without the details of laboratory work and experiments. To such, the present volume can be recommended. The print, illustrations, size, and general get-up of the work are all that can be desired.

Leitfaden zur klinischen Untersuchung des Blutes. Von Dr. med. C. S. Engel in Berlin. Dritte Auflage. Mit 49 Textfiguren und 2 Tafeln in Buntdruck. Berlin: Verlag von August Hirschwald, 1908.

In the preface to this manual of clinical examination of the blood Paul Ehrlich, the creator of modern hematology, calls attention to the growing interest in the subject among practising physicians. The latter could select no better guide to the subject than the volume before us. It consists of seven chapters treating of the chemical and physical methods of examination of the blood, the morphology of the blood, its development and regeneration, the changes in its composition in disease, the blood parasites, and the biology of the bloodserum. Written by one of the most careful and original investigators in hematology, the book gives a complete résumé of our knowledge of the subject as well as an authoritative statement of some of the more important theories. The text is concise, readable and adequate throughout; there are many good illustrations in the text and the two colored plates at the end of the book give a very good picture of the general morphology of the blood in health and in disease.

Arterial Hypertonus, Sclerosis and Blood-Pressure. By William Russell, M.D., F.R.C.P. (Edin.); Physician to, and Lecturer on Clinical Medicine in, the Royal Infirmary, Edinburgh; Lecturer on Practice of Medicine, formerly Lecturer on Pathology, School of Medicine, Edinburgh. With thirty-six illustrations and plates. Philadelphia: J. B. Lippincott Company, 1908.

The purpose of this book, as stated by the author, is to direct attention to the important part taken by the blood vessels in the production of clinical phenomena, varying in intensity from trifling indisposition to severe illness. Dr. Williams first shows the lamentable faults in the nomenclature of the diseases of the blood vessels, such terms as atheroma, obliterative endarteritis and arteriosclerosis being loosely and differently used by the various authors. He limits the meaning of the latter term to thickening of the arteries not caused by atheromatous changes. Hypertonus, its causes, the clinical estimation of its degree by the sphygmomanometer are then considered. The rest of the book is given up to the study of various pathological conditions that have effect upon the blood pressure or are caused by changes in the pressure, among them, interstitial nephritis, disturbances of digestion, angina pectoris. The results of "hyopertonic contraction or spasm constriction" of cerebral vessels are considered last. The book is a monograph and does not pretend to cover the whole of the subject. It is, however, a very useful résumé of modern research and views of the nature of arterial diseases as well as of the original views of the author. It will prove very interesting to all students of arterial disease and its effect upon the organism, subjects which have recently been attracting much attention from the medical profession.

Sex of Offspring. A Modern Discovery of a Primeval Law. By Frank Kraft, M.D., Editor of "American Physician." Cleveland, Ohio: B. Barsuette.

The whole gist of this book is contained in the following quotation: "Accordingly, as fertilization of the ovum takes place at the period of flood tide or of ebb tide, so will male or female offspring accordingly result. It follows, then, that if we know the time of flood tide for any given locality, we may say for certain that the fertilization which takes place during that time will result in male sex—the nearer the middle of the rising water the fertilization takes place, the greater the certainty as to sex." So far as any argument is concerned, the author's thesis will hold just as well for the result of the next presidential election as for the sex of offspring. The volume has no scientific value whatever.

Ergebnisse der Inneren Medizin und Kinderheilkunde. Herausgegeben von F. Kraus, O. Minkowski, Fr. Müller, H. Sahli, A. Czerny, O. Heubner, Redigiert von Th. Brugsch, Berlin; L. Langstein, Berlin; Erich Meyer, München; A. Schittenhelm, Erlanger. Erster Band. Mit 28 Textabbildungen und 1 mehrfarbigen Tafel. Berlin: Verlag von Julius Springer, 1908.

This book is the first volume of a new periodical designed to appear once or twice a year and to contain original articles summarizing the progress made in the field of internal medicine and of pediatrics. The well known similar publications, one dealing with pathology and issued by Lubarsch and Ostertag, the other dealing with physiology, and issued by Ascher and Spiro, have won an enviable place for themselves among medical readers, and the book before us compares very favorably with these periodicals. The articles contained in the first volume are as follows: The relation between soul and body in questions of internal medicine, by F. Kraus; Adams-Stokes disease, by D. Pletnew; Digitalis therapy, by Dr. Fraenkel; Icterus, by Hans Eppinger; Experimental study of malignant tumors, by Carl Lewin; Pyloric stenosis of infants, by Ibrahim; Experimental arteriosclerosis, by Wolfgang Heubner; Arteriosclerosis of the central nervous system, by Cimbal; Salt metabolism and disturbances of nutrition in infants, by Meyer; Acetone bodies, by Magnus Levy; Allergy, by v. Pirquet; Researches in ferments, by Bergell; Biological study of infant feeding, by Salge; the digestion of milk in the stomach, by Tobler; Therapy of tabes dorsalis, by Frenkel-Heiden; Diagnosis of tuberculosis of the bronchial glands, by de la Camp; Pseudobulbar paralysis, by Peritz. The mere enumeration of the titles shows the great variety of subjects considered while the names of the authors belong for the most part to authorities or to active research workers in the special questions considered. To anyone actively interested in the progress of modern internal medicine the perusal of the volume before us will prove entertaining and profitable; to the research worker this volume and its successors will probably prove indispensable.

The Cause and Prevention of Beriberi. By W. Leonard Braddon, M.B., B.S., F.R.C.S.; State Surgeon, Negri Sembilan, Federated Malay States. London and New York: Rebman Company, 1907.

This work consists mainly of a report presented by the author to the Colonial Office of England, four years ago. A disease which attacks one hundred and twenty in every thousand of the Chinese immigrants, which is responsible for a death rate of 32 per 1,000, and which constitutes one-fifth of all the cases treated in the hospitals in the districts involved, is surely deserving of careful study. Such study the author presents in the volume before us. He begins with stating and criticising the various theories that have been held as to the causation of the disease, and then presents his own view *in extenso*. Briefly, he believes that beriberi is due to a poison found in rice, which is the result or the specific product of some organism—epiphyte or parasite—but he does not believe that the disease is due to the ingestion of the organism merely. The prevention of the disease is summed up in one page, and the gist of it is to secure a liberal and wholesome diet, and to avoid the use of rice or its extracts. "The only practical way to prevent beriberi in a community is for the State to prohibit the sale of any rice which is not either freshly made or which has not been cured by boiling or heating in the husk before stripping it." A complete bibliography is appended to the volume. The book contains a very thorough investigation of the etiology of the disease, and will be invaluable to all who practise where beriberi is prevalent. It has been gravely doubted whether the theory adopted by Dr. Braddon is the true one; but at any rate his book is honest, interesting, and timely.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Twentieth Annual Meeting, Held May 25 and 26, at Delaware Water Gap, Pa.

(Special Report to the MEDICAL RECORD.)

PRESIDENT, DR. CHARLES G. KERLEY, IN THE CHAIR.

Monday, May 5—First Day.

The Serum Treatment of Epidemic Cerebrospinal Meningitis.—Dr. SIMON FLEXNER read this paper by invitation. He expressed his appreciation of the flattering invitation that he had received to be present at this meeting, and said he would present some of the statistics that he had lately collected in regard to the treatment of cerebrospinal meningitis by the antimeningococcus serum. This serum had been used for just one year in this country and to a somewhat less extent in Great Britain, therefore what he said was based on less than 400 cases of epidemic cerebrospinal meningitis. The cases in which the serum was used had been diagnosed both bacteriologically and clinically. The manner of application of the serum had been somewhat modified during the course of the year, as they had learned more about the serum; they now gave larger doses and repeated the injections more frequently, The statistics of the last six months showed a larger percentage of recoveries than did those of the first part of the year. The favorable results of the last six months might be attributed partly to the fact that the existence of a serum for cerebrospinal meningitis was more generally known, and consequently employed earlier in the course of the disease. Some physicians said that they now saw the cases earlier than formerly, and this was a point of importance in deciding upon the value of the serum. It was of some importance to consider whether or not the serum was useful early or later in the same or different degrees. The serum belonged to the class of bacteriolytic sera; its capacity to neutralize was small. The pure antitoxic value of the serum was possibly not great. There was evidence on hand to show that the serum exerted a distinctly injurious effect upon the vitality and viability of the meningococcic germs present in the cerebrospinal canal. It was impossible to grow the microorganisms after injecting the serum directly into the cerebrospinal canal. There was a loss in the microorganisms soon after the injection was given. The chief advantage derived from the injection seemed to be from the injury to the microorganisms. Dr. Flexner stated that the figures that he had to offer were based upon 322 cases of cerebrospinal meningitis treated with the serum here and abroad. Of this number 247 were treated in this country. Of these 68 died and 147 recovered, a mortality of 27 per cent. He wished to emphasize the fact that these cases had not been seleced; some were late and desperate and some were mild. Those cases that came under treatment during the third week were the unfavorable ones and the case mortality would be higher than those that came under treatment during the first week. Sometimes only one or two injections would produce striking results in the patient; sometimes the results were most sriking in the desperate cases. In some of the cases the lumbar puncture, with serum injections, entirely changed the character of the disease and the patient went on to rapid recovery. Of these 247 cases, 13 were under one year of age and of these five died and eight recovered, a mortality of 37.5 per cent. There were 26 cases between one and two years of age; these also had a mortality of 37.5 per cent. There were 45 cases between the ages of two and five years; these had a mortality of 22 per cent. Between the ages of five and ten the mortality was 11 per cent. There were 57 patients between the ages of 10 and 20 years with a mortality of 28 per cent. There were 44 patients over 20 years of age, and these gave a mortality of 45 per cent. The average case got well gradually, the recovery extending over a period of days and weeks; he had been struck in noting the effects of the serum treatment with the remarkable abruptness with which a certain number of these cases terminated. This was what he meant when he said the disease terminated by crisis. Dr. Flexner said he thought the use of the word abrupt was better. Seventy-five of the cases were collected from Great Britain, where the mortality was about 30 per cent. Without the use of serum the previous mortality had been from 75 to 80 per cent. Dr. Flexner said he had assumed a mortality of about 33 per cent. The 322 cases gave a mortality of 29 per cent. The histories of the cases sent him showed that the periods of the active disease varied with the first injection of the serum, but he was struck by the fact that the period was of brief duration. The usual duration was two weeks. It was astonishing to see cases terminate in from two to five days. Charts were presented showing termination by crisis and by lysis. He thought that in a disease of such serious nature as cerebrospinal meningitis no therapeutic agent should be adopted as being of great value too soon. It should first be subjected to the most rigorous tests and judgment should be withheld until definite conclusions were reached. The persons to decide this question were those who saw patients before and after injection. The serum influenced the clinical course of the disease markedly, but he was unable to say just how it acted.

The Diagnostic Value of the Chemical and Bacteriological Examination of Cerebrospinal Fluid.—Dr. ALFRED HAND of Philadelphia said that lumbar puncture furnished a means of making an exact diagnosis. It was necessary, however, to examine the fluid with great care in order to arrive at a correct interpretation. Typical cases showed well-marked findings. If the fluid showed a milky opalescence which disappeared as the fibrin network formed and left a clear fluid containing a great increase in the normal amount of albumin, with the sugar but little, if any, below the normal percentage, the fibrin network also containing mononuclear leucocytes and tubercle bacilli, the diagnosis was clearly a tuberculous meningitis. When the fluid was distinctly turbid with sometimes a light yellow tint, polymorphonuclear leucocytes being found in abundance, some of them containing diplococci in their protoplasm, the diagnosis of epidemic cerebrospinal meningitis was established. After the fibrin network had formed and been withdrawn further study of the fluid showed a moderately increased amount of albumin and a total absence of sugar. In meningococcic meningitis the fluid was very similar with occasionally a greenish-yellow tint, as in streptococcic or staphylococcic meningitis, but the diplococcus was hardier; the pus cells were very abundant in the fluid. It was important to begin the examination as soon as possible after the fluid had been obtained. The fact that a tuberculous form was associated with the presence of sugar and an almost total absence of polymorphonuclear leucocytes while the reverse held for other affections caused him to think there was some relation between the two.

Hydrocephalus of Meningococcic Origin, with Remarks on the Serum Treatment.—Dr. J. H. MASON KNOX, Jr., and Dr. FRANK J. SLADEN, of Baltimore, presented this paper. A comparatively small number of cases of this kind had been reported in literature. With the onset of hydrocephalus the character of the symptoms seemed to change and the clinical picture in many cases was not recognized. Joslin, in reviewing the subject, mentioned a case reported in 1805 in which cerebrospinal meningitis was found in a person with marked dilatation of the ventricles. There had been numerous cases of hydrocephalus following meningitis reported. Some of these cases were reviewed. In many of the cases reported mental impairmnt was noted. They called attention to two cases treated during the winter and fall.

Case I.—This was a child of five months who had been perfectly normal at birth and for two months afterwards, when a marked gastroenteritis was developed which lasted seven weeks before the doctor saw her. At this time she was seized with general convulsions, followed by vomiting and fever. After two weeks these symptoms abated, retraction of the head was noticed, and the typical pressure symptoms of meningitis were found to be present. There was the bulging fontanelle with the bones of the skull separated and sutures gaping. The circumference measured 44 cm. One hundred c.c. of a slightly turbid fluid was removed in which a rather small number of organisms were found. There were numerous pus cells present. The child did well for a few days, but at the end of a week a second puncture was done and a similar amount of fluid removed. The family refused to have the serum used. The child improved for about a month, but a few weeks after died quite suddenly. Autopsy was refused.

Case II.—This patient was a child six months of age, who had been taken to a milk dispensary in Baltimore, where it was noticed that the child was markedly emaciated, with retracted head; the head was evidently hydrocephalic with bulging fontanelles. There was no history to account for the condition. The child was said to have had a fall. The left side of the head bulged more than the right. The case did not seem to be one of typical hydrocephalus and a tumor with pressure symptoms was suspected. A lumbar puncture with a dry cut was done. A ventricular puncture was then done and 20 c.c. of slightly turbid fluid was removed. A large number of meningococci, both extracellular and intracellular, were found by the pathologist. He learned that four months previously the child would awaken at night and moan as though in great pain. It had frequent convulsions and cried constantly. The eyes were crossed. The head had begun to increase in size about five weeks before admission and measured 46.5 cm. in circumference. The head was retracted and the neck held stiff. A second lumbar puncture yielded no fluid. Five intraventricular punctures were made which the child stood very well. He ran a temperature of from 97° to 101°, respiration from 24 to 40, and pulse from 100 to 150. The child finally collapsed and died. There was a lessening of the number of cases of hydrocephalus as a result of the use of serum treatment.

Case III.—This was a boy of fifteen years, who had been ill for ten days before having been seen. He was found in the typical posture of meningitis, was delirious and unconscious. There were six punctures made and a turbid fluid obtained. There was an improvement when treatment was instituted. Marked strabismus existed and otitis media developed and paracentesis was done on both membranes.

Case IV.—This child was seven years of age, and was seen rather early in the disease. He received two doses of serum. The patient began to convalesce and was discharged on the thirty-fifth day of the disease. There were 33 cases before this year, of which 21 died and 12 recovered, giving a mortality of 64 per cent. The lowest mortality occurred in 1899, when it was only 23 per cent. In 1899 they began to use lumbar puncture. During the last four and one-half months 21 cases had been admitted which were treated by lumbar puncture and intraspinal injections. Three died and 18 recovered. This was a mortality of 14 per cent. The three cases that died were of very virulent type. Twelve cases were under 12 years of age, 11 died and one recovered. Of ten cases seen previous to this year and under 12 years of age, four died and six recovered. Most of the cases were temporarily upset by the injection of the serum.

The Serum Treatment of Cerebrospinal Meningitis, with a Report of Cases.—Dr. Charles Hunter Dunn of Boston reported a series of 40 cases, occurring consecutively, treated by the serum. He included all cases in which the diplococcus was found without regard to type. Sixteen occurred in the Children's Hospital, 16 in private practice and 8 occurred in other hospitals. The serum was injected into the cerebrospinal canal in all cases. If the cerebrospinal fluid was cloudy the serum was used at once. Lumbar puncture was performed as soon as a suspected case was reported. In cases in which a rapid and marked improvement occurred after a first injection no further injections were given. In relapsing cases further treatment was given. The injections were repeated until the nervous and subjective symptoms were completely relieved, or until four injections had been given. The routine amount was 32 c.c.; the maximum amount was 45 c.c. Of the 40 patients, 9 died and 31 recovered. Thirty-nine of the cases were now entirely well. Clinically the type of these cases was not milder than those occurring before the serum was used. All types were included in this series. There were three fulminating in type with one death; six were severe, with two deaths; 19 were of ordinary type with one death. There were six mild cases with no mortality, and six late cases, in the chronic stage, unconscious when seen, five of which died. Up to 1903 lumbar puncture was the routine treatment. In 1906 the daily administration of diphtheria antitoxin was tried. In 1907 all cases were treated with vaccine prepared from the diplococcus. On November 1 the serum was used and there has been a drop in the mortality of 19 per cent.

The Serum Treatment of Epidemic Cerebrospinal Meningitis.—Dr. F. S. Churchill of Chicago reported the history of 11 cases, 9 of which were meningococcic in type. Four of the 11 cases died. One of these was a girl of sixteen years, who was brought to the hospital on the tenth day of the disease and was practically moribund. Another was that of a man twenty-five years of age who was brought in on the fifth day of the disease and upon whom the serum had no effect whatever. He said that he would devote his time to relating and illustrating the cases that had recovered. He had made observation on the effects of the serum treatment as regarded the temperature, the leucocyte curve, the spinal fluid as to leucocytes, bacteria, etc.

Case I.—This patient was a boy, sixteen years of age, who was seen on the sixth day of the disease. The first puncture was made on this day without any effect upon the temperature. The following day the serum was again injected and a decided drop in temperature followed, together with a cessation of the symptoms by lysis. Twenty c.c. was the dose given. The leucocytes persisted and the count which was at first 15,000 ran as high as 20,000.

Case II.—A boy sixteen years of age, who was seen on the second day of the disease, with a temperature of 102°. When the puncture was done it was 106.5°. A drop in the temperature followed the puncture, but it rose again later. Then three doses of serum were given sucessively. The temperature then dropped and did not again rise. The leucocyte curve had a varied course.

Case III.—A girl of nine years, who had a very severe attack. A puncture was done on the first day of the disease, with a marked drop in the temperature. The serum was injected on the second and fourth days in 30 c.c. doses. This case terminated in what Dr. Flexner called a crisis.

Case IV.—A boy, nine years of age, who was admitted to the Presbyterian Hospital on the twenty-first day of the disease. The serum was given every other day in 15 c.c. doses. On the twenty-ninth day there was a jump in the temperature, the leucocyte count, and a corresponding increase in the leucocytes in the cerebrospinal fluid. The clinical picture of the child showed a general increase. Three successive doses of the serum were given and the temperature returned to normal. Although this was a chronic and very persistent case, the patient made a complete recovery.

Case V.—A woman, treated at the County Hospital, upon whom lumbar puncture was done on the twenty-first day of the disease. The temperature dropped, but soon arose again. After being in the hospital for five days, with the temperature constantly up, 30 c.c. of the serum was given, and this was accompanied by a drop in temperature without a subsequent rise. After using the serum there was also a drop in the leucocytic count.

Case VI.—This patient was a Greek, nineteen years of age; and entered the hospital on the first day and the serum was injected on the second and fourth days, respectively, 30 c.c. of the serum being used. There was a fall in temperature after the injection, but a rise on the following day. The leucocytic count gradually fell to the normal. A lordosis made the spinal puncture a difficult procedure.

Case VII.—This was a child of ten years, having a very severe attack. The child appeared to be very ill. For three days successive doses of the serum were given, with good results on the temperature. The patient continued to run a leucocytosis 29,000, 16,000, then up to 25,000. A careful examination failed to account for this leucocytosis. Dr. Churchill said there was a general improvement following the administration of the serum. This improvement followed after the second or third dose. The mental condition showed marked improvement. It was interesting to see children with marked retraction of the head still much interested in their surroundings. There had been a decided drop in the number of leucocytes in the fluid at the time of the second, third, or fourth injection. There was a corresponding drop in the number of diplococci. This had been constantly noted. All the patients excepting two recovered without sequelæ. One patient had a mild nephritis when he came in, but he left the hospital apparently well. Another case ran a leucocytosis for which they could not account. Dr. Churchill believed that it was obligatory to do a lumbar puncture if one had a case of meningitis. The serum should be injected at once, and the form of meningitis that one was dealing with could be determined later. It was important to increase the dose day by day until one obtained good results.

Other Methods of Treatment Compared to the Serum Treatment of Cerebrospinal Meningitis.—Dr. Henry Koplik of New York said that it was apparent in the consideration of the various methods of therapy that they had lost sight of the natural course of the affection in the presence of some accidental unfavorable result, and in no case was this more common than in this affection. The disease resembled pneumonia very closely in its behavior. He thought all would admit that in sporadic cases of the disease one rarely met with the severe symptoms of the disease. In the sporadic form lumbar puncture only exceptionally revealed a purulent fluid at the onset. Cerebrospinal meningitis of meningococcic type very much resembled pneumonia in adults, and in sporadic and epidemic forms. In taking up the sporadic form he said he had the records of cases treated since 1899, and up to the epidemic years of 1904 and 1905. They had first begun the treatment of cerebrospinal meningitis in 1899 by lumbar punctures as often as the symptoms seemed to warrant the procedure. In the sporadic cases they had succeeded in saving life by the simple lumbar puncture. During 1899 and 1900 they had eight cases of meningococcic type. During 1901 and 1902 and 1903 they had 13 cases, thus giving 21 sporadic cases. Two of the infants below one year of age died. In the epidemic of 1904 and 1905 the history of the epidemic was a more violent one. Some died a few hours after admission. During the epidemic of 1904 there were 39 cases. Considering the patients below two years of age the total mortality was 50 per cent. He reported 13 cases of cerebrospinal meningitis treated by the serum therapy. No patients were punctured unless there were distinct indications for the puncture. Before a puncture was made the patient must have shown indications of an excess of cerebrospinal fluid. The serum was introduced by a funnel. The ages of the 13 children varied from three and one-half months to five and one-half years. Three were under one year of age; three were two years old or younger. The youngest child had been ill two weeks before admission, and was unconscious on admission. From 100 to 125 c.c. of serum was administered.

Dr. L. Emmett Holt of New York said that during the epidemic of 1904 statistics were collected of 2,350 cases, of which the mortality was 75 per cent. All were nonserum treated. As to the duration of the cases that recovered it was known that of 350 cases the disease lasted five weeks or longer in 50 per cent. This was a striking comparison with the reports at present. During the epidemic years they had treated 83 cases, and lost every one under one year of age. There had been so few cases during the past year in New York that he had seen few. One child of five months got well under the serum treatment. It seemed to him that the results of this treatment were very encouraging at present.

Dr. Thomas Morgan Rotch of Boston said that he had had good opportunities of watching these cases, and that he doubted the wisdom of speaking of epidemic and sporadic cases; the organism ruled the disease. Cases did not differ in any essential way, though they did differ in type. They had tried all courses of treatment in their wards, and had come to the conclusion that it was absolutely safe to give injections. This was important, as the disease was too serious to admit of delays. We already knew what happened when we waited. Lumbar puncture certainly did good temporarily, as it relieved the pressure. It also lessened the number of invaders, though this did not mean that there were not still a large number remaining to do damaging work. It had been found that vaccines helped in raising the opsonic index, though that might not be of much importance in our present knowledge of this subject. Vaccines might be of some help, but not so much as the serum. There was no doubt but that one should repeat the dose. We might at times save life by injecting twice in twenty-four hours. Immediate relief was sometimes given in cases in which the child was practically dying, but there seemed to be some prejudice against repeating the injection, and the symptoms soon returned. We might by pushing the treatment avoid some of the sequelæ. He was not afraid to give the serum, and to give it often enough. The youngest case he had seen was twenty-four hours old, and died the second day.

Dr. Frank J. Sladen of Baltimore said that in twenty-one cases in Dr. Barker's clinic the effect had been about as had been described by Dr. Churchill and Dr. Dunn. There was a rapid drop in temperature within twenty-four hours. In the majority of cases the temperature rose again, and required three or four injections before it remained at the normal. After the first drop the temperature did not rise again in three fatal cases. They found Kernig's sign most persistent. In regard to the effect upon the blood there was first a positive increase in polymorphonuclear leucocytes after the first injection. This had also been observed in other forms of meningitis. The typical fluid changed to a turbid one, with polymorphonuclear increase in six cases of tuberculous meningitis. This had also been noted in cases of influenza meningitis. So far as he had observed, there was no effect produced by the serum injections in pneumococcic meningitis. The extracellular organisms found in the first specimens were intracellular in the subsequent ones. The bacteria were destroyed, lost their staining power, and in some instances there was no growth after the first injection; in other cases the number of colonies was diminished. The rapidity with which the symptoms disappeared justified the idea of an antitoxic property in the serum.

Dr. A. Jacobi of New York said that he had no experi-

ence with the serum treatment of cerebrospinal meningitis. He raised the question as to whether anything could be done for those cases in which there was a subnormal temperature and which were generally fatal. In other septic diseases a subnormal temperature was usually associated with a complication. We expected a patient with diphtheria having a subnormal temperature to die. The question arose as to whether this subnormal temperature was due to a complication that we did not understand and as to whether there could be a treatment beside the serum treatment which would control this complication. Some bad cases of diphtheria which were not affected by antitoxin were helped by alcohol. While intoxication could not be accomplished, it should be attempted. Perhaps these cases of meningitis needed stimulation.

Dr. John Lovett Morse of Boston said that while his experience with the serum had not been as extensive as some of the others, he had seen a good deal of meningitis in past years. His experience had been mostly with babies. When we saw the organisms inside and outside the cells and obtained a culture and then the following day after an injection found no organisms outside the cells and a diminished number in the cells, and the next day no organisms and no culture, we could not doubt the efficiency of this method of treatment. He thought it was our duty to perform lumbar puncture on the suspicion that a case was one of cerebrospinal meningitis. The presence of the meningococcus was an indication for the use of the serum. If one found the fluid turbid, serum should be injected, without waiting to find the germs. He questioned the advisability of putting in the same amount of fluid that we took out. If there were meningococci in the fluid, the serum was needed. He had had a case where the first tap gave a very thick fluid, which showed meningococci. That baby needed serum. Two successive days following there was a dry tap, but the child still needed serum. He agreed with Dr. Churchill that a turbid fluid was an indication for the use of serum. He thought the serum should be used early and often; sometimes oftener than once a day.

Dr. Roland G. Freeman of New York said that he wished to emphasize the point that the serum might be of great value even very late in the disease. In Dr. Churchill's cases there were three in which the serum was followed by prompt reaction in a very late stage of the disease.

Dr. W. W. Wilkinson of Washington said that in ten cases at the Garfield Hospital in Washington they had seven recoveries and three deaths. One of the fatal cases had chronic hydrocephalus on admission to the hospital; another was in a comatose condition when he arrived, and though he improved after the injection of the serum, intestinal paralysis set in and nothing could be done for him. The third case he thought should not have proved fatal. Only one injection of 15 c.c. was given. The child improved, but the dose was not repeated and the organisms reappeared and the child died. They had had the best results with one injection of 15 c.c. or two of 30 c.c. on successive days. Four of the cases recovered with one injection of 15 c.c. The earliest day on which they had gotten a case was the fourth. The cases lasted about fourteen days after the first injection, but the bad symptoms subsided after four or five days. They found the organisms rapidly disappearing from the fluid and those in the leucocytes diminishing. They had also found an increase in the phagocytes, which was very marked in some instances. One of the fatal cases had a mixed infection. Of the cases that recovered in three there were sequelæ; one lost the right eye; one was deaf, and one had impaired mentality.

Dr. Samuel Adams of Washington said that he wished to make it emphatic that while clinical observation might not be of much consequence the results of clinical observation were of great importance. In many instances the sequelæ of this disease were worse than death. It would often be better if the patient had died rather than to have been left a burden on the community. From the results presented it seemed that we might avoid some of these sequelæ which occurred under other methods of treatment. His experience with the serum had been limited. He had had one child of seven months with pressure so great that it burst through the fontanelle. One injection of the serum caused a marked improvement in twenty-four hours. In a boy thirteen years of age, with most intense symptoms, convulsions and opisthotonos, a recovery followed the serum treatment. The stiffness in the neck persisted for two weeks, but the boy was perfectly conscious and intelligent. There had been proof enough presented to encourage further use of this treatment, which offered better results than any other method of treatment that had been tried for three decades.

Dr. Charles G. Kerley of New York said that this had been, in all probability, the most interesting session in the history of the society. They had considered a method for the alleviation and cure of a disease that had been considered hopeless, as far as medical means were concerned. He hoped that good reports would continue, and that they would not wake up to find that the hopes held out were more or less of a dream.

Dr. J. H. Mason Knox, Jr., of Baltimore said, in closing the discussion, that the clinical value of the serum had attracted more patients to the hospital than formerly came. He thought this should be emphasized. The statistics of Baltimore showed that there were more cases than usual, though there had been no epidemic.

Dr. Charles Hunter Dunn of Boston said, in closing the discussion, that he was interested in what had been said in regard to the injections causing pain. He had had two patients who had complained of pain in the back of the legs and knees. He had failed to warm the serum in these instances, and did not know whether that had anything to do with the pain or not. He did not mean to say that all cases with subnormal temperature died. He had had one that recovered after seven weeks' illness. All cases that passed over the period of active fever and symptoms and then went into a state of unconsciousness, with subnormal temperature, were very unfavorable. He had not been able to note any difference in the type of the disease in the so-called epidemic years.

Dr. Henry Koplik said, in closing the discussion, that he believed that we should not puncture except on indication. The object was not to relieve pressure only, but also to affect the organism. If one introduced 30 c.c. after withdrawing that amount of fluid, the following day the indication of the amount of fluid in the ventricle was less than the preceding day. If the child was doing well, he thought it superfluous therapy to puncture immediately again.

Dr. Simon Flexner, in closing the discussion, agreed with Dr. Koplik that meningitis was a very variable disease not only in different seasons, but in different localities. It had been very difficult to get comparative statistics. He had obtained the best statistics from Belfast, which was fortunate, because there had been an epidemic there during the past year. A mortality of 75 per cent. was reported during the height of this epidemic. Dr. Robb had secured a record of cases treated outside of hospitals, and these showed a mortality of 80 per cent., when it was only 25 per cent. during the same time in the hospitals. The cases outside the hospitals were probably not so well treated, and then they may have included a greater number of fulminating cases. Even this would not account for so great a discrepancy. There was an epidemic in Akron, Ohio, the year after the one in New York, where there were twenty-six cases, and more in the surrounding locality. Here there were two sets of statistics to be considered; one in which twelve cases were treated with serum, in which there were three deaths

and nine recoveries; a second series, in which there were nine cases, with eight deaths and one recovery. Dr. Flexner said that he stated these facts for what they were worth, and that he was not trying to make a strong case for the serum, though he did believe in it. The serum belonged to the class of bacteriological sera, in which we were obliged to use the antitoxic properties of the organisms. We now knew three antitoxic bacterial sera—diphtheria, tetanus, and dysentery. One could give an animal any amount of tetanus toxin, and if one gave the corresponding amount of antitoxin the animal would be saved. If one multiplied the toxin and antitoxin equally one got neutralization, but this was not true of the meningitis serum. The organism was grown and subjected to unfavorable conditions, and it underwent autolysis and yielded the extracellular toxin with which horses are immunized. It took many months to accustom them to considerable doses. The living organism was then used in order to secure a bacteriolytic property. When tested on animals it was found that it did not proceed according to the law of multiples, as did the antitoxins of diphtheria and dysentery. If one attempted to use a serum of this kind by subcutaneous injection, one must remember that a great deal depended upon concentration. When it was diluted too much with blood and lymph, it was not sufficiently strong to produce favorable results. He believed that success had been achieved because we brought a bacteriolytic, partially antitoxic substance in contact with the focus of the disease. He thought this was the secret of the matter. The fact to be emphasized was that this fluid must be in a certain state of concentration and brought into direct contact with the spinal membranes. The study of this question involved the question of the value of local applications. If a means could be found of treating pneumonia by some such method it should certainly be tried. It would not be sufficient to put it into the circulation; it should be brought to the focus of the disease. The reason we had failed with the sera might be because we had tried to reach local processes by putting the sera into the general circulation. It was right in diphtheria because there we had a poison that attached itself to the individual cells.

A Plan for Dealing with Atrophic Infants.—Dr. Henry Dwight Chapin of New York read this paper. He said that the usual form of dealing with the sick and ailing child of the poor consisted in attendance at dispensaries, day nurseries, visits of district physicians or nurses from the dispensaries and settlements, fresh-air excursions, etc., but there was one disheartening feature that occasionally confronted the work, and that was the wretched environment that they found surrounding them when they returned to their homes. The Speedwell Society was inaugurated in 1902. Children had been placed in carefully selected farms near Morristown, N. J. A doctor and trained nurse had constant oversight of the cases. The foster mother was instructed in the feeding and care of the children.

The supervisor nurse procured the children from the city and returned them to their homes. She also saw that the improved methods of caring for and feeding the infants were carried on after the child had been returned home. The total number of children cared for since the Speedwell Society was inaugurated was 817. Briefly summarizing a plan that had worked well and which was advised in the future dealing with neglected infants suffering from marasmus he offered the following: (1) Boarding out in a selected area of the country noted for its healthy conditions. (2) Constant attention to hygiene and diet on the part of the doctor and nurse who were familiar with that class of cases and competent to deal with them. (3) Infants were kept as long as necessary until feeding was regular and digestion and assimilation were improved sufficiently to result in an increase in weight. (4) To train up in a good neighborhood a number of foster mothers who, by taking these infants into their homes, became experts in handling them and were far superior to those offered by the best of institutions.

The Need of Post-Graduate Instruction in Pediatrics. Dr. Augustus Caillé of New York said that during twenty years as a teacher in pediatrics he had not met a single young hospital graduate, other than an externe of a children's hospital, who did not admit on inquiry his lack of knowledge regarding the line of professional work which made up one-half the practice of the family physician. Therefore it was evident that the present facilities for acquiring the knowledge necessary in this branch of medicine were wholly inadequate and that more practical instruction along the line indicated was urgently needed.

Modern Laboratory Feeding and the Wide Range of Resources Which It Provides.—Dr. Thomas Morgan Rotch of Boston said that what he wished to present was the result of his seventeen years' study which had been made in modern laboratory methods. He pointed out that the resources of the milk laboratories were such that physicians could prescribe combinations of any known food stuffs. The prescription of these compounds of food could be written for in percentages. Of special importance, next to the work of separated proteids, whey, and casein, was the possibility of prescribing the carbohydrates to a much wider extent than ever before. He explained why and how maltose was preferably used instead of lactose in cases where there was an overproduction of lactic acid, and how, on the contrary, where there was an overproduction of butyric acid, lactose was preferable to maltose. He showed how it was really not necessary to make use of the mechanical action of the starches in making the casein precipitate final, since the divided proteid accomplished this much better and much more intelligently. One of the greatest advances which had been made this last year in regard to the possibilities of laboratory modifications, when the physician wished to use laboratory methods, was the use of lactic acid or the lactic acid bacillus in pure culture. A strain of the lactic acid bacillus had now been obtained, which was seemingly successful in killing out the special ferment which produced the fermentative diarrheas. The physician could now prescribe a pure culture of the lactic acid bacillus in cases of this kind, and its use had been followed by the greatest success.

Dr. L. Emmett Holt said that he and Dr. Clarke were preparing a paper along this line which he regretted was not finished. One of their experiments was to determine the effect of lime water upon the gastric secretions. They used plain milk diluted with water, with lime water, and with soda solution, and found that the chief effect of the lime water was greatly to increase the secretion of hydrochloric acid. They had never found a deficiency of pepsin in an infant's stomach, but there was a great variation as to the amount of hydrochloric acid. They had removed the fluid from the infant's stomach after half an hour and put in the thermostat. After a short time digestion stopped and upon the addition of more hydrochloric acid it proceeded until the milk was entirely digested. This showed that the problem was to increase the quantity of hydrochloric acid.

Dr. Henry D. Chapin of New York said that he had recognized that proprietary foods sometimes did good, and he had written papers with the same object in view as Dr. Rotch had, namely, to find out if these foods could not be used scientifically by physicians. He believed the whole subject of infant feeding should be approached from the biological and not from the chemical standpoint. It was necessary to understand the digestive tract of different animals; milks were not interchangeable. The fact that milk had a developmental function as well as a nutritive function seemed to have been ignored.

Dr. Augustus Caillé of New York said the subject was a difficult one, because, when we put various ingredients in a test tube we could foretell the end results; but when we put them into the digestive tract we could not fore-

tell results, as we had to deal with secretions which varied and which were different when in motion from what they were at rest, and we also had bacteria to reckon with. All these factors made the problem very complicated.

Dr. J. P. Crozer Griffith of Philadelphia said that Dr. Caillé's remarks had encouraged him to say that he sometimes wondered it we were not all blind leaders of the blind. He wondered how this subject could be taught so that the student could comprehend and practise it successfully. He feared that elaborate laboratory schemes of feeding only discouraged the student, who would abandon them.

Dr. Wm. P. Northrup of New York said that to his mind pure milk was one of the greatest triumphs of the laboratory. The production of pure milk with an unvarying fat content was certainly an object lesson.

Dr. Rotch closed the discussion. He said that the way his paper had been discussed showed that there was a general interest in the subject. He thought Dr. Chapin was right in what he said, but he was not working in the same line. He was not working for students, but in order to find the best instruments to work with. He did not ignore the biological side of the subject, but that was not his line. He thought many men were using laboratory methods of feeding. Dr. Dunn could show case after case where lactic acid feeding had not been unavailing.

An Inquiry into the Status of the Kindergarten.—Dr. Isaac Abt of Chicago said he had written letters to physicians, mothers, and teachers asking their opinion of the kindergarten, and his paper consisted in a summary of the answers received. Of the physicians who replied 55.46 per cent. were in favor of the kindergarten and 21 per cent. were opposed to it, while 23.50 per cent. were indifferent. Of the mothers who replied 61.47 per cent. were in favor of the kindergarten and 22.87 per cent. were indifferent. The replies from superintendents and principals showed that 74.41 per cent. were in favor of the kindergarten, while 11.64 per cent. were opposed to it. Of the kindergartners themselves 96.15 per cent. approved. The chief objection to the kindergarten seemed to be from the physical standpoint; some thought that greater liability to contagious diseases and pulmonary affections existed.

Dr. Thomas Morgan Rotch of Boston thought that the profession might do much toward securing the proper management of the kindergarten in the future. Children should be classified according to their development and not according to age.

Dr. Wm. P. Northrup of New York said that while all were interested in infant mortality it was time we gave the older children a little more attention. We ought to take more interest in preserving the children while they were growing up.

Dr. F. S. Churchill of Chicago thought mothers and medical men had a wrong impression of the kindergarten. The well-regulated kindergarten only aimed to steer the mental development of the child. Unfortunately very few kindergarten teachers seemed to grasp this idea. These teachers should be well paid so as to attract women of high-class ability. The mother was not always the best trainer for the child. The professional was better than the amateur. Personally Dr. Churchill said that he believed in the kindergarten.

Dr. Henry D. Chapin of New York agreed with what had been said in regard to the need of teachers of a higher status. The entire public school system was wrong in this respect. The inexperienced teacher always got the lower grades and worked up. The early age was the critical time, the time at which the child should have the most careful training. This defect should be brought to the attention of legislators.

Dr. Charles G. Kerley of New York thought the whole matter depended upon the surroundings. If the child had proper surroundings and plenty of outdoor life the home was the best place for him, but to city children who lived in dirt and squalor the kindergarten was a godsend.

The Hard Curds of Infants' Stools; Their Origin, Nature, and Transformation.—Drs. Thomas S. Southworth and O. M. Schloss of New York presented this communication, which was read by Dr. Southworth. The discovery that firm, rounded curds, occurring not infrequently in the stools of infants fed upon cow's milk, were composed in part of fatty acids and soaps had led to considerable discussion and warranted a further inquiry into the origin of such bodies and their subsequent transformation during their passage through the digestive tract. Although certain theoretical and clinical grounds for considering such masses found in the stools to be identical in origin with those found in the vomited matter seemed reasonable and conclusive, a series of observations and tests were instituted at the Nursery and Child's Hospital to settle definitely some disputed claims. Foremost among these was the claim that the masses in the stools contained no proteid and only fatty acids and soaps. Typically firm curds occurring in seventy-five stools were passed by thirty-eight infants and subjected to qualitative and chemical tests to determine the presence of protein, soaps, fatty acids, and neutral fat. The hard curds were found to consist mainly of fatty acids and protein in varying amounts, although they uniformly showed the presence of neutral fat by stain reactions. Soluble soaps were found to be present, but apparently in smaller amounts than usually assumed. In every instance the final residue of the masses responded to all four of the tests for protein. The hardness depended upon the relative amount of protein, soaps, fatty acids, or neutral fat present.

Fat and Protein Content of Top Milk.—Dr. Charles A. Fife of Philadelphia read this paper. The Chapin dipper had been used in obtaining the top milk and the results epitomized were shown by charts. The fats in the top quarts showed the highest to be 32.2 per cent., while the lowest was 17.8 per cent. In milks of lower grades the variation was much less. In milks of higher grades the variation was much greater. The proteids were very uniform throughout, but in the higher grades the proportion of proteids was much less than was usually believed, about 2.75 per cent. As to variations between pints and quarts, the quarts were more uniform, as a rule, than the pints, and usually about one-half per cent. higher. With regard to the composition of the bottom milk there was very little difference between the lower twenty-four ounces and the lower eight ounces, so that it was not necessary to depend on the lower eight ounces to get a so-called fat-free milk. There was also very little difference as to the proportion of protein.

The Urinary Findings in a Series of Infants Suffering from Intestinal Infection.—Drs. J. H. Mason Knox and J. C. Meakins of Baltimore said that they had taken seventy-two infants as a basis for this study, of which nineteen were used as controls, in whom the urinary findings were negative and in whom there was no intestinal infection. There were six cases of malnutrition, six cases of diarrhea, four cases of indigestion, fifty-three cases of definite intestinal infection. No urinary changes were found in thirty-one of the fifty-three; in thirty-two definite abnormalities had been found. More than one-half of these fifty-three were in the middle of the first year. The duration of illness ranged from about ten days to six weeks. There were thirty-four boys and nineteen girls. They made three classes of cases according to the urinary findings: (1) Those containing only albumin, or albumin and casts. (2) Those containing pus. (3) Those in which in addition to pus there were albumin, casts, bacteria, and red blood cells. The conclusions reached by the authors of the paper were that infection in the urine occurred almost as frequently when the cases were toxic as when there was a very definite intestinal lesion, and that infection had its origin in the intestinal canal and reached the kidneys secondarily.

(*To be continued.*)

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held April 21, 1908.

DR. ONSLOW ALLEN GORDON IN THE CHAIR.

A Medical Library and Its Contents.—Dr. JOHN W. FARLOW, Librarian of the Boston Medical Library, read this paper. He said that among the other valuable functions of the medical library was the collection and preservation of the portraits and biographies of distinguished medical men. The collection of monographs was an important function. The Sydenham Society was the first to attempt by means of monographs to bring valuable foreign medical literature within the ken of English readers. It was interesting to note that the *Journal of Mental and Nervous Diseases* was arranging for a series of English translations of foreign monographs. The student of medicine was to be impressed with the importance of a good reading knowledge of French and German. Medical education in America was now as good as could be obtained anywhere, and he who could read the foreign literature was certainly able to keep in touch with the latest expressions of medical opinion. The "abstracts" of foreign literature frequently gave an incomplete and distorted idea of the original article. The recent medical graduate gained most when he went abroad merely for the sake of learning the modern languages. It was important for the medical library to collect the proceedings of national and international congresses. Some of the best work of the day appeared in these. Every new special branch in medicine had its Centralblatt. This form of periodical literature was indispensable to the library. The question frequently came up as to whether it was a good thing for medical libraries to acquire all the new textbooks that appeared. The objection was made that these were frequently unduly bulky and soon became antiquated, while in many respects they were superficial. It was, however, well to recognize that what was superficial for one individual was indispensable for another. New books were to be welcomed; in fact, authors were to be encouraged in their endeavors. Periodicals were the backbone of the medical library. It was to be deplored that there were no dealers in second-hand medical periodicals in this country, for it was almost impossible to complete missing numbers in the files of the various journals. It was much easier to get second-hand foreign publications. The need of carefully compiled bibliographies was emphasized. The proofreading of the lists of references was not sufficiently attended to. It was desirable to use the system of abbreviations as adopted by the Surgeon-General's office at Washington. The Index Medicus was a monument to its founder, Dr. J. S. Billings. For twenty years it was of the greatest possible value, then during the four years of its discontinuance the record of current medical literature was practically buried. The Index Medicus was of inestimable value to the medical libraries. But the number of individual subscribers was not sufficient to repay the Carnegie Institution for its publication. The question was occasionally raised as to whether medical libraries should not become branches of general libraries. This question was best answered in the negative. It was better for doctors to manage their own literature. It was desirable that instead of having a number of scattered medical collections in one community, that all the books should be deposited in one central library. This was the case with the Boston Medical Library. It was becoming more and more necessary for medical libraries to acquire books pertaining to the numerous sciences lying in the borderland of medicine. The student of neurology and psychiatry was frequently searching for works on psychology. The advent of Christian Science and psychotherapy compelled the acquisition of books dealing with these subjects. Other subjects bordering on medicine were tropical diseases, comparative anatomy and veterinary medicine, in which subject students of scientific medicine frequently called for volumes. The close relation which medical science bore to other sciences imposed on the medical library the duty of opening its doors to the general public. Physicians did not realize that a great deal of reading matter came into their hands that might be of value to medical libraries; instead of consigning such material to the waste heap, it was better to send it to the medical library and let the librarian be the judge of its value. The speaker exhorted physicians who intended to donate books to medical libraries that it was better to give during their lifetime. The disposition of private libraries was usually omitted from wills, so that the auction room became the usual fate of the books. The speaker alluded to the good example of the Boston Orthopedic Club donating orthopedic pamphlets and a valuable set of *x*-ray plates to the Boston Medical Library. The medical libraries were growing away from the narrow confines of the past, and were reaching out for the newest and latest. But inasmuch as the present depended on the past, it was important that the library should treasure everything that related to medical men and events of former days.

Dr. JAMES P. WARBASSE of Brooklyn said that if there was any one thing upon which the people were to be congratulated it was living in a community where there was a great medical library. Unlike the country practitioner who did not have such library at his disposal, the city physician was no longer compelled to stock his own private shelves with books. The medical library was one of the strongest factors in cementing the bonds uniting the practitioners of a community. On this account the County of Kings had a much more united society than its sister across the river. The attitude of the profession in Brooklyn toward its library was most admirable. The Fisher collection that had recently been purchased was most valuable. The speaker alluded to the increasing use that was being made of the library, particularly by the young men in the profession. A critical time had come in the development of the library, a time when it was possible to appeal to the liberality of the wealthy philanthropist, with good reason, for the value of the medical library to the community at large was no longer a matter for debate.

Acute Intestinal Obstruction, with Especial Reference to Postoperative Obstruction.—Dr. JOHN B. DEAVER of Philadelphia read this paper. He said that this subject was of exceeding interest both to the internes and the abdominal surgeon; to the former, chiefly as a primary condition, and to the latter, mainly as a secondary complication. By obstruction was meant some occlusion of the intestine, but, in a broader sense, it occurred even when there was no mechanical occlusion, as in dynamic conditions. Thus, one could classify the condition into two groups, mechanical and dynamic. The first group included postoperative forms, strangulations, bands, torsions, gallstones, and foreign bodies. The second group included such forms as obstruction due to peritoneal adhesions, slits in the mesentery, and internal hernias, like hernia into the fossa duodenojejunalis. The symptoms varied in severity. The obstruction itself was not the important thing in the symptomatology. The important factor was the peritonitis. If this was present, it was sometimes too late for treatment. The pain of acute intestinal obstruction was sudden, usually referred to the umbilicus, and had no relation to the seat of the obstruction. The pain was due to traction. The textbooks stated that the pain was increased by pressure. It was questionable whether this was always the case. In rare cases the pain was inter-

mittent. Vomiting was an important symptom. Collapse occurred in the early stages. It was not a marked feature until the obstruction has been established for a few hours. In the postoperative forms the pulse was more rapid. As the obstruction continued, the patient's expression became anxious, he suffered great thirst, and the secretion of urine became diminished. It was important that the diagnosis should be made before the onset of collapse. Exaggerated peristalsis was frequently observed through the abdominal wall. When not seen, it could frequently be detected with the stethoscope. Occasionally the exaggerated peristalsis could be noted reaching a certain point, at which it would stop. It was more marked when lower down in the abdomen. It was usually easy to differentiate this condition from other abdominal conditions, such as acute appendicitis. With acute pancreatitis it was frequently confused. This difficulty was increased in acute cases when opium had been administered. The differential diagnosis, however, was of no importance as regarded treatment. Postoperative ileus was of greater importance than the primary variety; it was constantly occurring, and its presence had been revealed experimentally. There were three classes of cases: those occurring immediately after operation, those of ordinary mechanical intestinal obstruction, and those resulting from septic peritonitis. Those cases occurring immediately after operation, either on clean or septic cases, were dynamic forms and resulted from excessive handling of the viscera. Such cases also occurred after prolonged anesthesia. The rough introduction of gauze packs was also responsible for some of these cases. Not only asepsis, but also gentleness was necessary. Most instances of paresis of the gut occurred in septic cases, in which plastic exudation occurred. They were rare in clean cases. Insufficient drainage of pus or sero-pus favored paresis. The fact that drainage gauze irritated cut surfaces was the strongest argument in favor of tube drainage. The spread of peritonitis was sometimes unavoidable; the more the infection spread during the operation, the more liable was it to produce obstruction. Obstruction due to thrombosis or embolism of the mesenteric arteries was difficult to diagnose. The mechanical ileus was delayed, the pain was sharp, sudden, and localized, and vomiting did not necessarily occur. There was a great degree of anxiety and restlessness, meteorism developed, and the pulse was greatly elevated. Constipation was not absolute. In mechanical ileus due to adhesions the prognosis was good if the case was early recognized. During the past three years the author had seen seventeen cases of postoperative ileus, eight of which were the result of adhesions, and four of which were dynamic ileus. Fifteen of these cases were operated upon, with a mortality of 50 per cent. In a record of 4,000 operations one-fifth of 1 per cent. were postoperative obstruction. The speaker then discussed the treatment of this condition. When intestinal obstruction was primary, occurring in a previously healthy individual, the patient's only hope was an immediate operation. It was fatal to wait for fecal vomiting. The operation was not to be undertaken as a last resort, but as the first step in the treatment. It was to be deeply regretted that the use of morphine was responsible for delay. There were surgeons who recommended the use of morphine in postoperative ileus; a good nurse was better. The speaker said that if any of his house-surgeons gave morphine in this condition his resignation would be instantly demanded. In the preparation of the patient for operation, lavage was to be performed, but this was not to be done under anesthesia. The complete operation was advised, the relief of the obstruction was to be dexterously performed, and the distended bowel emptied. The treatment of postoperative obstruction began before the operation. If a case was allowed to go on to suppuration, intestinal obstruction was invited by delay. All unnecessary handling was to be avoided. In septic cases drainage, preferably with rubber or glass drains, was to be resorted to. The speaker did not use injections of eserine. In the presence of a great angular obstruction, enteroenterostomy was sometimes necessary. No solid food was to be given for two weeks after the operation, and for the first few days only water was to be given. One of the chief causes of postoperative obstruction was morphine. The good effect of eserine was manifested only by relieving distention, but not obstruction. As regards prognosis, the most important point was that delay reduced the chances of recovery.

Stated Meeting, Held May 19, 1908.

DR. ONSLOW ALLEN GORDON IN THE CHAIR.

Some Common Injuries of the Elbow Joint.—Dr. JAMES P. WARBASSE of Brooklyn read this paper. He said that fractures of the condyles had been unfortunately termed fractures of the elbow. In order that such fractures might be properly treated a thorough knowledge of the anatomy of the parts and of their centers of ossification was necessary. The condyles did not unite with the shaft until the fifteenth year. It was before this time that the greater proportion of condyloid fractures occurred. There were many misconceptions of the proper treatment of this condition. In a fracture of the internal or external condyle or separation of the epiphysis in a child under 15 years, good union of the parts usually took place, and this was as a rule considered by the surgeon a good result. But the intervening cartilage was frequently turned into bone, with the result that the growth of the corresponding side of the lower end of the humerus was arrested. Thus, in a child 10 years of age, the growth that would have continued for five years more was rendered impossible. In this manner fracture of the inner condyle resulted in obliteration of the carrying angle. Cubitus varus or the gunstock deformity was the acme of poor results. The common fear of ankylosis in fractures of the lower end of the humerus was unwarranted. This fear led frequently to irreparable damage from a too early attempt at passive motion. If the fragments were placed in good apposition in the young and if immobilization was maintained for three or four weeks, then a perfect result was to be expected. If the immobilization was perfect there was little callus. The speaker emphasized the value of treatment, by means of extreme flexion, of fractures of the lower end of the humerus. This was particularly applicable to fractures of the condyles. In certain cases it could not be applied. There were cases of condyloid fracture and epiphyseal separation in which the lower fragments were prevented from moving into position by the long unbroken ligaments. The first essential in the treatment of elbow injuries was a knowledge of elbow anatomy. It was desirable to compare the injured with the sound elbow. In the latter, with the forearm flexed, at a right angle, the tips of the internal and external condyles and the tip of the olecranon were in a straight line. With the forearm extended they formed the angles of an equilateral triangle. It was to be noted whether the carrying angle was the same on both sides or not. The existence of local points of tenderness and crepitus was also to be investigated. The *x*-ray was almost indispensable.

The Diagnosis of Certain Chronic Abdominal Conditions.—Dr. WALTER C. WOOD of Brooklyn read this paper. He said that the interest of surgery in the abdomen first concerned itself with the diagnosis and treatment of tumors. The interest in acute abdominal diseases did not come until later. As time advanced, the operations that were at first attempted by the leaders only were commonly performed by younger and less experienced men. The recent achievements in the surgery of abdominal conditions wre such that those in general practice should appreciate the necessity of making a diagnosis in time for proper surgical intervention. To a greater degree this

necessity was true of the surgeon. There was too great a tendency for the surgeon to rely upon the exploratory laparotomy, without making the necessary preliminary study of the case for the purpose of diagnosis. Without a thorough preliminary study and observation of the case even the findings at the exploratory operation were frequently confusing and unintelligible. Thus, there were a number of conditions associated with adhesions about the duodenum, enlargement of the head of the pancreas, and changes in the gall-bladder and its duct, in which from inspection alone it was impossible to determine which was the primary condition. The haste to operate was seen in the large number of cases subjected to operation in which the abdominal pain was that due to locomotor ataxia, Potts' disease, lead colic, etc. Of course, in acute cases prolonged preliminary study was not possible, but in chronic cases at least a few days of careful study was desirable before operation. It was the lack of this study that accounted for the loss of prestige on the part of surgery in some quarters. It was characteristic of specialists to magnify details. Sometimes they saw too much. The clinical history, the physical examination, and the laboratory investigation were the tripod upon which the diagnosis was to rest. Although the most important of the three, it was the clinical history that was too frequently neglected. Although the abdominal condition was a chronic one, it was frequently characterized by periods of quiescence, alternating with periods of exacerbation. For example, ulcers of the stomach healed and then broke out again in other places, like ulcers of the leg. Ulcers of the duodenum produced indefinite periodic attacks of pain, occurring three to five hours after eating. Similarly gallstones, whether or not impacted in the common duct, gave rise to symptoms occurring in attacks. Likewise, chronic inflammations of the appendix, tuberculosis of the peritoneum, kidney lesions, and diseases of the tubes gave rise to symptoms characterized by their periodicity. It was necessary to understand the significance of vomiting, which was either reflex or toxic. Vomiting, in combination with epigastric pain, usually indicated a stomach lesion. Certain lesions of the digestive tract remote from the stomach had vomiting as an important symptom. Pyloric spasm was not a distinct disease. It occurred in duodenal and intestinal ulcer, inflammation of the appendix, etc. Spontaneous epigastric pain occurred in various functional and organic abdominal diseases, but not all epigastric pain meant abdominal disease. The diagnostic importance of the relation of epigastric pain to the taking of food was commented upon. In ulcer of the stomach pain occurred one hour after eating, and was relieved by a glass of milk. In ulcer of the duodenum pain occurred three or four hours after eating. The pain in gallstone disease was irregular as to the time of its occurrence. The attacks of pain occurring in chronic constipation were to be borne in mind. The abdominal pain of neurasthenia mimicked that of a number of abdominal diseases. Gastroenterostomy was certainly not the ideal treatment for neurasthenia. Loss of weight was usually caused more by restrictions in diet than by the abdominal condition itself. It was less frequently caused by malignant disease. The production of gas was an early symptom of ulcer of the stomach or duodenum, and in chronic peritonitis the physical examination was less important than the history of the case. The chief symptom of local disease was always the local point of tenderness. The repeated laboratory examination of the feces for fat and meat was more trustworthy than the examination of the stomach contents. The search for occult blood in the stools was important. The finding of gallstones in the latter settled the question of the diagnosis of gallstone attacks.

Dr. Dudley Roberts of Brooklyn said that he agreed with the speaker, that the laboratory examination of the feces was more important than that of the stomach contents.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners, South Dakota.

Examination January 8 and 9, 1908.

ANATOMY.

1. Describe superficial and deep palmar arches, giving origin, branches, and external markings.
2. Describe the hip joint. Which is the most common dislocation? Why?
3. Name structures from without inward, that would be cut in section of the arm four inches below shoulder joint.
4. Describe the stomach, giving location, relations, blood and nerve supply.
5. Locate and describe the thyroid gland, giving blood and nerve supply.
6. Name the branches of the aorta from above downward.
7. Describe briefly the cerebrum, giving lobes and fissures.
8. Describe briefly the alimentary canal, naming accessory glands in order.
9. What muscles will be affected by paralysis of seventh nerve?
10. Describe the knee joint.

PHYSIOLOGY.

1. Give the functions of the lungs, describing the various processes.
2. Describe the lymphatic system. Give its functions. How do the lymphatic vessels differ from the blood-vessels?
3. What is meant by reflex action? Give several examples.
4. Define blood pressure. By what means is the caliber of the blood-vessels regulated, and what are the forces keeping the blood in circulation?
5. What three cranial nerves are for special sense? What six are exclusively motor? What three are compound?
6. Give somewhat in detail the physiology of the kidney. (Use a diagram if desired to make your meaning clear.)
7. Describe the various kinds of blood corpuscles, their origin and function.
8. Describe quite in detail the stomach (use diagram). Describe gastric digestion.
9. (a) What are carbohydrates? (b) Proteids? Give examples of each.
10. Name all the organs of elimination.

CHEMISTRY.

1. Define an element, an atom, a molecule, chemical force.
2. Name four functions of a symbol.
3. State the proportions of the chief constituents of the atmosphere. What action is produced on air by animals? By plants?
4. Define an acid salt; a normal salt. Give examples.
5. What are deodorizers; disinfectants; antiseptics? Give an example of each.
6. Enumerate the halogens. Write the formulas for their acids.
7. How may you estimate the total amount of solids in urine by the specific gravity?
8. Give a test for sugar in urine. Determine the quantity by the fermentation test.
9. Name three alkaloidal poisons. Give antidotes.
10. Give chemical name and formula for lunar caustic. Name antidote and describe its action.

PATHOLOGY.

1. Clinically, how does inflammation spread?
2. Give briefly the pathology of fever.
3. What is the difference between septicemia and pyemia?
4. Name four pus microbes.
5. What do you understand by the term karyokinesis?
6. Give points of differential diagnosis between carcinoma and sarcoma.
7. Give the pathology of parenchymatous nephritis.
8. What is a parasite? A saprophyte?
9. Describe the pathology of acute catarrhal gastritis.
10. Give the pathology of osteomyelitis.

BACTERIOLOGY.

1. Explain in detail the Widal reaction. (b) What is its practical application?

2. What do you understand by immunity? (a) Natural? (b) Acquired? Give examples of each.
3. Describe the tetanus bacillus. (a) Where is it found outside the body? (b) How does it enter the body? (c) What conditions are necessary for it to multiply?
4. What are the bacteria usually found in pus? (b) Describe one variety.
5. Give in detail the method of making a bacteriological diagnosis of gonorrhea.

SURGERY.

1. Differentiate burns of the first, second, and third degrees, and give treatment of each.
2. Give diagnosis and treatment in detail of cholelithiasis.
3. Prepare patient, instruments, and your hands for an appendectomy.
4. Give treatment for varicose veins of the leg.
5. Give diagnosis and method of reduction of subglenoid dislocation of the shoulder.
6. Give diagnosis and treatment of fracture of the middle one-third of femur in an adult.
7. Fracture of the base of the skull? (a) Diagnosis. (b) Prognosis. (c) Treatment.
8. Fracture of the clavicle. (a) Diagnosis. (b) Treatment.
9. Diagnosis and surgical treatment of ulcer of the pylorus.
10. How would you treat a contused and lacerated wound of a finger?

PRACTICE AND THERAPEUTICS.

1. Give the physiological action and therapeutics of veratrum viride.
2. Give symptoms and treatment of poisoning by strychnia.
3. Give five (5) coal tar products used in medicine. Give the dose and manner of action.
4. Give the dietetics and treatment of chronic catarrhal gastritis.
5. You are called to see a baby ten months old that is anemic and poorly nourished, but has been apparently well until the day you are called, when it suddenly refused to take its food, was very thirsty, lies with its legs flexed on its abdomen, its finger in its mouth, is crying and peevish, and seems constantly dissatisfied. The mother says that the child vomited several times and has a slight diarrhea. Upon examination you find a temperature of 103° F., a pulse of 130, respirations are somewhat accelerated, the tongue is coated a grayish white, the breath is fetid, and the child has a convulsion while you are there. What is your diagnosis and treatment?
6. Outline an artificial course of feeding for a child four months old in which case it was deemed best not to continue breast feeding, as a diagnosis of tuberculosis had been made in the mother.
7. Give etiology, symptoms, and treatment of tetanus.
8. Write what you can about locomotor ataxia.
9. What is uremia? Name the conditions that cause the same and give symptoms and treatment.
10. Name the most common organic heart lesion, give its diagnosis and treatment.

DISEASES OF WOMEN.

1. Differentiate on the cervix of a woman 45 years old, chancre, beginning carcinoma, endocervicitis, with erosion, and treat a case of the latter.
2. Diagnose and treat acute gonorrheal urethritis, vaginitis, and endocervicitis.
3. Acute vesical cystitis. Symptoms. Diagnosis and treatment.
4. What is subinvolution uteri? Treat a typical case.
5. Give etiology, symptoms, and treatment of condylomata acuminata.

OBSTETRICS.

1. Name the female generative organs, giving their anatomical relations and functions.
2. Give diagnosis of pregnancy at beginning of fourth month.
3. Name the normal head positions in the order of their frequency.
4. Describe your administration of chloroform during labor. What are its dangers, and what its contraindications?
5. Describe the placenta during the ninth month, its usual location and function. Also the funis.
6. Name the varieties of placenta prævia. Give diagnosis, dangers, and treatment in a case of placenta prævia centralis.
7. When would you use forceps in the upper strait? Describe their application.
8. When and how would you use ergot? When is it contraindicated? Name two other oxytocics and the indications for their use.
9. What would you do for rigid os in a multipara?
10. Describe a complete inversion of the uterus following labor, giving symptoms, dangers, prognosis, and treatment.

EYE AND EAR.

1. Give causes, symptoms, and treatment of ophthalmia neonatorum. (b) Of keratitis. (c) When would enucleation of the eye be indicated?
2. (a) Describe the iris. (b) Give diagnosis and treatment of iritis. (c) Of trachoma. (d) In what conditions would mydriatics be indicated?
3. (a) Describe and give treatment of astigmatism. (b) Hypopyon. (c) Purulent dacryocystitis. (d) Synechia.
4. (a) Give diagnosis and treatment of adenoid vegetations. (b) Give indications for mastoid operation. (c) Give treatment for furunculosis of external auditory canal.
5. (a) Give anatomical divisions of the ear. (b) What instruments or appliances are used in a thorough examination of the ear? (c) Give treatment of severe frostbite of external ear.

MEDICAL JURISPRUDENCE.

1. What do you know about rigor mortis?
2. If you were officially summoned to examine the dead body of an adult male person, describe the examination you would probably make to determine the cause of death.
3. How would you determine which was the entrance, and which was the exit, of a bullet wound?
4. If called to see an adult person, apparently dead, how would you determine whether it was a case of syncope, catalepsy, or actual death?
5. What are the legal obligations of a physician in regard to accepting a professional call? And having accepted such call, how may he discontinue attendance on the case without liability for damages?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, SOUTH DAKOTA.

Examination January 8 and 9, 1908.

ANATOMY.

1. The *superficial palmar arch* is formed by the ulnar artery, and is completed by the ulnar artery anastomosing with a branch of the radial (superficial volar or princeps pollicis). It gives off the four digital branches.

The surface marking is a line drawn transversely across the palm from a point where the web of the thumb joins the palm.

The *deep palmar arch* is formed by the radial artery, and is completed by the radial artery anastomosing with a deep branch of the ulnar. Its branches are the palmar interosseous, perforating, and palmar recurrent arteries.

The surface marking is a line drawn transversely across the palm, one-half inch nearer the wrist than the superficial arch.

2. The most common dislocation of the hipjoint is the *backward dislocation*. This is because: (1) the capsule is thinnest and weakest at its lower and inner part; (2) the cotyloid ligament is weakest posteriorly; and (3) the shallowest part of the acetabulum is below. The head of the bone is, therefore, most likely to find its way in the direction indicated.

3. In *section of the arm four inches below the shoulder joint*, the following structures would be cut: The skin; cutaneous vessels and nerves; fascia; Biceps, Triceps, Coracobrachialis, Deltoid, Latissimus dorsi, and Pectoralis major muscles; brachial and superior profunda arteries; brachial, cephalic and basilic veins; median, ulnar musculospiral, internal cutaneous and musculocutaneous nerves; and humerus.

9. In *paralysis of the seventh nerve*, the following muscles will be affected: Occipito-frontalis, Retrahens aurem, Attollens aurem, Attrahens aurem, Platysma myoides, Orbicularis palpebrarum, Tensor tarsi, Corrugator supercilii, Pyramidalis nasi, Compressor naris, Depressor alæ nasi, Levator labii inferioris alæque nasi, Orbicularis oris, Levator labii superioris, Levator anguli oris, Zygomaticus major, Zygomaticus minor, Risorius, Depressor anguli oris, Depressor labii inferioris, Levator menti, Buccinator, Stylohyoid, and posterior belly of the Digastric.

PHYSIOLOGY.

2. The lymphatic system consists of: lymphatic glands, lymph vessels, perivascular lymph spaces, the lymph canal-

icular system, the pericardial, pleural, peritoneal, and synovial cavities, and the lacteals.

The lymphatic circulation is, strictly speaking, not a circulation at all, since the lymph flows only in one direction, namely, toward the heart. The lymph capillaries take up any excess of the blood plasma which is not required for the nutrition of the tissues. These capillaries consist of a single layer of epithelium, and empty themselves into vessels very like the veins. The lymph vessels are well provided with valves, which are so closely approximated as to give the vessels a beaded appearance. All the lymphatic vessels, except those of the right upper half of the body, empty into the thoracic duct, which terminates in the left subclavian vein, at its angle of junction with the left internal jugular vein. Those from the right upper half of the body discharge into the right lymphatic duct, which, in turn, empties into the right subclavian vein at its junction with the right internal jugular vein.

The forces concerned in the circulation of the lymph are: (1) The pressure of the blood in the blood-vessels; (2) thoracic aspiration; (3) muscular contractions of the voluntary muscles; (4) contractions of the intestine; (5) the action of the valves in the lacteals and lymphatics.

The *function of the lymphatic system* is to provide the tissues with material necessary to their functional activity, growth, and repair; to receive from the tissues their waste products; and to convey the products of digestion and absorption to the blood-current.

The lymph capillaries differ from the blood-capillaries, chiefly, in their larger and very variable caliber and also in their numerous communications with the lymph spaces. The lymph vessels in general have thinner coats than the blood-vessels; and the valves in the lymph vessels are much more abundant than in the veins.

3. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

4. *Blood pressure* is the pressure of the blood due to the ventricular systole, the elasticity of the walls of the arteries, and the resistance of the capillaries.

The caliber of the blood-vessels is regulated by the vasomotor nerves (both vasoconstrictor and vasodilator).

The circulation of the blood is regulated in (*a*) *the arteries*, by: (1) the elasticity and tone of the arteries, (2) the force and frequency of the cardiac contractions, (3) the resistance in the capillaries; (*b*) in the *capillaries* it is regulated by: (1) the action of the heart, (2) the action of the arteries; (*c*) in the *veins* it is regulated by: (1) the action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) slightly by the valves in the veins.

5. The three cranial nerves for *special sense* are: (1) olfactory, for smell; (2) optic, for sight; and (8) auditory, for hearing.

Six, *exclusively motor*, are: (3) motor oculi; (4) trochlear; (6) abducens; (7) facial; (11) spinal accessory, and (12) hypoglossal.

Three, *compound*, are: (5) Trifacial, motor and sensory; (9) glossopharyngeal, motor, sensory, and special sense of taste; (10) Pneumogastric, motor and sensory.

7. (1) The *red blood corpuscles* are biconcave discs, about 1-3200 of an inch in diameter; they are nonnucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They are elastic and soft, and their shape is changed by pressure, but is promptly regained on the removal of the pressure. Their color is yellowish. They contain hemoglobin. Their *function* is to carry oxygen from the lungs to the tissues.

(2) The white blood cells are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells. Their *functions* are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

(3) There are also *platelets*, which are very small, colorless, irregularly shaped bodies; they are about one-fourth the diameter of a red corpuscle. Their *function* is not determined; it is possible that they take some part in the coagulation of the blood. In number they vary from about 200,000 to more than 500,000 in each cubic millimeter of blood.

9. *Carbohydrates* are substances composed of carbon, hydrogen and oxygen, the two latter being in the proportion to form water; they do not contain nitrogen. *Examples:* Starches and sugars.

Proteids are substances composed of carbon, hydrogen, oxygen, nitrogen; some of them also contain phosphorus, or sulphur. *Examples:* Meat, milk, and leguminous vegetables.

10. The *organs of elimination* are: the kidneys, lungs, skin, intestines, and liver.

CHEMISTRY.

1. An *element* is a kind of substance which cannot, by any known means, be split up into two or more other kinds of substance.

An *atom* is the smallest quantity of an element that can enter into chemical action, or that can enter into the composition of a molecule.

A *molecule* is the smallest quantity of any substance that can exist in a free state.

Chemical force is that power which binds atoms together to form molecules.

2. *Four functions of a symbol.* A symbol represents: (1) The name of the element; (2) one atom of the element; (3) one volume of the element in a gaseous state; (4) the combining weight of the element as compared with hydrogen as unity.

3. The *chief constituents of the atmosphere* are: Oxygen, 21 per cent.; nitrogen, 79 per cent.; and carbon-dioxide, 0.04 per cent.; these are *by volume*.

Animals take up some of the oxygen of the air, and give off carbon dioxide to the air.

Plants take up carbon dioxide and liberate oxygen.

4. An *acid salt* is a salt in which only *a part* of the replaceable hydrogen of the acid has been replaced. *Example:* $NaHSO_4$.

A *normal salt* is a salt in which all of the replaceable hydrogen has been displaced. *Example:* Na_2SO_4.

5. *Deodorizers*, or air-purifiers, are substances which destroy the odorous products of putrefaction. Thus one of the actions of SO_2 is to destroy H_2S.

Disinfectants are substances or agents which restrain infectious diseases by destroying or removing their specific poisons. Some disinfectants are germicides, as chlorine; others act by dilution or removal without being germicides, as soap and water and fresh air.

Antiseptics are substances which prevent or restrain putrefaction. They are either germicides, which act by destroying the bacteria causing putrefaction, or agents which, without destroying the vitality of these organisms, render the conditions unfavorable for their development. Thus cold and the aluminium salts are antiseptic but not germicidal.—(From Witthaus' *Essentials of Chemistry*.)

6. The *halogens* are: Fluorine, chlorine, bromine and iodine. Their *acids* are: Hydrofluoric, HF; Hydrochloric, HCl; Hypochlorous, HClO; Chlorous, $HClO_2$; Chloric, $HClO_3$; Perchloric, $HClO_4$; Hydrobromic, HBr; Hypobromous, HBrO; Bromic, $HBrO_3$; Perbromic, $HBrO_4$; Hydriodic, HI; Hypoiodous, HIO; Iodous HIO_2; Iodic, HIO_3; Periodic, HIO_4.

7. The last two figures of the specific gravity multiplied by 2.33 gives, in normal urine, approximately the amount of total solids in a thousand parts of urine. *Example:* Specific gravity is 1.017; $17 \times 2.33 = 39.61$ grams of solids in 1,000 c.c. of urine.

8. *Test for sugar in urine:* The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

Fehling's test: Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil: no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only

a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

Quantitative determination by the fermentation test: The sp. gr. of the urine is carefully determined at 77° F.; yeast is then added, and the mixture kept at 77° F. until fermentation is complete; the sp. gr. is again observed, and will be found to be lower than before. Each degree of diminution represents 0.2196 gram of sugar in 100 c.c. of urine.—(From Witthaus' *Chemistry.*)

9. *Three alkaloidal poisons, with antidotes:* Atropine; antidote, morphine or tannin. (2) Morphine; antidote, potassium permanganate, or tannic acid, strychnine, and caffeine. (3) Cocaine; antidote, amyl nitrite.

10. LUNAR CAUSTIC. *Chemical name:* Silver nitrate. *Formula:* $AgNO_3$. *Antidote:* Solution of sodium chloride. It acts by decomposing the silver nitrate and forming the insoluble silver chloride:

$$AgNO_3 + NaCl = AgCl + NaNO_3.$$

PATHOLOGY.

1. Inflammation spreads by: (1) the bloodvessels; (2) the lymphatics; (3) continuity of tissue.

3. *Septicemia* is a condition of acute general infection due to the presence of pyogenic bacteria in the blood.

Pyemia is the condition of general infection when metastatic abscesses are formed.

Septicemia begins with a rigor, followed by a rise of temperature up to about 104° F., which remains constant. The pulse is weak and progressively rapid; there is anorexia and constipation, which is followed by diarrhea; the urine contains albumin; the temperature may become subnormal. There are no repeated rigors and no secondary (metastatic) abscesses. *Pyemia* begins with a rigor, which may last for half an hour, and is repeated every one or two days. The temperature rises as in septicemia, but rapidly falls, and at the same time the patient suffers a profuse perspiration. The pulse is weak and rapid; there is anorexia; and there may be delirium, with jaundice and signs of abscesses in the lungs, joints, etc. In pyemia there are repeated rigors and secondary abscesses.

4. *Four pus microbes:* Streptococcus pyogenes; Staphylococcus pyogenes aureus; Staphylococcus pyogenes albus; Staphylococcus pyogenes citreus.

5. By *Karyokynesis* is understood indirect cell reproduction, preceded by the complicated cycle of changes in the cell nucleus.

6. *Carcinoma* occurs most frequently after middle life, is derived from the epiblast or the hypoblast; possesses a stroma, in which are both blood-vessels and lymphatics; metastasis occurs by the lymphatics.

Sarcoma occurs most frequently before middle life, is derived from the mesoblast; it has no stroma and no lymphatics; metastasis occurs by the blood-vessels which are in contact with the cells.

8. A *Parasite* is an organism which lives upon or within another (living) organism.

A *Saprophyte* is an organism which lives upon dead organic matter.

BACTERIOLOGY.

2. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic microorganisms. Immunity may be either natural or acquired.

Natural immunity is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired Immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The conditions which give immunity are: (1) a previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Examples.—The rat is *naturally immune* to anthrax; the white mouse is *naturally immune* to infection with bacillus mallei. *Acquired immunity* is seen in the immunity from smallpox after vaccination, or after having suffered from an attack of the disease.

3. The bacillus of tetanus is characterized by its peculiar spore, formed at one end of the bacillus, and giving it the appearance of a pin; it is purely anaërobic, and cannot be developed at all in the presence of oxygen. It generally comes from the soil, and is found in penetrating wounds. It appears in two forms, the spore-bearing form, as described above, and the vegetative form, which is a short bacillus with rounded ends, and which may occur singly or in pairs, or may form long filaments. It grows in gelatin stab cultures in the middle of the medium, and the colonies look something like a fir tree; its growth is slow, and a disagreeable odor is at the same time emitted. In bouillon, it grows near the bottom of the tube, and produces gases.

4. (*a*) The *bacteria usually found in pus* are: Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus, Streptococcus pyogenes; also sometimes the pneumococcus, gonococcus, B. coli communis, B. pyocyaneus, B. typhosus, and B. epidermidis albus.

(*b*) The *Streptococcus pyogenes* is a micrococcus, of spherical shape, and arranged in chains of about thirty or forty cocci (in liquid media) but the chains are much shorter in solid media. Each coccus is about one-half to two mikrons in diameter. It is not motile, does not form spores, does not liquefy gelatin, and stains readily with the ordinary anilin dyes, and by Gram's method.

5. On a cover-glass make a smear with the discharge as thin as possible, and let it dry in the air; cover it with a freshly-made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized; wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismarck brown; wash in distilled water, dry with filter paper, mount, and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes*, which have been *decolorized by Gram's stain*, and have taken the counterstain.

PRACTICE AND THERAPEUTICS.

2. The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

Treatment.—"The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

DISEASES OF WOMEN.

2. ACUTE CYSTITIS. *Symptoms.*—Frequent urination, with tenesmus and a burning sensation in the urethra, later on pain in the bladder; the urine may be alkaline and turbid, and may contain blood, mucus, bacteria, pus, and epithelial cells. Chills, rapid pulse, fever, and headache may also be present.

Treatment includes: Rest in bed; administration of plenty of cold water or milk, diuretics, bland and mild foods, laxatives, hot sitz baths or vaginal douches, irrigation of the bladder with antiseptic solution followed by solution of nitrate of silver.

OBSTETRICS.

3. L.O.A.; R.O.P.; R.O.A.; L.O.P.

9. The *management of a rigid os uteri* consists in: The administration of chloral hydrate, gr. xv., three doses being given at intervals of about twenty or thirty minutes; hot vaginal douches directed against the anterior lip of the os; if these methods do not suffice, it may be necessary to give an anesthetic, forcibly dilate the cervix, and deliver by forceps; the cervical laceration, if any, must be repaired.

EYE AND EAR.

1. (*a*) OPTHALMIA NEONATORUM. *Causes.*—The gonococcus or some other pyogenic microorganism; the secretions of the mother contain the infecting agent, and transmission may occur directly during parturition, or indirectly by the fingers of physician or nurse, cloths, instruments, etc.

Symptoms: Swollen eyelids, with copious purulent discharge; ulceration of the cornea may ensue.

Prophylaxis.—Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent. solution of nitrate of silver, immediately after birth.

Treatment.—Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must

be isolated, and all cloths and compresses used must be burnt.

(*c*) The *indications for enucleation of the eye*, are: "(1) Injuries of the ciliary region when the eye is completely blind, or the traumatism so extensive that the form of the eyeball cannot be preserved; (2) traumatic iridocyclitis, to prevent or cure sympathetic ophthalmia: (3) severe pain in a blind eye; (4) irido-cyclitis, phthisis bulbi, and glaucoma, when accompanied by severe pain or inflammatory symptoms, and when the eye is blind or is certain to become so; (5) malignant tumors, either intraocular or epiocular, if they cannot be removed with retention of the eyeball; (6) anterior staphyloma, if the eye is blind, troublesome, and disfiguring; (7) panophthalmitis, after the suppurative stage is passed; (8) foreign bodies in the eye when they cannot be removed and cause irritation, or the eye is blind." (May's *Diseases of the Eye.*)

MEDICAL JURISPRUDENCE.

3. (*a*) In gunshot wounds by *soft lead bullets*, the *wound of entrance* is often smaller than the ball (skin stretched at the moment of impact and contracted after perforation); it is depressed, and the edges are contused and inverted, and if the weapon is fired within ten feet usually are blackened from powder and contain powder grains. If the wound is much larger than the bullet, it means that some foreign body has been carried in.

The *wound of exit* is everted, "triangular, linear, or stellate," and much larger than the wound of entrance.

(*b*) In gunshot wounds by *hard lead, or steel bullets*, the *wound of entrance* is usually as large as the ball, the skin may be split or may be perforated, and foreign bodies are not carried by the ball into the tissue.

The *wound of exit*, if not in the region of explosive action, may be a little larger or a little smaller than the bullet, but is not noticeably larger than the wound of entrance. If within the area of explosive action, the wound of exit is much larger than the wound of entrance, and is irregular and everted. (From Da Costa's *Modern Surgery.*)

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.		
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan.	5
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct.	5
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct.	13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec.	1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct.	6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov.	10
Delaware	J. H. Wilson, Dover	Dover	Dec.	8
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct.	13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov.	11
Georgia	E. R. Anthony, Griffin	Atlanta	Oct.	6
Idaho	W. F. Howard, Pocatello	Boise	Oct.	6
Illinois	J. A. Egan, Springfield	Chicago	Oct.	21
Indiana	W. T. Gott, Indianapolis	Indianapolis	Oct.	27
Iowa	Louis A. Thomas, Des Moines	Des Moines, Indianapolis	Oct.	27
Kansas	D. P. Cook, Clay Center	Kansas City	Oct.	13
Kentucky*	J. N. McCormick, Bowling Green	Louisville	Oct.	27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct.	1
Maine	Wm. J. Mayhury, Saco	Portland	Nov.	10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.	8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov.	10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct.	13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct.	6
Mississippi	S. H. McLean, Jackson	Jackson	Oct.	13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov.	23
Montana*	Wm. C. Riddell, Helena	Helena	Oct.	6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Nov.	4
Nevada	S. L. Lee, Carson City	Carson City	Nov.	2
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec.	30
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct.	20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct.	12
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb.	2
N. Carolina*	B. K. Hays, Oxford	Asheville	June	9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct.	6
Ohio	Geo. H. Matson, Columbus	Columbus	Dec.	8
Oklahoma*	J. C. Mahr, Shawnee	Shawnee		
Oregon	B. E. Miller, Portland	Portland	Jan.	5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec.	—
Rhode Island	G. T. Swarts, Providence	Providence	Oct.	1
S. Carolina	H. H. Wyman, Aiken	Columbia	June	8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan.	13
Tennessee*	T J. Happel, Trenton	Memphis, Nashville, Knoxville	May	—
Texas	M. E. Daniel, Honey Grove	Dallas	Nov.	10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Oct.	5
Vermont	W. Scott Nay, Underhill	Montpelier	Jan.	12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec.	16
Washington*	K. Turner, Seattle	Spokane	Jan.	5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov.	10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan.	12
Wyoming	S. B. Miller, Laramie	Laramie	Oct.	14

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Medical Items.

Contagious Diseases. Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending September 19, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	531	140
Diphtheria	206	28
Measles	103	5
Scarlet Fever	112	6
Smallpox	—	
Varicella	9	
Typhoid Fever	168	18
Whooping Cough	23	5
Cerebrospinal Meningitis	8	6
Malarial Fever	—	—
Totals	1161	208

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending September 19, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Indiana, Fort Wayne	Aug. 16–22	1	
Kansas, Wichita	Aug. 31–Sept. 5	1	
Michigan, Saginaw	Aug. 31–Sept. 5	6	
Missouri, St. Joseph	Aug. 22–29	1	
Pennsylvania, Philadelphia	Aug. 30–Sept. 4	1	
Texas, San Antonio	Aug. 31–Sept. 5	1	
Washington, Spokane	Aug. 9–29	5	
West Virginia, Charleston	Aug. 1–31	2	
Wisconsin, La Crosse	Aug. 31–Sept. 5	6	

SMALLPOX—INSULAR.

Philippine Islands, *Manila	July 19–Aug. 1	9	6

SMALLPOX—FOREIGN.

Algeria, Algeirs	July 1–31		11
Arabia, Aden	Aug. 11–17		11
Brazil, Bahia	July 1–31	110	18
Para	Aug. 16–22	5	5
Rio de Janeiro	Aug. 3–16	1,425	510
Santos	June 19–Aug. 9	41	11
Ceylon, Colombo	July 26–Aug. 1	4	2
China, Amoy	Aug. 1		Present
Ecuador, Guayaquil	Aug. 8–22		12
Egypt, General	July 23–29	5	2
Cairo	Aug. 13–19	2	1
France, Toulon	July 1–31	2	
Germany, General	July 23–29	4	
Great Britain, Liverpool	Aug. 23–29	1	
India, Bombay	Aug. 5–11		6
Calcutta	July 26–Aug. 1		6
Italy, General	Aug. 17–23	24	
Java, Batavia	July 26–Aug. 1	3	
Portugal, Lisbon	Aug. 16–22	1	
Russia, Moscow	July 2–15	39	40
St. Petersburg	Aug. 2–15	23	3
Spain, Barcelona	Aug. 10–20		4
Norway, Christiana	Aug. 16–22	51	1
Turkey in Asia, Bagdad	July 26–Aug. 1	18	3
Turkey in Europe, Constantinople	Aug. 17–23		2

CHOLERA.

China, Amoy	July 26–Aug. 1	2	2
Hankau	July 26–Aug. 8	3	Epidemic among natives
Shanghai and vicinity	Aug. 23		Present
India, Bombay	Aug. 5–11		1
Calcutta	Aug. 26–Aug. 1		11
Madras	Aug. 1–7		81
Indo-China, Cholen	July 26–Aug. 1	5	5
Saigon	July 26–Aug. 1	1	1
Japan, Kure, Naval Station near Hiroshima	Aug. 15	Present on a vessel	
Kawasaki	Aug. 23	1	
Tokio, Vicinity	Aug. 22	1	
Yokahama	Aug. 23	2	
Philippine Islands, Manila	July 26–Aug. 1	16	12
Provinces	July 26–Aug. 1	2,052	1,332
Russia, General	Aug. 7–14	538	270
Astrakhan	Aug. 7–14	230	114
Saratov	Aug. 7–14	150	103

PLAGUE.

China, Amoy	Aug. 1		Epidemic
Brazil, Rio de Janeiro	Aug. 3–9		1
China, Hongkong	July 26–Aug. 1	6	5
India, General	July 26–Aug. 1	755	553
Bombay	Aug. 5–11		37
Calcutta	July 26–Aug. 1		18
Rangoon	July 26–Aug. 1		33
Indo-China, Cholen	July 26–Aug. 1	7	6
Turkey in Asia, Bagdad	Aug. 16–22	2	2
Venezuela, Caracas	Aug. 8–21	4	

YELLOW FEVER.

Brazil, Manaos	Aug. 9–15	1	
Cuba, Habana	Sept. 13–16	1	1
Ecuador, Guayaquil	Aug. 8–22		2
Martinique, Fort de France	Aug. 9–29	11	5

*May 29, 4 cases of smallpox at Manila were entered as plague.

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Original Articles.

THE SERUM TREATMENT AND THE PROGNOSIS, UNDER VARIOUS FORMS OF THERAPY, OF CEREBROSPINAL FEVER.*

By HENRY KOPLIK, M.D.,
NEW YORK.

It is too often apparent in considering the methods of therapy of any disease that we sometimes lose sight in the presence of some exceedingly favorable results of the natural course of the affection, and in no disease is this more common than in cerebrospinal meningitis. This disease, as Osler has pointed out, resembles very closely in its behavior pneumonia. It is true the affection occurs sporadically and in epidemics. In the sporadic form the disease occurs at times when there cannot be said to be any prevalent epidemic. That is, a limited number of cases will appear in a city in places removed from each other, and having no connection with each other. By epidemics of meningitis we understand distinctly the occurrence in larger numbers of cases in groups, and in this disease, especially in densely populated quarters. In the sporadic form cerebrospinal fever is an affection at times, so mild as to give few symptoms of a critical nature. At other times in the sporadic form the disease takes on a severer type, and then the picture closely resembles what is seen in epidemics of the disease. In the absence of epidemics the cases of crebrospinal meningitis which have come under our control have impressed us with certain characteristics, or, rather, the absence of certain characteristics which we see during the times of epidemics. I have seen sporadic cases so mild that the intermittent or remittent febrile symptoms, headache and drowsiness, were the only symptoms which led us to think of the diagnosis. In the sporadic forms we have the rigidity, the hyperesthesia, the presence of the Kernig reaction, and in occasional cases the herpes. There is also delirium and the presence of gradually increasing hydrocephalus, as evinced by the so-called Macewen sign. I think any one who has passed through an epidemic of cerebrospinal meningitis will admit that in the sporadic cases we rarely meet the severer symptoms of the disease, such as the sudden and abrupt onset of unconsciousness, the petechiæ or diffuse hemorrhages so frequent in the epidemic forms of the disease, and the paralysis which appears very early in the epidemic forms. In fact, in an epidemic it is not infrequent to be called to the bedside to see a child who within a few hours has become unconscious and absolutely paretic to an extent as not even to show the rigidity and the Kernig sign, which is seen and gradually develops so classically in the sporadic cases. In the sporadic cases we rarely see those excessive hemorrhages in infants which are seen in the epidemic form.

It must, therefore, be admitted that though on the whole the symptomatology of the sporadic is exactly similar to that of the epidemic form of the disease, the sporadic form runs a much milder course. As we analyze both forms more deeply, we find that the purulent exudates are more frequently obtained in the epidemic than in the sporadic cases of the disease. Lumbar puncture in the sporadic cases exceptionally reveals a purulent fluid at the outset. It is true a certain proportion of the sporadic cases are purulent, but not to the extent as is seen in the epidemic forms of the disease

In a word, cerebrospinal meningitis of the meningococcic type very much resembles pneumonia as it is seen in adults in the sporadic and epidemic forms. Any one who has lived through an epidemic of pneumonia must admit that the picture is a violent and a virulent one in its type, and so with meningitis. We have the same infection, but in the epidemic form it is of a violent and virulent type, and with children the younger the subject the more fatal the disease.

These facts are so self-evident that it is surprising they are so constantly lost sight of, and that in considering any mode of therapy we do not stop not only to consider the violence of the infection, but the age of the patient. For this reason I have thought it would be useful for every one at this time to get a picture of the natural history and prognosis of cerebrospinal meningitis, especially if the experience which reflects the prognosis extends over a long period of time and the methods of treatment have been uniformly the same and carefully carried out in all details through a number of years.

Taking up the sporadic form of meningococcic cerebrospinal meningitis, I have been fortunate to have at my disposal the records of cases treated since 1899 up to the epidemic years of 1904-1905. We first began the systematic treatment of cerebrospinal meningitis in 1899. This consisted in the first place of a careful study of the symptoms and the performance of lumbar puncture repeated as often as we found the symptoms to warrant it. That is, a patient suffering with cerebrospinal meningitis would come in with mild symptoms. If there was delirium, high fever, with the development of the signs of fluid in the ventricle as evinced by the Macewen sign, lumbar puncture was performed. After such a puncture, if the symptoms did not abate, the fever continued, as well as the delirium and the Macewen sign persisted, proving that there was a continued hydrocephalus, the patient was again punctured. In this way some patients were punctured two, three, four, and five times, as necessity called for. During 1899-1900 we had eight cases, all proving by lumbar puncture to have been meningococcic in type. During 1901, 1902, and 1903 there were thirteen cases, thus giving us a total of twenty-one sporadic cases. Of these sporadic cases eight died, a mortality of 38 per cent.; of these eight which proved

*Read before the American Pediatric Society, May, 1908.

fatal, six were below one year of age, thus showing that in the sporadic form the disease was most fatal among the infants below one year of age, and equally so below two years of age. If we could deduct from the total number of twenty-one cases those which were below one year of age, we would have fifteen cases, with only two deaths, a mortality of 13 per cent. From this a mere glance will tell us that meningitis of the meningococcic type in its sporadic form is a comparatively mild disease.

I say this with a certain amount of confidence, although the number of cases is limited, for we are now having a certain number of sporadic cases which seem to duplicate our experience in these years. On the other hand, in sporadic meningitis we have been fortunate by methods of therapy, which consisted mainly in the systematic application of lumbar puncture repeated at intervals, in obtaining recoveries even below one year of age. Two infants of this tender age recovered of these twenty-one cases, and two recovered between the ages of one and two years. It is in the sporadic cases especially that we occasionally see after one lumbar puncture the temperature drop and convalescence practically inaugurated, the temperature not rising subsequently to any extent. This phenomenon is not so frequent nor so persistent as is seen under the new method of therapy, that of serum. Under serum therapy there are more cases which act in this manner than under previous forms of therapy.

Taking up the epidemic years of 1904 and 1905, the history of the disease is a more violent one. Among the cases are some which died within a few hours after admission to the hospital. This, it is understood, is the exception in the sporadic cases, but not uncommon in epidemic cases. Here the picture of the disease is more of sthenic type, the symptoms being developed in their most florid form.

The first epidemic year was 1904. There were thirty-nine cases and twenty-one deaths, a total mortality of 53 per cent., and of these twenty-one deaths thirteen were below two years of age. If we consider the unimproved cases of these thirteen as not fatal, eleven died, but I would prefer to consider these fatal cases as they were discharged from the hospital in a marantic condition, with an incurable and increasing hydrocephalus, so that from a curative standpoint the mortality was practically 100 per cent. Some of these infants were four months of age, six months of age, showing the tender age of the patients. Deducting these thirteen cases from the total of thirty-nine would leave twenty-six cases above two years of age, of which nine died, a mortality of 34 per cent.

In 1905 there were thirty-five cases in my service of which seventeen died. In none of these cases have we included any which have not been distinctly proven by lumbar puncture to be of the meningococcic type. There was thus in this year a total mortality of 48 per cent. Of these seventeen deaths, however, ten were below two years of age, and in them it might be said that the mortality was fully 100 per cent., for if seven died and three were simply unimproved, that is, developed either hydrocephalus or marasmus of an extreme type hopelessly incurable, we can scarcely speak of a cure, therefore these three were no better than fatal cases, so that although there was a mortality of 70 per cent., from the standpoint of success in therapy the mortality was practically 100 per cent. below two years of age. If we deduct those cases which died below two years of age from the total mortality of seventeen, and from the total number of cases which were admitted during this epidemic year, we are left a mortality of seven deaths in twenty-five cases, that is, 28 per cent. It is thus seen that it would be quite unfair to consider any mortality in this year of the violent type without considering the tender age of some of those affected in order to get a definite idea of the picture. It may be said in addition, the ages of these children ranged from four months to twelve years of age. Thus of the two epidemic years of 1904 and 1905 we had fifty-one cases above two years of age, with a mortality of 31 per cent., and, considering the patients below two years of age in the mortality, there was a total mortality of 50 per cent. This includes patients on whom there was only an opportunity to make one lumbar puncture, and in whom death occurred within a few hours after admission to the hospital. Nothing has been excluded for the sake of statistics, but the moribund cases have been included in this statistic with the favorable cases. We had twenty-three cases in these two years below two years of age, of which 78 per cent. died outright, and the remainder were unimproved—that is, those who were discharged with incurable hydrocephalus, idiocy, and marasmus, and which might be considered as practically fatal sooner or later.

From the study of these two sets of statistics one of the sporadic cases of cerebrospinal meningitis and the other of the epidemic form, we see that in the sporadic cases we have succeeded in saving by simple lumbar puncture four children below two years of age; in the epidemic cases we have succeeded in not saving any. When I say four cases recovered, I mean complete and actual recovery, as far as can be judged from the clinical standpoint. No such cases occurred in the epidemic years. On the other hand, if we deduct from our statistics the cases below two years of age, both in the epidemic and sporadic forms of the disease, we find that in the sporadic form we had fifteen cases, with a mortality of 13 per cent., and in the epidemic form we had fifty-one cases, with a mortality of 31 per cent.

With this history of the disease, we can approach with a certain amount of satisfaction a form of therapy which will hold out an improvement even on these statistics. We can scarcely ask an annullment of mortality. There will always occur cases in either form of the disease which therapy will never reach, no matter how brilliant the conception of the therapy. We see this in diphtheria. No one will deny the great blessing to mankind that the serum treatment of diphtheria has come to be. We have even believed that certain severer forms of diphtheria are becoming less frequent than before the serum therapy. The severer laryngeal types are not so common to-day, even in epidemics of the disease, and this is certainly a great gain. In other words, by the constant application of a form of therapy conceived on a logical basis of antagonism to the bacteria attending the disease, it seems that the actual poison has been diluted and the picture of the disease is a much milder one to-day than before the application of the serum therapy, and thus it may be of other diseases.

Considering cerebrospinal meningitis treated by serum we have to offer thirteen cases of the disease occurring in one service, and treated with the exception of the application of the serum, in the identical manner that the cases were treated which have just been spoken of. That is, they were systematically punctured, they were repeat-

edly punctured, they were punctured only on indications as above detailed in the epidemic and sporadic years, but when punctured they received the serum. They received the serum under conditions exactly similar to those of cases occurring years ago, at a time when the serum did not exist. Our serum cases were thus under the same identical régime as the other cases, and we think that this is of decided advantage not only to the patients, but to others.

It makes quite a difference in the application of such a therapy how such a therapy is applied. A therapy applied by inexperienced hands, no matter how brilliant the therapy, is not given the same chance as in the hands of those who are skillful. We make this remark simply in passing, because any form of therapy will at first labor under a great disadvantage for lack of skillful application and method.

It may not be amiss here to outline very briefly our method of giving the serum to patients. No patient is punctured in my service in cerebrospinal meningitis unless there is distinct indication for that puncture. In this way I impress those around me that I do not believe in the dictum that the earlier the puncture the better. This dictum, I think, is rather mechanical on account of the panicky feeling to do something immediately which it engenders, and does harm to the patient. To be punctured, a patient must show symptoms of pressure and indications of cerebrospinal fluid. There must be not only delirium and sopor, but distinct signs of increase of fluid in the ventricles of the brain, as shown by percussion of the skull. When we get the so-called Macewen percussion note, however slight, in a patient who evinces the symptoms of cerebrospinal meningitis, we proceed to puncture. The puncture is carried out strictly according to Quincke's injunctions. We puncture in the median line in children and adolescents. We withdraw the fluid until we think the pressure is approximately normal in the rachidian space. We then introduce the serum, not with a syringe, but with a funnel. We have found that the funnel as advised by Quincke, a small funnel made of glass capable of holding about 20 c.c., is the best method of introducing the serum, or, for that matter, any fluid into the subarachnoid space, and saves the patient from any accident which might result from the use of a syringe. The pressure exerted by a syringe at all times against the respiratory and vascular pressure is certainly not as gentle a mode of introduction of serum or as safe as allowing the serum to flow into the canal. Thus no traumatism can possibly result, and the fluid finds its way against the negative pressure with the greatest of facility. We repeat the puncture if, after having punctured a patient and introducing the serum, we find that the symptoms do not abate and that the hydrocephalus has either persisted or returns. The temperature is scarcely a guide, but, rather, the general condition of the patient, and especially the presence or absence of hydrocephalus. In this way we think we have made the ideal procedure for the patient.

We have a record now of thirteen cases of varying severity, cases which I must consider sporadic cases, but one or two of which approached in severity what we see during epidemics exclusively, the foudroyant symptoms, the hemorrhages, the rapid collapse and sinking of the patient at the start of the disease. I mean the severity of the symptoms gradually increased so that, as in one case, it was five days before coma or sopor intervened.

The ages of the patients treated varied from three and one-half months to five and one-half and eleven years; three were below one year of age, and three were two years of age or younger. Of those below one year of age one was discharged cured at ten months of age. The others died. Of those from one year to two years of age, two of fifteen months, and one of two years, respectively, were cured; the remaining patients recovered.

In those children below one year of age who died, the youngest, three and one-half months of age, had been two weeks ill on admission, but was not by any means unconscious. The child received from 100 to 125 c.c. of serum. The temperature continued remittent, and was not in the least affected by the injections or punctures. The other case was admitted to the hospital twenty-two days after the onset of the disease, received four punctures and 66 c.c. of serum. The temperature could not be judged as being affected by the punctures in any way, as it was normal on admission. The child died a day or two after admission, and it is to be regretted that in both of these cases we did not get them at an earlier stage of the disease, as we cannot judge what would have been the effect had we received them at an early period. The first punctures in both cases were, of course, made immediately upon admission. The infant ten months of age which recovered, was admitted fifteen days after the onset of the disease, with a temperature of 104°. A turbid fluid was obtained, and the child received 35 c.c. of serum. The temperature dropped from 104° to 98.8°, and the child was discharged cured clinically.

Of the other cases below two years of age and two years, the first punctures were made immediately after admission, and they had been ill from seven to twenty-three days. One was discharged as cured, but inasmuch as there was hydrocephalus present on discharge of the patient, I think it, being a posterior basic case, from a clinical standpoint cannot be said to have been completely cured. I would simply call it improved.

Of the patients above two years of age the time of illness on admission to the hospital varied from five days to fifteen days. They all received serum varying from 15 to 30 c.c. at each puncture, and some of them had as many as four punctures before the disease was considered under control. The fluid in most cases after the first puncture cleared up gradually, and in one case it is stated after the second puncture the cultures were sterile, and so with the third puncture, and in some cases after the fourth puncture. But it must be noted in spite of this fact the children were sick enough to be punctured not only on account of the run of the temperature, which was unchanged by the punctures, but the persistence of the hydrocephalus. This was especially marked in a boy of three years of age. The first puncture showed a white, cloudy fluid. Four punctures were made in this case, until the temperature would drop, and in all three punctures subsequent to the first the cultures and smears remained sterile. This should prove conclusively that the sterility of a fluid has very little to do with the clinical procedure in a given case, and I may say that in the epidemic a child mortally ill with meningitis would yield a fluid which was even cloudy, and the smears and cultures for some reason would remain sterile, and a subsequent puncture would show that there were meningococci present both in smear and culture, so that we have yet to learn a great deal as to why certain fluids are culturally

sterile in a patient in whom a subsequent fluid will show meningococci, and also that the sterility of a fluid is not an indication that the patient necessarily does not need further puncture irrespective of serum.

The temperature after the injection of the serum in some of these cases fell by crisis from 104° to 98°. In one case it fell from 103° to 99° by lysis, and in one remaining case the puncture had no effect, and only fell and rose to a varying extent after the injections until either cured or fatal issue resulted. The amount of serum injected with punctures varied, and we can say in a general way that the amount of serum introduced equaled that of cerebrospinal fluid withdrawn from the patient. Some patients received one puncture, others as many as four, according to the necessities of the case.

The sickest child treated with the serum was a little girl four and one-half years of age. Hers was a case which approached in the picture, as nearly as we had seen in sporadic cases, the epidemic type of the disease. I saw her at her home. She was absolutely unconscious, paralytic on the right side of the body, and had a conjunctivitis as a result of her affection, with purulent discharge. She suffered from a double pneumonia, and had all the marked symptoms of cerebrospinal meningitis, with the exception of the hemorrhages. I gave, as my duty dictated, a grave prognosis, but advised immediate puncture. She was removed to the hospital, a great distance, and was immediately punctured and an injection of the serum introduced. In this case three punctures were made. It cannot be said that the temperature remained down for any length of time after any puncture, except after the second or third puncture. After the first puncture the temperature dropped from 104° to 98°; within thirty-six hours it rose again, and then after a second puncture it fell from 102° to 99° in twenty-four hours, and then rose again, and after the third puncture it fell gradually to 100°, and then after a few days to 99°. This child gained consciousness after the first puncture; the hydrocephalus, however, persisted, and she was repeatedly punctured until she became rational after the third puncture. The second puncture was made two days after the first puncture; the third puncture was made four days after the second.

I have thirteen patients thus far treated with the serum, two of which are under observation, two of which died; the remainder recovered with the exception of one, which was discharged improved. A résumé of these cases will be given by Dr. Flexner in his article on the serum, and they are to be found under the heading of cases coming from the Mount Sinai Hospital.

I think it would be rather premature and unfair in every way to draw any conclusions as to the serum until we have seen a larger material and until we have tried it in an epidemic of the violent type, such as we passed through in 1904 and 1905. On the other hand, it may be said that the serum of Flexner not only makes a very favorable impression, but is certainly a factor which cannot be excluded from the therapy of cerebrospinal meningitis, no matter what our subsequent conclusions may be. It certainly does appear that with the serum as we perfect it we may have an improvement in the percentage of recoveries. It is hard to say sincerely whether taking the cases I have treated I shall continue to have the same good fortune to save all but two cases of thirteen. Even if the cases I have lost were below one year of age, judging from the results obtained elsewhere, we may still meet with cases which we cannot save by the serum, and it would certainly be very unreasonable to expect a continuance of such a very high percentage of recoveries as we have just shown.

SOME MISTAKES WHICH MAY PREVENT THE BEST RESULTS OF THE URIC-ACID-FREE DIET.

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To get free from disease which is occasioned in whole or in part by uric acid, it is not merely necessary to cease swallowing uric acid or xanthin, but some means must also be found for getting rid of the stores or accumulations of these substances already in the body. This is necessary in troubles of the gout or rheumatism class, because there can be no peace or comfort in the tissues, while the joints, fibrous tissues, muscles, and fasciæ contain more or less considerable quantities. And for the same reasons it is always necessary to guard carefully against any accumulation of such stores by retention.

Then even getting these deposits into solution may increase the local irritation at first, till the accumulation has been completely dissolved and removed, for during this resolution the urate is for a time in the same condition (*i.e.* colloid urate in suspension) as it was when causing the first irritation in the joint (acute arthritis). The deposit of biurate is a later stage of the process, and with this deposition of insoluble biurate all iritation ceases. Yet when a solvent (alkali) begins directly or indirectly to get this urate into solution, local irritation begins once more. An alkali may act directly on the biurate, getting it into solution or colloid form (as may be seen by observing the action of alkali on uric acid under the microscope), or indirectly, by sweeping urate out of the body by the kidneys, thus rendering the body-fluids poor in urate, so that they are no longer saturated with it; and these fluids will then themselves (as shown by the late Sir William Roberts) begin to take up urates from the deposits. For this reason the blood of those who live on the uric-acid-free diet is nearly always in a condition to take up urates from the deposits, for it is only rarely saturated with these substances. Hence the uric-acid-free diet itself may cause some increase of joint pains when it is first begun, and this increase of pain is not to be looked upon as a bad sign but as a good one.

In either case solution whether by diet or by alkali may occasion some increase of local irritation or pain, and unless its causation and the fact that it is a good sign are borne in mind, the treatment may be unnecessarily blamed and given up.

For this reason potatoes and other vegetables containing much alkali are often said to be things which the gouty must carefully avoid for fear of increasing their pain. And no doubt on ordinary diet this is quite true, for it is no use stirring up old deposits and getting them into solution, unless this is to be part of a general clearance of urates, aided by a diet which at least does not introduce fresh quantities; so that the gouty had better avoid potatoes unless they are going to do the thing thoroughly.

It is also necessary to get clear of deposits in the case of the circulation troubles (headache, epi-

lepsy, and depression) for so long as there is plenty of urate in the body available for solution, so long will the blood be liable to be flooded with this substance and the attacks of these troubles will be more or less frequent.

It follows that the uric-acid-free diet must be modified, at least to some extent, and in the early stages of its use, according to the nature of the case with which we have to deal; whether it is one of arthritis and retention or collemia and depression, or again whether the patient is strong and well-nourished with good blood, or weak, anemic, and dyspeptic; and very many of the mistakes about which I am speaking are due to neglect of these points in practice.

The object of the uric-acid-free diet is to get as free as possible from uric acid, to reduce introduction, which on ordinary diet often amounts to eight or ten grains per day, down to nothing. As a result of this we have only to deal with some ten to thirteen grains of daily formation, and so we reduce the daily turnover of uric acid from twenty-three grains to thirteen.

Now we must never forget that the ideal of uric-acid-free diets is that of the lower classes in the poor rural portions of England, Scotland, and Ireland as it was sixty, eighty, or a hundred years ago, before the great general invasion of flesh and tea, which, especially in the last thirty years, have become so much cheaper and more widely used. This diet consisted of bread with wheat or barley meal and cakes made from these, some milk and cheese, and some vegetables. There was no fruit in winter and only a little home-grown in summer, but some home-grown vegetables were available most of the year round. Milk and cheese were then relatively cheap in the country, as there were in those days but few facilities for drafting them off to the large towns, while in these days of easy transit town prices rule more or less in the country, and milk is no longer the cheap food for the poor which it used to be. The nourishment of this diet was got out of the bread, meal, milk, and cheese, all practically uric-acid free, and the alkaline vegetables with manual labor kept the blood alkaline and allowed all the uric acid of formation to pass freely out of the body. These people therefore lived on the best form of uric-acid-free diet obtainable in this country, and were and remained uric-acid free because labor and vegetables aided excretion and there was no fruit out of season to cause retention; yet they had plenty of nourishment, which labor and a hearty appetite enabled them to take freely, and they were thus strong, hearty, and healthy.

If we bear this ideal constantly in mind we shall easily see to what extent other modifications of the uric-acid-free diet differ from it and the probable effects of these differences, for it is obvious that, even though we keep the daily turnover of uric acid at thirteen grains a day, there may still be some excess of uric acid in the body, if the whole of the thirteen grains is not excreted each day as it is formed. If on Monday, Tuesday and Wednesday only eleven grains are excreted, then on Thursday, Friday, Saturday, or some later day six grains will be available to pass through the blood and help to produce an attack of some collemic trouble as they pass. And these same six grains may at the time of their retention have produced more or less pricking and shooting pains in the joints, fascia, or other fibrous tissues; so that it is possible even on a completely uric-acid-free diet to suffer from arthritis on the one hand or collemic trouble on the other, if the diet, though uric-acid-free, is unsuited to the climate, house, clothing, exercise, nature of soil and water, etc., of the place where the patient lives: that is to say if any of these things, acting with a relatively unsuitable diet, are permitted to cause retention. Thus the uric-acid-free diet must vary with the season, being more alkaline in winter and less alkaline in summer, more alkaline the more sedentary the patient's life and more laxative the harder the water.

There is but one object for all these variations, namely to approximate to the above ideal of life and food, and like that ideal to prevent retention or render it improbable under ordinary conditions. The peasant of old times was uric-acid-free because (1) his diet was so; (2) it contained a fair quantity of potato and vegetable; (3) it contained but little fruit and that only when in season in the place where he lived; (4) bodily labor kept his blood highly alkaline by eliminating acids in perspiration; (5) labor gave a hearty appetite, hence he could eat bulky foods freely and was therefore strong and well-nourished; (6) the bulky food prevented constipation, which is always a cause of relatively high acidity and retention in those who suffer from it. Constipation, as I have elsewhere pointed out, raises acidity by increasing the absorption of acids from the large intestine; hence the twofold bad effect of hard water, for urate of lime is insoluble, and the constipation, which lime also produces, aids retention by diminishing the alkalinity of the blood.

How very different from this ideal is the position of the town dweller, office worker, or bookworm of to-day who wishes to attempt the uric-acid-free diet, how many difficulties are obviously in his way? He is full of uric acid from his old diet, he cannot take bulky foods like bread-stuffs and vegetables, he only gets exercise for an hour or two twice or thrice a week, hence his appetite and only too often his digestion, as well, are poor. He commonly suffers from constipation, which acts with diminished exercise in diminishing alkalinity and favoring retention; moreover he has acquired along with his meat-eating more or less of the stimulant habit, and so on the new diet he at once goes in for the stimulating acids of fruit and will take these to excess and produce retention with them if not prevented. He feels that he must have something to replace his lost stimulants (flesh and tea).

Now I do not wish to be understood as saying that, in the early stages of diet change and for those who suffer much from depression and collemia while changing, a little extra fruit is a bad thing and one to be always avoided. In such cases it is often very useful, and it is better to use a litle fruit in place of a drug; but it must be understood by all that if this is persisted in, and continued too long, if the practice of stimulation is merely carried on by fruit instead of by tea, this will prevent on the one hand the complete clearing out of deposits necessary for the cure of rheumatism and gout, and on the other will provide or increase accumulations some of which may at any time pass into solution in the blood, causing from time to time collemia and its results. Such patients suffering from collemic troubles and starting off with stimulation and retention by fruit, cold, bracing climate, acids, etc., may be much better for six, twelve, or even eighteen months.

and then all their troubles will return and the diet may be said to have failed.

It is not the diet that has failed, but those who have not understood that there is no way out of these troubles by retention: and that though it may be wise in early stages to go in for a little extra fruit and thus to moderate a too sudden rush of collemia, which might produce severe debility and anemia if unrestrained, this is only a temporary expedient adopted in the case of the debilitated and uric-acid clogged, because they are in these unfortunate conditions and require immediate help. Such help may have to be given either by fruit, bracing climate, cold water, or tonic drugs, and in all cases the result is to produce some retention; but we are often forced to do something of this kind unless we wish to see the patient sink into somewhat serious conditions of collemia, anemia, and debility.

Such treatment is, however, no necessary part of the uric-acid-free diet; it is to be regarded rather as a preliminary course to prepare the patient for it, and it is obvious that it is contrary to the ideal diet. The attempt to attain the ideal diet may have to be put off for a time in severe cases, but people are expecting the impossible if they think that a diet which permanently transgresses these rules will ever effect a complete cure either of gout or rheumatism (retention) or of collemia from the correlated plus excretion.

Some believe that the secret of long life is to be found in milk allowed to go sour or in the lactic acid thus produced, or again in milk which has been soured by some special process. But it follows from our first principles above stated that such acid foods may suit those who live in a fairly warm climate and who get their living by bodily labor, but it will not suit sedentary people, especially those who live in a cold climate such as that of England. Such acid food taken here will soon lead to retention, and so eventually to some loss of uric-acid-freedom.

I do not believe that the secret of long life is to be found in milk or in cheese or in bread or in nuts or in fruit, but in always living as nearly as may be on the natural diet of man, and in getting that food from the cereals, nuts, and fruit growing in, and therefore suited to, the country and climate in which one lives, together with more or less milk and cheese also produced on the spot.

The secret of long life has always had its foundation in obedience to nature, and man to be happy must use natural food obtained by his own labor. To force others to labor for you is to lose a great part of the reward.

In illustration of some of these points I will now mention some cases in which mistakes were made and their results. These were in people who had not understood the diet ideal, had not comprehended that all retention is wrong, and means, if not arthritis, at least collemia. The arthritis may be immediate, but the collemia may not appear for quite a long time, and in this case the retention is perhaps continued for many months and the patient imagines that all is going well, that the headache is cured, that the diet is doing no end of good.

Unfortunately a little later the picture is reversed, the relief has been due to retention not, as it should be, to reduced intake and free outflow and elimination of urates. This correct freedom will last for life; not so the freedom due to retention, for retention must come to an end some day, and then the headaches return and are for a time perhaps as bad as ever. But if the diet is continued, if the errors are put right, if the accumulations are cleared out, if the ideal is followed and no further retention is permitted, the real true freedom with tissues clear of urate and daily excretion equal to daily formation will yet be obtained and all will be well. Yet very many are unfortunately discouraged and give up the diet in disgust because they do not understand the cause of this failure. This is an unfortunate error for the patient, as it prevents his being relieved or cured; unfortunate also for the diet, as it fails to get the credit which is due to it.

M. F., aged 27, suffering from migraine. Has been on diet eighteen months; was much better at first, but the last three or four months (spring of 1908) has been nearly as bad as ever again. Inquiry brought out the following facts: All through last winter she had been eating fruit (oranges and bananas) fairly regularly, she has also not infrequently taken stewed prunes as a remedy for constipation. Now dried plums are perhaps as acid as any fruit in the world, and the sugar they contain is but an additional acid. I note that many of the public seem to think that a fruit which is sweet cannot be acid, as if the two things were contradictory, which of course is not the case. Fruit may contain a large quantity of acid even though it tastes sweet, and sugar when swallowed produces acids in the body, so that when fruit is bad fruit plus sugar or jam is worse. M. F. had also been taking rhubarb (a poisonous and highly acid vegetable) fairly frequently during the spring. Thus no doubt she has been retaining more or less all winter, and in the early spring when the uric acid thus provided was got into solution and passed into her blood with the return of the warmer season her migraine was for a time nearly as bad as ever, and the poor uric-acid-free diet got a bad name

Now what ought this patient to have done? It is easy to see the mistake she made, she broke the rules by eating fruit out of season in a cold climate, but what should she have done for the relief of her constipation? If she was in the position of the ideal laboring man, and had a hearty appetite, the constipation difficulty would be easily got over by eating freely of vegetables and salads with olive oil as is done in France. But this patient is sedentary and delicate, a town dweller with a poor appetite; if she is to eat much vegetable and salad she will not have room for her foods. She must at least not break the rules by taking fruit out of season in a cold climate, and if she can take potato freely and a little olive oil with that and some of her other foods (*e.g.* rice) she will not be much troubled with constipation.

Another case, G. M., a young man who has been on diet for some years and is completely cured of the migraine for which he began it. He nevertheless has occasional collemia, producing some depression and drowsiness, and is not as free as he should be from occasional colds or attacks of influenza. Now investigations shows that this is the result of his having got the idea that it is a good thing to be strong and braced up, as it is called, by exposure to cold. A practice copied from the meat-eaters, who of course require tonics of all kinds (drugs and climatic) to keep them well and fit for work.

Hence he has been careless of exposure to cold and has refused to clothe himself sufficiently or to put on a coat when other people would do so, his rooms have been kept too cold in winter, and in summer he has spent much time in bathing, of

which he is very fond, and has often done this on days regarded by others as too cold for bathing. Hence he has got more or less retention of uric acid in spite of a correct diet, and, when next exposed to heat or when the weather gets warm in spring, he has a corresponding amount of collemia with the results above mentioned. This of course has nothing to do with diet, yet those who do not understand the whole matter might say that here also the diet had failed. I have narrated some cases ("Uric Acid," edition VII) where still worse results were produced by exposure to cold.

If there is no retention by acids or cold, there will be no arthritis, colds, or bronchitis on the one hand, and no collemia, depression, or headache on the other; and a little constipation must be put up with or remedied by other means, for to attempt to get rid of it by fruit out of season is to sacrifice the greater to the less, and to lose that complete uric-acid freedom which it is the object of the dietetic and all other rules to obtain.

It is true that constipation, other things being equal, tends to raise acidity and cause retention, but this rise of acidity can be counteracted by increasing the quantity of potato. No doubt also it is always a misfortune to have acquired the constipation habit when living on flesh, and this is one more reason for beginning the diet in childhood. Another is that the habit of taking the more bulky foods is then easily acquired.

In the same way joint troubles may be better for a time if the patient begins the diet in summer and takes plenty of vegetables and only a little fruit, but they will come back again in the autumn and winter, if he takes fruit which is then out of season, if he exposes himself to cold or takes other liberties, having perhaps got hold of the erroneous notion that diet will protect him from all other causes of retention and trouble.

The same applies to skin diseases; if the diet is undertaken for any of these, they may be better at first and then relapse if any of the above-named mistakes are made. No doubt the uric-acid-free diet lessens the tendency, other things being equal, to all troubles that are due to its excess. It does not, however, remove all possibility of such troubles, for there is still some uric acid to be dealt with, and if through ignorance or carelessness this is allowed to accumulate, the old troubles will be reproduced to a greater or a less extent. But nothing of this kind need ever take place if the simple first principles of uric acid solubility are correctly understood, and if reasonable care is exercised.

Again we have a child who is ill as the result of exposure to cold and in spite of the uric-acid-free diet. Here it is not the patient who is to blame, but the parent of the patient. On inquiry we find that this child of three or four years old has been living all winter in a poorly warmed house, in a cold and damp climate, and has been allowed to go about the passages in a temperature but little above the freezing point, not only deficiently clothed but with absolutely no clothing on the greater part of the surface of its limbs.

If you make any remark on the bare blue limbs and the ice-cold hands and feet of such a child, the mother may quite probably urge in excuse that the little arms and legs "look so sweet," which is probably true, but unfortunately exposure of bare limbs to a temperature of 35° or 40° or even one of 45° or 50°, means retention of uric acid, and retention provides a store; and it matters not how the store is provided; once the store is there all, even the most deadly, effects of uric acid may result at some future time. Open windows at night are by many regarded as a cause of adenoids. Fresh air is good, but cold is not and may cause retention and rheumatic troubles in the child exposed to it.

Perhaps you are asked why such a child on a correct diet has colds? Why it has pharyngitis and enlarged tonsils? Why it has chronic nasal catarrh and adenoids? And why the surgeon has to be called in to deal with the tonsils or the adenoids? Or it may have laryngitis and be dangerously ill, or tracheitis or bronchitis; or a doctor, who is called in, may treat the bronchitis with amonium compounds (see "Uric Acid" Ed. VII or *British Medical Journal*, May 9, 1908), and then the unfortunate child may develop acute arthritis, and endocarditis or pericarditis, and all the other lesions of complete rheumatic fever.

You are asked to explain all this; the explanation has been given a dozen times over in every edition of my work above mentioned. Yet the inference of the patient is that the uric-acid-free diet is a failure, because it will not do what is impossible, because the presence of some little sense in diet will not make up for complete absence of common sense in other directions.

I will conclude by remarking that the solubility of uric acid and its excretion, and the things that control it cover a very much wider field than the mere answer to the question: What shall we eat or what shall we drink? It covers also the climate and the situation of our house, the way in which it is warmed and ventilated, the water we drink, the temperature of the water we wash in, the clothing we wear by night and by day, and the bodily exercise we get and the way we get it.

It may be difficult to bear all these points constantly in mind, but those who remember the above-mentioned ideal will make fewer mistakes. Its essential points are:—correct food, sufficient warmth, and the health-giving and appetite-producing effects of constant bodily labor in the open air. Play, athletics, or unproductive labor is never so good; it produces neither the all-round strength, the good constitution, nor the hearty appetite of the real thing, and is nearly always deficient in quantity and irregular in time.

7 Brook Street, Hanover Square.

PNEUMONIA ON THE ISTHMUS OF PANAMA.*

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In this paper an attempt is made to outline the symptoms, complications, and treatment of 574 cases of pneumonia, occurring during the epidemic which began in the autumn of 1905, and which gradually subsided toward the end of 1907. These cases represent the greater part of those admitted to Ancon Hospital between the dates January 31, 1906, and October 25, 1907. About sixty cases occurred previous to the former date, but are not included in the series; neither are those which were admitted during the above-mentioned period but died within thirty-six hours after admission. Most of this latter group were moribund, and satisfactory histories could not be obtained.

Most of the cases were among the colored people,

* Read at a meeting of the Medical Society of the Isthmus Canal Zone.

natives of the West Indian Islands, and the mortality was 37 per cent. It is interesting to note the average mortality of the natives of the different islands.

Among the Barbadians there were 221 cases, with a mortality of 36 per cent.; among the Jamaicans, 71 cases with a mortality of 40 per cent.; Martiniquans, 69 case, 42 per cent.; Guadaloupians, 50 cases, 22 per cent.; Antiguans, 29 cases, 34 per cent.; Columbians, 19 cases, 52 per cent.; Granadians, 18 cases, 33 1-3 per cent.; St. Lucians, 15 cases, 33 1-3 per cent.; Panamanians, 12 cases, 58 per cent.; Whites, 20 cases, 20 per cent.

A striking feature is the severe mortality among the native Panamnians and Columbians (58 and 52 per cent.), who belong largely to a mixture of races. It was found in general that the mixed races showed poor resisting power in pneumonia.

I have been unable to ascertain why the natives of Gaudaloupe withstood the disease better than the rest of the West India Islanders, unless they were later importations, when food conditions were better. The number of cases which occurred among natives of the other islands was too small to draw any conclusions. It is seen, however, that the whites, which included those from all countries, suffered much less from the disease, and that the mortality (only 20 per cent.) was much lower than among the colored patients.

It was found that age played some rôle in the prognosis. Under thirty years of age there were 377 cases, with a mortality of 33.2 per cent. Between 30 and 40 years, 112 cases with a mortality of 37.6 per cent., and above 40 the death rate was 50.4 per cent. Those between 25 and 35 years of age withstood the disease best.

It was further found that 62 per cent. of the cases had been on the Isthmus less than six months.

In regard to etiological factors of the epidemic, a pneumonia board was appointed to investigate them. Dr. H. R. Carter was chairman, and the writer one of the members. The investigation was made along the following lines:

(*a*) The localities and buildings were investigated where pneumonia was prevalent, special attention being given to altitude, seasonal variation, environment, clothing, exposure to wet and draft, overcrowding, ventilation, prevalence of malaria, and house infection.

(*b*) The examination of clinical and pathological records to ascertain if acclimation or any other factors were concerned.

Under the first group of conditions the evidence was practically all negative.

Under the second group it was found from the histories that malaria may prove a predisposing factor, as histories of continued fever for several days preceding the onset of the pneumonia were common.

Most important, however, were Dr. Darling's pathological findings, as follows: (1) Among the autopsies of colored patients dead from other than pneumococcus infection 17 per cent. had a purulent sinusitis, a condition which in the United States would be usually considered as a result of a recent influenza. (2) That among autopsies of patients dead because of pneumococci infection the proportion of such sinusitis involvement was much greater, viz., 61 per cent. That was therefore good evidence of a connection between the purulent sinusitis and the pneumococcus in other organs acting directly as a cause, or both were the results of a common cause.

Dr. Darling stated in July, 1906, that the age of the sinus infection is appreciably greater than that of the lung or meningeal lesion, and concluded his observations with the statement that "the portal of entry of the pneumococcus is in most instances an inflamed accessory nasal sinus, the mucous membrane of which is fitted for the reception of the pneumococcus by an antecedent influenza or rhinitis."

It may be here noted that influenzal conditions were very common among the people on the Isthmus during the pneumonia epidemic, particularly among the new arrivals.

A similar observation to that of Dr. Darling's had been made in 1902 by T. S. Kirkland, of Sydney, N. S. W., during an epidemic there.

The symptoms chiefly complained of on admission were fever, headache, cough, pain, chill, vomiting, dyspnea, dysphagia, and dysentery. Herpes labialis, hiccough, delirium, icterus, and rusty sputum were very commonly observed.

Though on admission pneumonia was often suspected, positive physical signs could not be made out for two or three days after the onset. There seemed to be a focus of infection from which consolidation slowly extended throughout one or more lobes.

The severity of the onset is not a positive indication of the severity of its course or the development of complications.

It was not uncommon to have a patient admitted with a high temperature during the day and to find next morning a normal temperature, followed by a rise the next day to the maximum of the fever which continued throughout the course of the disease. It was also common to find a decidedly remittent malarial looking temperature for several days of the disease, particularly so in the milder cases. Neither rusty sputum nor icterus was any indication as to the lobe or lobes involved.

Deep jaundice was a sign of considerable gravity, as was also hiccough, though several recoveries occurred when these symptoms were present to a marked degree.

The lobes involved were as follows: right lower, 155 times; left lower, 136 times; right upper, 69 times; both bases, 39 times; the whole of one and part of the other, 31 times; right middle and lower, 27 times; complete right, 27 times; middle and upper, 20 times; right upper and lower, 19 times; left, complete, 18 times; left upper, 12 times; right middle, 11 times; right upper and left lower, 7 times; right middle and left lower, once, and both upper lobes, once.

The toxicity of the disease did not depend on the extent of involvement, but upon the virulence of the organism or the lowered resistance of the patient.

The leucocytes are an important factor in diagnosis, but vary within wide limits not only in different cases, but also in the same case.

A low leucocyte count (between 3,000 and 10,000) indicates either a slight attack and a favorable prognosis, or a very grave attack signifying lowered resistance in the patient, or great virulence of the infection, and is thus a symptom of great gravity. In fatal cases one count as low as 3,000 was recorded. In another two counts of 6,000 and 5,200 on successive days. In a third fatal case four counts were made of 8,000, 6,000, 13,400, and 9,600. In 40 fatal cases out of 100 in which a leucocyte count was made the leucocytosis was found to be 15,000 or under, that is 40 per cent.

In 55 cases out of 207 which recovered only 26.6 per cent. had leucocytosis of 15,000 and under. In

one fatal case with a leucocytosis of 7,600 there was found at death, acute hemorrhagic serofibrinous pleuritis, acute splenic tumor, subcutaneous and subendocardial ecchymoses, and intense parenchymatous degeneration of all the viscera. In another, with a leucocyte count of 14,700, the pathological report recorded fibrinopurulent pleuritis and pericarditis with pleuropulmonary tuberculosis. In another, with a leucocytosis of 12,200, there was found fibrinopurulent pleuritis and acute splenic tumor. In another, with 12,000, fibrinopurulent pleuritis, pericarditis, peritonitis, and mediastinitis. In another of 10,000, chronic nephritis, empyema, hemorrhage into the pericardium, and atrophic cirrhosis of the liver. In another of 12,000, empyema and fibrinopurulent pericarditis. In one of 13,600, empyema, which proved fatal. In one of 15,000, empyema, acute pericarditis, acute peritonitis, and chronic interstitial nephritis. In one of 15,000, empyema and mediastitis (fibrinopurulent). In one of 10,000, fibrinopurulent pleuritis, pericarditis, mediastitis, and acute nephritis. In another fatal case in which two counts of 5,200 and 6,000 were recorded there was found acute serofibrinous pleurisy, marked arteriosclerosis, chronic interstitial splenitis, and acute nephritis, and this in a patient of 29 years of age. In a Jamaican 26 years of age, admitted at midday with chills, fever, vomiting, herpes labialis, and hiccough, complete consolidation of the right lung was found, with a leucocyte count of only 7,600; on the fourth day the same; on the sixth, 8,200, and on the ninth, 11,600. At autopsy pneumococcal cerebrospinal meningitis was found as a complication. In a boy aged 20, with right upper lobe involvement, four leucocyte counts during the course of his illness gave 8,000, 6,000, 13,400, and 9,600, respectively, and at autopsy fibrinous pericarditis and purulent sinusitis were found. In another patient, 29 years of age, with right upper lobe involvement and a leucocytosis of 8,600, chronic nephritis was the only complication. In a man, 37 years of age, with left apex involvement and a leucocytosis of 8,400 (empyema and acute nephritis complicating the condition) a good recovery was made. In another, aged 30, who had complete left lung and right lower involvement the leucocyte counts gave 6,600, 4,000, and 13,600. He also made a good recovery from an empyema which followed. In another, in a man aged 30, with right lower involvement and a leucocytosis of 7,000, which proved fatal, empyema, purulent sinusitis, and chronic interstitial nephritis were found at autopsy.

Contrary to all this, I found recorded in a boy aged 20, who had the whole right and left lower involved, a leucocytosis of 70,000. He developed an empyema and plastic pericarditis, but made a good recovery.

The above cases are sufficient to illustrate what was above mentioned, that a low degree of leucocytosis in pneumonia is on the one hand a condition of gravity, showing lowered resistance on the part of the patient, while, on the other hand, patients with a low leucocytosis made a good recovery. It was generally found that either there was slight involvement of one lobe or an incomplete lobar pneumonia, and very frequently the development of an empyema followed without other complications. In these cases there was probably an attenuated virulence of the infective agent.

Leucocytosis therefore may be said to be a valuable prognostic sign, but only in conjunction with the other symptoms and physical signs present.

In three cases complicated with typhoid fever, all of which proved fatal, the leucocytosis was 23,800, 22,000, and 15,000, respectively.

In the series of 574 cases the following complications occurred: Acute nephritis in 54 cases, chronic interstitial nephritis in 40 cases; acute pericarditis, either fibrinous, hemorrhagic, purulent, or suppurative, in 40 cases; empyema in 45, with 19 recoveries (when uncomplicated these cases usually recovered); malaria in 16 cases; acute ulcerative colitis in 10 cases; meningitis in 6 cases; abscess of the lung in 3 cases; parotitis in 3 cases; endocarditis in 2 cases; arthritis in 2 cases; otitis media in 1 case; amebic dysentery in 7 cases; thrombosis of the abdominal aorta in 1 case; peritonitis in 7 cases; pancreatitis in 3 cases; mediastinitis in 6 cases; uncinariasis in 121 cases; myocarditis in 4 cases; empyema of the gall-bladder in 1 case; cerebral hemorrhage in 3 cases; gangrene of the lung in 1 case; atrophic cirrhosis of liver in 3 cases.

Practically all those died who had chronic interstitial nephritis or atrophic cirrhosis of the liver, and most of the patients who developed acute nephritis.

As will be seen from the above, uncinariasis was present in 121, or about 20 per cent., of the cases. It was only when the uncinariasis gave rise to severe anemia that this affection added to the gravity of the prognosis.

The most striking factor in the above analysis, however, is the small number of cases complicated by malaria; only sixteen being cases recorded in which the organism was present.

This observation has been repeatedly verified since, and it may be said in general terms that malarial organisms and leucocytosis are incompatible conditions in the human organism. Leucocytosis takes care of malaria, and in the treatment of pneumonia even the presence of the organisms need not be considered in the general management of the case.

On the other hand, it may be noted here that leucopenia, which is present in typhoid fever, is not incompatible with malaria, and here these two affections are found almost constantly to coexist, and necessitate the administration of quinine through the whole or a great part of the course of the former.

Another striking complication is amebic dysentery, which developed in seven cases during the progress of the affection. At the onset there was no dysentery. Two cases in which this complication was present terminated fatally. Another unusual complication encountered was thrombosis of the abdominal aorta.

In regard to the treatment of the pneumonia patients some important facts have been noticed. It is not the object of the writer of this paper to discuss the smaller though important methods of treatment, such as rest, fresh air, and general hygiene, but to point out particularly the misuse of an important drug which modern medicine not only sanctions, but teaches to be of special value in the treatment of pneumonia. The reference is to quinine. In a district where malarial infection is almost universal it is but natural to assume that quinine here would be a *sine qua non* in the therapeutic armament for the management of pneumonia patients. The direct opposite has been found to be the case. As mentioned above, only in 16 bloods of the 574 cases examined were the malarial plasmodia found on the day of admission to the hospital, and since special attention has been directed to this point the general principle may be formulated that leucocytosis destroys or is antagonistic to the pathological

activity of the malarial parasite. When this was noted the use of quinine in the treatment of pneumonia cases was discontinued, and it was used only on the day of admission, before the diagnosis was made. On analyzing the results the following percentage of comparative mortalities was obtained: Total mortality in the 574 cases, 37 per cent.; mortality of 338 cases treated with quinine, 41.4 per cent.; mortality of 236 cases treated without quinine, 30.5 per cent.—a clear gain of almost 11 per cent.

It is also interesting to note that in 164 recoveries from pneumonia in which no quinine was used, though the convalescence was frequently tedious, no malaria developed while the patients were in the wards. Leucocytosis would be looked upon in pneumonia as a conservative process; in other words, it would be regarded as Nature's method of fighting the disease.

From this viewpoint permit me to quote a few extracts from H. C. Wood's "Therapeutics, Its Principles and Practice," on the physiological action of quinine. He says:

"We think it more than probable that after *a few doses the alkaloid is practically eliminated in forty-eight hours,* but that when it has been given continuously, or when kidney disease or great feebleness of circulation exists, the system may contain a notable amount of the quinine for a longer period."

"Two facts, first pointed out by T. A. Chaperon, have been so abundantly substantiated that we must accept them as established. They are, that in *small* doses quinine causes in the frog a lessening of the reflex activity, which is removed by section of the medulla, and in *large* doses it produces a permanent palsy of reflex activity."

"In man, very large doses of quinine (thirty to sixty grains) lower the force and frequency of the pulse; a pulse-rate of 40 has been noted, and in reported cases of quinine poisoning the pulse has been imperceptible at the wrist. Under the latter circumstances the pulse-rate may be increased, but the cardiac force is reduced to a minimum. The evidence is conclusive that both in man and in the lower animals *quinine in sufficient amount is powerfully depressant to the heart muscle or ganglia.*"

"It is probable, therefore, that the *fall of the arterial pressure in poisoning by quinine is in part the result of an action upon the vessels.*"

"In 1867 Binz announced the fact that quinine added to human blood in the proportion of 1 part to 4,000 immediately checks and in a short time arrests the ameboid movements of the white blood cells. Confirmation of this has been furnished by Scharrenbroich, by Kerner, by Geltowsky, and by Jerusalimsky. The minimum effective strength of the solution has been found to vary in different species of animals, and even in different individuals of the same species."

"The correctness of the original observation of Binz, that quinine checks the outwandering of the white blood corpuscles in the irritated mesentery of the Cohnheim frog, must be considered as established, but it is not proved that the failure of the blood corpuscles to escape from the irritated vessels is due to the arrest of their ameboid movements by the quinine."

"The investigations of Binz appear to show that the alkaloid lessens the ozonizing power of the blood; for he found that in young cats to which he had given a very large but not fatal dose of quinine the freshly drawn blood affected the tincture of guaiac much less than it normally should."

"As it is established that quinine exerts some antipyretic action in ordinary fever, it is a plausible theory that the lowering of temperature is due to a checking of the ozonizing power of the blood."

"Considering all the evidence, and especially the rather recent very elaborate studies of Prior, we are wararnted in believing it established that *quinine powerfully depresses the elimination of the nitrogenous excretory principles.* That such decrease is due to diminished formation, and not to lessened elimination, seems proved by the fact that in Prior's experiments there was no increase of nitrogenous excretion beyond the normal following the omission of the quinine. It seems, therefore, to be established that quinine has *a direct or indirect depressing influence upon the tissue changes of the human organism.*"

We have, therefore, in the physiological action of quinine directly antagonistic principles to what is sought in the management of pneumonia cases. In brief, its action is cumulative, depressing to the nerve centers and the respiratory and circulating organs. It interferes with the development of leucocytosis by preventing the emigration of leucocytes from the blood, reduces the ozonizing powers of the erythrocytes, and interferes with the elimination of waste products.

It also acts as an antipyretic in reducing temperature, but this is scarcely to be desired when, according to Fraenkel, the discoverer of the pneumonia diplococcus, the organism rapidly loses its pathogenic properties by cultivation at 41° to 42° C. (105.8° to 107.6° F.).

From the above evidence it may be concluded that quinine in large doses in pneumonia is contraindicated.

The drugs at present made use of in the treatment of pneumonia may be said to be at the onset (if much pain be present) ¼ of a grain of morphine hypodermically; tincture of the muriate of iron in ½ dram doses three times daily. This is done because of the marked anemia which has hitherto characterized the patients here, due in great part to intestinal parasitism and poor food. Strychnine and nitroglycerin hypodermically; as much as 1-30 grain of the former and 1-100 grain of the latter may be given as frequently as every three or four hours, and whiskey *ad libitum.* It has been given when there was a great deal of toxemia up to 18 ounces in 24 hours. Much less (6 or 8 ounces daily) is generally given toward the end of the disease.

In mild cases no medication at all is necessary, but in severe cases the pulse must be frequently watched and the stimulants varied accordingly.

As a rule, nothing is necessary the first three or four days, then stimulation is begun as the symptoms or condition of the patient indicate. During the course of the affection an occasional dose of magnesium sulphate is considered good treatment, particularly if constipation be present. In extreme cases saline enemata are of great value, apparently often tiding the patient over a crisis. These may be given in quantities of six or eight ounces every three hours, particularly if the patient is not taking nourishment well. As a rule, they are retained. If the case is a very toxic one, a gallon or more of warm physiological saline solution is used to lavage the bowels.

In other words, the treatment practised here is supportive and eliminative, and in the class of patients that we have to treat, with their numerous complications, the results on the whole must be considered at least satisfactory.

EARLY TUBERCULOSIS AND MALARIA; THEIR DIFFERENTIATION.*

By PAUL H. RINGER, A.B., M.D.,

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Cases of incipient pulmonary tuberculosis, particularly in individuals coming from malarial districts, are so often diagnosed as malaria, and proper hygiene and diet not resorted to, that a few words on the differentiation of these two diseases may not be amiss.

The differential diagnosis is at times difficult—usually, however, it is quite possible if the case be studied carefully. Let it be understood at the start that reference is not made to pernicious malaria—to malarial cachexia—but to tertian, quartan, and estivo-autumnal malaria, as opposed to first-stage pulmonary tuberculosis.

The diagnosis may be considered under three distinct headings: (1) Clinical Symptoms, (2) Laboratory Findings, and (3) Therapeutic Test.

Clinical Symptoms.—Chills. In both diseases we may have actual chills or chilly sensations, but a definite rigor speaks far more in favor of malaria than of tuberculosis, cases of the latter disease having marked chills being usually so far advanced that a correct diagnosis forces itself.

Fever.—A common symptom of both diseases, usually higher in malaria than in early tuberculosis, and rising suddenly in malaria as compared with a gradual ascent in tuberculosis. The fever of malaria comes on with a rush—the patient is seized with a chill, and in twenty minutes has a temperature of from 101° to 104°. A very typical temperature curve of incipient pulmonary tuberculosis, taken from the record-book of one of my patients, is the following: 11 A. M., 98.8°; 1 P. M., 99.5°; 3 P. M., 100°; 5 P. M., 100.6°; 7 P. M., 99.8°. A carefully kept two-hourly temperature record is one of the best means of differentiating the two diseases.

In malaria the fever usually drops by crisis; in tuberculosis by lysis. However, in the estivo-autumnal type of malaria, fever may last more than twenty hours (this not occurring in early tuberculosis) and fall by lysis—the fever in this type of malaria may even be continuous, the picture then being suggestive of typhoid fever rather than tuberculosis.

Sweating.—Far more profuse in malaria than in early tuberculosis, where real sweats are uncommon. Drenching sweats occur only in the more advanced cases of tuberculosis; in malaria they may occur after every paroxysm of fever.

General Feelings.—A most important point in my opinion is the fact that between paroxysms the malarial patient feels well—the tuberculous patient feels sick. The malarial patient (unless he be the victim of an old chronic malarial poisoning) recovers swiftly from his paroxysm. The tuberculous individual, if running a temperature, is constantly a prey to the tuberculotoxins, and consequently feels weak and below par all the time.

Bronchitis.—May be a symptom in both diseases—in malaria is usually diffuse and at the bases of the lungs posteriorly—in early tuberculosis often sharply localized and at an apex.

Breath Sounds.—These are of paramount importance, particularly in the apical region. Rough breathing has been well pointed out by Grancher to be the first detectable physical sign of pulmonary tuberculosis. With an afternoon fever, whether preceded by a feeling of chilliness and followed by a sweat or not, if at one apex the breathing is roughened as compared with that of the opposite apex, whether expiration be prolonged or not, a diagnosis of incipient pulmonary tuberculosis is so probable as to be justifiable. Dullness and râles need not be awaited; they occur when the tubercles have coolesced and when bronchitis has set in. Rough breathing denotes discrete tubercles. Careful auscultation above the clavicles, and particularly in the first intercostal space close to the sternum, is a *sine qua non* for the earliest possible diagnosis of pulmonary tuberculosis.

Splenic Enlargement.—Usually present at some time in malaria—not found in tuberculosis.

Herpes labialis is not seen in early tuberculosis. According to Osler, it is almost as frequent in malaria as in acute lobar pneumonia.

Laboratory Findings.—The blood and sputum should be carefully and (if negative) repeatedly examined in making this differential diagnosis. I again say repeatedly, for one negative examination, whether for malarial plasmodia or tubercle bacilli, is worth nothing. Furthermore, the plasmodia are often found, but at certain times, preferably during the height of the fever. Not long since, in the private laboratory of Dr. Charles L. Minor, of Asheville, I examined the blood of a patient taken while having a chill in the office. No plasmodia were demonstrable. Half an hour later, the patient being in the febrile stage, more blood was examined, and in almost every field of the microscope two or more plasmodia were found. The stain I prefer is the ordinary Jenner, on account of its rapidity and simplicity. When possible, the fresh, unstained blood should be examined as well as stained specimens. In examining for tubercle bacilli, morning sputum should be chosen and the thickest bits selected. Much of the success in finding tubercle bacilli depends upon perfect technique, which cannot be entered into here, but with proper smearing and staining methods they should be demonstrable if present at all.

We can assert that, if blood and sputum be carefully and repeatedly examined for plasmodia and bacilli, if all examinations be negative, if there be ever so slight a change in the breath sounds at one apex, if intermittent fever and general malaise persist, the case is one of tuberculosis and not of malaria.

Therapeutic Test.—Osler has given us an axiom, "An intermittent fever that resists quinine is not malarial." Therefore, if needs be, let quinine be exhibited; if the patient recovers, malaria was present; if not, malaria can be excluded.

Stress should be laid upon the fact, particularly in malarial districts, that tuberculosis may set in with fever typically intermittent in character, and daily chill with subsequent fever and sweat; but careful note of the points mentioned should clear up the etiology of the febrile movement.

The importance of a correct diagnosis between these two conditions is more than apparent. Yearly scores of people are sent to Asheville from all parts of the country to rid their systems of malaria, when in point of fact the tubercle bacillus is the prime factor. We do not deny that the two diseases can and do coexist; but we do urge that the most important diagnosis is that of tuberculosis. In this country malaria seldom kills. Tuberculosis is our greatest scourge. Quinine in proper doses will shortly arrest malaria; months of rest, fresh air, good food, and a minutely regu-

*Read at the meeting of the North Carolina Medical Society, Winston, N. C., June 16, 1908.

lated life are essentials to the cure of tuberculosis. Malaria is not communicable save through an intermediate host. Every careless or ignorant tuberculous patient expectorating broadcast is a serious and dangerous menace to his family and to his community. Let us, therefore, take these facts to heart, and, even though residing in a malarial district, when a patient presents himself with symptoms suggesting paludism, let us well consider the pros and cons, and exhaust all our scientific knowledge in an earnest effort to discover positively whether we have to deal with the *Plasmodium malariæ*, or with the bacillus of tuberculosis.

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ACUTE OTITIS INTERNA, WITH REPORT OF A CASE.

By EDGAR R. STILLMAN, M.D.,

troy, n. y.

The following account of a case of panotitis, Politzer, or acute primary otitis interna, Voltolini, is of interest because of its rarity. In fact, primary disease of the internal ear is so uncommon that many authors deny its occurrence. Ziegler, in his "Lehrbuch der Pathologischen Anatomie," says: "Primary nontraumatic inflammation of the labyrinth has not yet been proven." And yet, if inference is of any value at all in medicine, no other conclusion can be reached than that these cases are due to an acute inflammation of the labyrinth. The literature of the condition seems to be very scanty. In the past twenty-five years, in particular, the references to the condition are very few and incomplete. I have not been able to find a case reported with autopsy, for the reason that the patients always recover, and only accidentally would such an opportunity be afforded. But enough has been done in the post-mortem examination of adults deaf from childhood to establish firmly the fact that in childhood some acute inflammation of the labyrinth had taken place. Politzer states that the occurrence of a primary inflammation of the labyrinth has been established beyond the possibility of a doubt both by clinical observation and by several post-mortem examinations.

The disease is an interesting one historically, since, although described many years ago, its identity as a separate condition has not yet been established. The first account seems to have been written by Kramer in his "Die Erkentniss und Heilung der Ohrenkrankheiten," Berlin, 1849, which, however, seemed to have aroused no particular interest. In 1861 Ménière of Paris again described it and taught that it was due to an acute labyrinthitis. Voltolini, however, was the first to emphasize the importance of the condition, and in a series of communications and reports of cases to focus the attention of the profession upon it. His first communication was published in the *Monatschrift fur Ohrenheilkunde*, No. 1, 1867, in which he asserted that it was a specific disease of childhood, coming on suddenly with vomiting, headache, fever, sometimes with convulsions; the disease lasting three to eight days, with a resulting absolute deafness. This account was the first to receive much notice from the profession, and from this fact the disease has been known as otitis labyrinthica Voltolini. In the next ten years considerable discussion arose concerning the condition. Voltolini, on the one hand, contended for an acute primary labyrinthine disease, while, on the other hand, von Troltsch, Politzer, Moos, and others contended that the disease was an abortive form of epidemic cerebrospinal meningitis. Voltolini, in 1882, published a very interesting monograph, in which he thoroughly discussed the two conditions and answered in particular the objections of his critics who differed from him in regard to the possibility of an acute primary otitis interna.

Voltolini reported fifty-one cases in his monograph and mentions having seen many more. He sums up the symptomatology of the condition in the following words, which express very vividly the clinical picture: "An acute inflammation of the membranous labyrinth usually mistaken for meningitis was first described by me in *Monatschrift fur Ohrenheilkunde*, No. 1, 1867. It occurs almost without exception in children. A perfectly well child is seized suddenly with vomiting, headache, occasionally with earache, high fever and sometimes with a convulsion. They are usually conscious and urine is voided and bowels are moved in a normal manner. The force of the disease seems to have expended itself in from three to eight days, and the physician congratulates himself that the case of meningitis has gotten well so quickly. But soon it is discovered—it may be within twenty-four hours of the disease—that the child is completely deaf. It gets well quickly with the exception of a staggering gait, plays about again after a few days, his appetite returns, but he remains completely deaf and soon forgets how to speak; he has become deaf and dumb." The keynote to the diagnosis then is the early and complete deafness, with rapid recovery in a child whose symptoms indicated some acute intracranial inflammation.

In contrast to this description of Voltolini, Politzer in his "Diseases of the Ear," reports a series of cases of panotitis, in which the same clinical picture was presented, but in which the inflammation was of a more severe grade and went on to suppuration and extension of the process into the middle ear and neighboring tissues. In the case observed by the author this also took place, as shown by the late bursting of the drum and discharge of pus.

The cases of Politzer are as follows:

"In a child three years old the affection began with fever, followed in the course of several hours by an eclamptic seizure without loss of consciousness. Sudden deafness developed after thirty-six hours. On the tenth day after the fever remitted, a discharge from both ears began, which ceased after fourteen days. Four days later an abscess formed behind the right ear, which was opened and healed after a short time. The hearing for every kind of tone and noise was completely lost.

"In a boy three years old high fever and headache without loss of consciousness occurred three weeks after the first examination. After two days a slight discharge was noticed from both ears, with an abatement of the fever. The parents noticed at the same time that the patient had become totally deaf and that it staggered so markedly in walking that it fell after taking a few steys. The objective examination showed perforation of both tympanic membranes and total deafness without the least trace of perception for sound.

"A girl three years of age was suddenly taken with high fever during the night of April 15, 1879.

Toward morning unconsciousness set in with slight eclamptic seizures and contractions of the muscles of the neck, which lasted fourteen days. After the return of consciousness total deafness and a staggering gait were observed. In the eleventh week a discharge was observed from the left ear, which ceased in three weeks. Objective examination of the right showed a retracted reddened membrane of the left ear, a dry perforation in the anterior inferior quadrant. There was total deafness as in the two previous cases."

There can be no doubt, Politzer states, that in these cases "the middle ear and the labyrinth were affected. Whether, however, the process arose in both parts of the ear simultaneously, or whether it affected one sooner than the other could not be determined, as the cases were not observed from the beginning of the attack." "The late appearance of the discharge in the third case eleven weeks after the commencement of the affection would indicate that the suppuration might possibly have originated in the labyrinth and that it extended to the middle ear after perforating the round and oval windows." In the case observed by the writer there can be no doubt that this was the sequence of events, since careful examination of the ears was made very early. The total deafness was first and examination of the ear was negative so far as any indications of middle-ear trouble were concerned. Examination with the tuning fork showed an absolute obliteration of perception for sound, either by bone or aërial conduction.

It would seem, then, that these two diseases, panotitis and otitis labyrinthica of Voltolini, represent conditions that have many points in common and in many cases may represent identical conditions depending on the severity of the process. The bacteriology of the disease also might prove of service in studying its nature and mode of development. The case in question is the following:

J. S., 7 years old, schoolboy, German parentage, was first seen by me January 10, 1906. He had been sent home from school the day before because of headache, pain over the right eye, and feverishness. Family history negative; father and mother alive and well; six children alive and well; no miscarriages, and no history of any hereditary disease. Personal history also negative; child had measles with complicating pneumonia at two years, since which time he has always been well; entered school at six years and made satisfactory progress. There was no history of any previous ear disease.

At the first examination I found the child in bed complaining of headache. He had been delirious the night before and at the time of examination was very drowsy and evidently prostrated by some serious disease. Objective examination was negative; no photophobia, no Kernig's sign, no rigidity, nothing evident on abdominal examination, no evidence of any disturbance of the respiratory, circulatory, or gastrointestinal systems. Nothing to cause suspicion of any trouble with the ears. Child had vomited once, not projectile in character. Temperature 103°.

A dose of calomel with a fever mixture was prescribed. He passed a rather restless night and in the morning appeared prostrated and stupid; he could be aroused, but only by shaking and then would glance around in a strange sort of way and close his eyes again. He would not answer questions and seemed not to comprehend their meaning. I believe his peculiar behavior at this time was due to his complete deafness. His fever had subsided somewhat, his bowels had moved several times, and his general condition seemed a little better. He slept all the time except when roused for medicine or nourishment.

The next morning the conditions were unchanged, but it was discovered that the boy was totally deaf. An examination of the ears was negative; the tympanic membrane showed no redness or swelling; he complained of no pain or soreness about the ears and of no subjective noises. Examination with the tuning fork showed absolute loss of both aërial and bone conduction. No evidence of any other cranial nerve involvement. His head still ached slightly; he was still a little feverish, but his general condition seemed to be somewhat improved. He could recognize objects and could read as well as usual. He continued to improve and the next day found him playing about in bed with his toys, but with absolute deafness.

At the end of the week he was so much better that he was allowed to get up, when it was first noticed that he staggered on attempting to walk. His gait resembled the gait of cerebellar ataxia or that of a drunken man. Repeated examinations of his ears were made, but up to the time when he passed out of my observation nothing could be detected. From this time on improvement was steady and rapid. The staggering improved, and in a week or ten days the child was playing about and seemed well.

On February 4, twenty-five days after the onset of his deafness, both ears discharged without having given any previous pain or discomfort. At this time the patient had passed out of my control and observation, but was reported to be as well as ever, but totally deaf.

This case then represents typically the clinical picture associated with the disease as described by Voltolini and Politzer. The difficult question to be settled is the relation of these cases to meningitis. It remains for future studies to further elucidate this relationship or nonrelationship. Cases like that above described must, however, be rather infrequent, and the study of a series of cases is by reason of this fact made difficult. A complete study of a large number of cases of meningitis with ear complications would, however, prove of service in this relation. As stated before, Voltolini, out of a large number of cases, had never seen a death, so that no opportunity for autopsy on a recent case has been afforded.

The etiology of the disease is very obscure. It occurs exclusively in children, no cases of the disease having been reported in adults. Atmospheric conditions, dampness, etc., have been described as etiological factors, but without much reason. Its relationship to epidemics of cerebrospinal meningitis has not been clearly shown, and further observation on this point should furnish valuable information. Sex or season seems to have no influence. At the time my case occurred a mild epidemic of influenza was present and a possible relationship to this disease should be considered.

The diagnosis of the disease is easy after the characteristic symptom, total deafness, has developed, but is impossible before this. The symptoms are of such a general nature that it is unsafe to venture any positive opinion. They suggest meningeal irritation, but there is no objec-

tive evidence of this beyond the prostration, vomiting, fever, headache, and possibly convulsions. Examination of the ears is negative. The disease with which it is most likely to be confounded is meningitis, particularly sporadic cases of the epidemic type. The clinical points of difference are best illustrated by a study of the following table modified from Voltolini:

Meningitis.	*Labyrinthitis.*
Epidemic or sporadic.	Sporadic only.
Attacks adults and children.	Attacks children almost without exception.
Ears usually not both involved, and if so, not to same extent and showing tendency to improvement.	Both ears always symmetrically involved and total deafness.
Other cranial nerves may be affected.	Other cranial nerves never affected. Child otherwise well.
Convalescence prolonged and miserable.	Convalescence quick, with deafness.
Herpes labialis common.	Herpes very uncommon. Observed once only.
Convalescence marked by great weakness and prostration. Giddiness and dizziness not especially frequent or remarkable.	No especial weakness, but giddiness and dizziness constant and long continued.

The prognosis of the disease is invariably favorable. No deaths have been reported and no autopsy on a recent case has been made. The pathology of the condition is therefore obscure, and the necessity of the careful study of cases with modern laboratory methods is evident.

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GONORRHEAL EXOSTOSES OF THE OS CALCIS; REPORT OF A CASE COMPLICATED BY METATARSALGIA.*

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Numerous are the conditions which come to notice of an orthopedic surgeon, which have for their chief symptom a painful heel. Among such can be mentioned certain forms of flatfoot, in which this symptom is induced by a stretching of the plantar fascia; also tuberculosis, neoplasms, osteomyelitis, neuritis, bursitis, rheumatic and inflammatory processes. An affection, less common than the above-mentioned and giving rise to the sympton, painful heel, is the subject of a case that I am taking the liberty to report, namely, gonorrheal exostoses of the os calcis.

It has been noted by Bradford that the os calcis gives attachment to important groups of muscles, viz., those ending in the tendo Achillis and the plantar muscles, with, in addition, the plantar fascia. Furthermore, that under certain conditions, not yet thoroughly understood, abnormal bone growths are developed at the insertion of important muscles which are subjected to strain.

*Read at a meeting of the J. Autken Meigs Medical Association.

It would, therefore, be expected that in a bone as important as the os calcis, and subjected as it is to injuries and strains, there should be abundant exostoses in these two regions. It will not be the object of this paper to discuss cases of traumatic origin. This subject has been very elaborately studied and presented by Bradford, in his recent article entitled "Exostoses in the Plantar Portion of the Os Calcis."

From Baer's cases and also those of Jaeger of New York, it would appear that in the blenorrhagic condition this tendency to the bone deposits is increased. Painter of Boston described a case of painful heel, in which he found multiple exostoses on the posterior portion of the os calcis, associated with an inflammatory process of the bursa behind the tendo Achillis. He thought that the lining membrane of this bursa was the starting point of these exostoses, and that they were osteoarthritic in nature. Nobl of Vienna described a similar condition. He regarded the seat of infection to be from the sheath of the tendo Achillis, and thought it to be gonorrheal in origin. Baer reports six cases, five of which give a clear history of gonorrhea. Jaeger reports eleven cases, describing but one of gonorrheal origin. It is interesting to note that both Baer and Jaeger describe a case similar to the one that came under my observation at the orthopedic out-patient department of Jefferson Medical College Hospital, presenting a clear history of gonorrhea, gonorrheal arthritis of the ankles, and resulting multiple exostoses of the os calcis.

The condition can be described as occurring only in males. Of the cases reported none have occurred in women. It occurs between the ages of eighteen and thirty, although one case has been reported in a man of thirty-four. Traumatism does not seem to be a factor in the production of this class of cases.

Some time following an attack of urethritis, usually from three to nine months, the patient complains of sharp, severe pains in one or both heels, usually coming on simultaneously in both heels. The pain can be sharply localized in the center of the plantar surface of the heel, and is elicited only by weight bearing or direct pressure. The pain may be so severe as to incapacitate the patient. The gait is characteristic. The weight is borne by the ball of the foot and the patient walks, as it were, on his toes. His steps are slow and careful.

The diagnosis depends first upon the history. A disease of adult life, occurring usually in males, and making its appearance some time following an attack of urethritis. Consider that it is a bilateral disease, the pain appearing simultaneously in both heels or in one closely following the other; again the character of the pain, the attitude and the characteristic gait. The os calcis will be found enlarged and thickened in most cases. A radiograph will confirm the diagnosis.

The only satisfactory treatment is operative.

The following is the report of a case:

A. L., male, age 26 years, complains chiefly of painful heels. The family history is negative. The patient has had diphtheria, measles, and malaria. About five years ago he had an attack of gonorrhea. During the third week of the disease he developed severe pains in both ankles. From the right ankle the pain shifted to the great toe and also up to the knee. The patient was admitted to the Rhode Island Hospital, there treated, and discharged at the end of one month, cured

of the urethritis, and with the joints in a normal condition. About one and a half years later he again had an attack of urethritis. The pains returned, this time attacking both ankles, also shifting across the left metatarsal arch. The pains continued for about two months, gradually becoming less severe. Following this illness, the patient constantly complained of a soreness in both heels when bearing weight on the feet. A year and a half later he had a third attack of gonorrhea. This time he developed pains in both ankles, but not so severe as on the previous occasions. The pains shifted from the ankles to the heels. He was left with a constant soreness of both heels on pressure or weight bearing. No pain when at rest.

On examination it was seen that the patient walked with a slow, careful, guarded gait, protecting the heels at every step. There was a localized spot of tenderness on pressure over the insertion of the tendo Achillis on the posterior surface of each os calcis, also a spot of marked tenderness on the center of the plantar surface of the heel. There was a painful area over the metatarsophalangeal articulation of the fourth toe of the left foot, the pain of which was greatly intensified upon pressure. There was apparent enlargement, with thickening of each os calcis.

The radiograph showed an exostosis at the tubercle of each os calcis, and another at the insertion of the tendo Achillis. There was a definite thickening about the sides of the bone.

An incision about one and one-half inches long was made on the inner side of the heel. The soft parts were dissected aside and the tubercle of the os calcis exposed. The exotosis was removed by means of a chisel. The same procedure was resorted to over the insertion of the tendo Achillis. On the left foot a vertical incision was made, one and one-half inches long, from the proximal interphalangeal joint and extending upward in the central line of the fourth toe. The extensor tendon was pushed to one side and the metatarsophalangeal joint exposed. The metatarsal bone was now divided as close to its head as possible by means of powerful sharp-pointed, narrow-bladed cutting pliers. The head of the bone was then separated from all remaining attachments and removed. The wounds were closed with silkworm gut sutures and cigarette drains were left for twenty-four hours. The wounds all healed by first intention. The stitches were removed at the end of a week. Weight bearing was started at the end of twelve days.

The condition of the patient two months after the operation is as follows: Gait normal, no pain in the plantar portion of the heel, no pain over the fourth metatarsophalangeal articulation of the left foot. There is still some soreness over the insertion of the tendo Achillis on pressure or following prolonged weight bearing. This is probably due to excessive callus formation, as it has been gradually disappearing since the operation.

Gonorrheal Exostoses of the Os Calcis, from a Radiogram by Dr. W. F. Manges.

The pathological report by Dr. Randle C. Rosbenberger was to the effect that the head of the metatarsal bone was slightly enlarged and markedly eburnated. Cultures in blood serum were taken from the exostoses, all of which proved to be sterile.

Uterine Endoscopy After Abortion and in the Normal and Pathological Puerperal State.—Ch. David brings forward a new instrument for the examination of the uterine lining after abortion or labor. Its use is easy, painless, has no inconveniences, and gives valuable information as to the contents of the uterus and the condition of the endometrium. It shows the existence of membranous or placental remains, the presence of septic endometritis or ulceration, allows of the diagnosis of instrumental perforation of the uterus in criminal operations, and aids in the diagnosis of such uterine deformities as double uterus. A fragment of placenta may be removed or an application to the uterine lining may be made through the instrument. It consists of a tube open at the fundal end, which contains another tube closed with a glass plate so as to prevent the obstruction of vision by blood oozing from the lining. In this inner tube is placed an electric light which gives clear vision of colors and other visible conditions that denote ulcerations, clots, or abnormal secretions.—*Bulletin de la Société d'Obstétrique de Paris.*

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THE TUBERCULOSIS CONGRESS.

IT is said of a certain writer, whose idea of perspective was a little confused, that he made one of the characters of his historical romance begin a discourse with the words: "We men of the middle ages," etc. It is not often that one has such a realizing sense of where he is and what he is doing in the light of history, but one does not need it to see the significance of the present warfare against tuberculosis. There never was in the history of the world a movement such as this, one participated in by all the peoples of the earth, laymen and physicians of every nation of the civilized world, from both the Americas, all of Europe, India, China, and Japan, the islands of the Pacific, and the extremes of Africa, all united in a common cause—the suppression of a disease which threatens, if unchecked, to exterminate the human race.

The loss to the world from this disease has been immense; art, literature, science have all suffered in incalculable measure from its ravages, and the imagination fails to compass what might have been accomplished for the elevation of the race by those who have been cut off by it in the first years of productive manhood. But more serious even than this is the loss of the workers, those who produce, who add to the comfort, the happiness, and the wealth of mankind. The world can exist without its geniuses, but without those who make the necessities of life, the food, the clothing, and the habitations of man, it would be a waste. And it is among the workers that the havoc wrought by tuberculosis is greatest. As Dr. Pannwitz of Berlin said, at the Tuberculosis Conference in Philadelphia last week, every third death during the working period of life is caused by pulmonary tuberculosis, and every other workman who becomes incapacitated must ascribe his ruin to this disease. The cost of tuberculosis to the people of the State of New York alone was estimated by Mr. Homer Folks of this city, in a paper read before the Congress, to be $15,000,000 per annum by death and four times that amount by sickness. What is the financial loss to the entire world is beyond computation. The suffering and the sorrow caused by the disease can only be imagined—rather it defies imagination.

It is to free the world from this curse that the crusade against tuberculosis has been inaugurated and is being carried on by earnest workers in every nation on the globe. The triennial congresses, the sixth of which has been in session in Washington this week, are held for the purpose of collecting information regarding the progress of the movement and of encouraging to renewed effort. But their greatest service is perhaps in the publicity which they give to the endeavors of the individual workers and in the awakening of general interest in the crusade. The people, as they read in the papers the reports of the work of the congress, cannot fail to be impressed with the seriousness of the movement and be made to feel that the injunctions against spitting, the warnings against living in dark and unventilated rooms, and all the other hygienic recommendations which are unceasingly dinned into their ears are not the mere preachments of faddists, but are the voices of prophets consecrated to the salvation of the people, crying to them to heed their warnings and be saved.

The international congress which has just met in Washington has done its work well. Among its members were many of the best known and the best phthisiologists of the world who by the fact of their presence and by their contributions to the scientific work of the meeting have stamped the congress as one of the most successful yet held. Not the least important feature of the congress was the exhibition, which is to be continued for yet another week, in which are to be seen plans of sanatoria, hospitals, and dispensaries; appliances for the comfort of the sick; models of out-door sleeping arrangements, of hygienically constructed and furnished houses, railway cars, etc.; educational leaflets for mothers, school children, indoor workers, dairy farmers, and others in all walks of life; pathological and bacteriological specimens, and everything related to the cure or prevention of tuberculosis. A full account of the scientific work of the congress and of the exhibition will be found elsewhere in this issue and in the succeeding one, from which our readers can learn what has been accomplished in furtherance of the warfare against this devastating disease. In this brief comment on the Sixth International Congress on Tuberculosis, however, we cannot omit mention of the work of the Secretary-General, Dr. John S. Fulton, to whom belongs so much of the credit for the success of the gathering. Without the work of him and his assistants, the Congress would not have been what it has been, neither would it have been such without the cordial cooperation of the many workers, lay and medical, who have labored long and earnestly to make this meeting one worthy of the cause and of the country in which it was held.

THE EPIDEMIC OF CHOLERA IN RUSSIA AND IN THE FAR EAST.

WHEN cholera breaks out in the Far East, it spreads like wildfire, for all conditions are favorable to its propagation. Sanitation, as civilized nations understand it, is unknown, food is bad, and the physical state of the majority of the natives predisposes them to the disease. These remarks apply in almost equal degree to the inhabitants of Russia. The population individually may be hardier and more robust than the inhabitants say of India or of Persia, but the sanitary conditions are very similar. Filth indescribable and a total neglect of all precautions to conserve health prevail, and the consequence is that when a disease like cholera gains a foothold it is extremely difficult to dislodge.

Looking at the question from the point of view of the survival of the fittest, by many it may be regarded as an act of Providence that a deadly epidemic disease should from time to time come to sweep away some of the teeming millions of Asia. The countries are overcrowded and there is scarcely food for all, and the people regard death with complacency or apathy, in fact the majority would rather die than live in misery. In India, under British rule, despite the awful and continued ravages of plague, the population has increased and is increasing to such an enormous extent that it has become a source of very serious embarrassment to the government. Again, the natives are by no means grateful for interference to save their lives or to preserve their health. On the contrary they bitterly resent the acts of their rulers in this direction and particularly if such acts clash with the revered tenets of their religion.

This being so, would it not be as well if their conquerors left them to their own devices and did not stretch forth their hands to ward off disease? It might be as well, but it would be contrary to the teachings of civilized races who hold human life in the highest veneration and who look upon its preservation as an act of the supremest importance. Hence, as a rule, one very essential part of the white man's burden is to check the death rate of the natives by every possible means. Of course, selfishness and the instinct of self-preservation count for something, in this crusade made by the white man against disease in faraway lands. If an epidemic rages, the white man is more or less open to its attacks, but, on the whole, the altruistic spirit is the more prominent, and it is to save the life of his brown, yellow or black brother that he labors so untiringly.

In this country our stake in the Far East is scarcely sufficiently realized. Cholera has repeatedly scourged the Philippines and is again present in epidemic form. Our medical and scientific men in those isles are learning the lesson which has been learned long since by the British in India, that it is almost impossible to deal effectively with the natives so far as sanitary matters are concerned. Considering, however, the comparatively short time which has elapsed since the American occupation, immense progress has been made in Manila and elsewhere in "cleaning up" these places. Unfortunately cholera is most difficult to stamp out, as being almost wholly a waterborne disease, and in spite of all the authorities can do the natives will continue to pollute the streams and drink the water unboiled.

One thing, at least, has been definitely learned concerning cholera, and that is that it can be abolished by careful sanitary measures. The malady is no longer to be feared in western Europe, while as for England there has been no epidemic on a large scale since 1866. Although human intercourse and agency are the cardinal factors in the propagation of cholera, if the soil be not favorable the disease will quickly die. Therefore, while care should be observed to keep out the disease, the primary and more important steps to be taken are that conditions favorable to its spread should be absent. If sanitary arrangements are good and water pure cholera cannot gain ground.

THE CANCER PROBLEM.

Two phenomena may be observed in the recent study of the cancer problem that offer a great deal more of promise in solving the vexing questions of the pathogenesis and therapeutics of malignant disease than the numerous scattered attempts at such solution during the preceding epochs. One of these is the establishment of cancer research institutes which offer all the necessary surroundings for carrying on the experimental study of cancer or cancer-like disease of the lower animals as well as for special examinations of specimens of malignant disease aimed at the discovery of any peculiar properties and products of the cellular elements of tumors. The results of such organized study of tumors are already apparent in the knowledge we have gained from the transplantations of tumors in animals and from the many suggestions in reference to the possible control of malignant disease by the influence of enzymes upon the tumor cells. The other phenomenon we refer to is the growing inclination shown by scientific men to attack the cancer problem in the same way as the other biological questions have been studied, that is, by collecting the general data on the subject and by comparing such data with the like findings in other diseases, in a word, by the use of synthetic and comparative methods of research.

Two recent works give evidence of the last-mentioned tendencies in the study of malignant disease: one of them is Menetrier's monograph on "Cancer" in the "Nouveau Traité de Médecine et de Thérapeutique," the other is W. Roger Williams' book on the "Natural History of Cancer." It is Williams' opinion that the prevention of cancer and the reduction of its ravages are the fields of the general problem that offer most hope of productive results at the present time. Accordingly he has gathered a wealth of most instructive information as to the nature and incidence of cancer in the human and animal world. He notes the comparative rarity of the disease among savage races that forms a striking contrast to its wide prevalence among civilized mankind; its greater incidence among the well-nourished, perhaps even over-nourished, classes of the population than among the frugally living classes; the increased liability to disease which appears in groups that are rapidly passing from poverty with consequent insufficiency of food to comparative comfort, as is exemplified by the immigrant classes of the United States; the greater prevalence of the disease in the temperate climate the residents of which use most food of highly stimulating and nutritious character; the increase of cancer which began with the great changes in the economic conditions of the masses of the population in the latter half of the eighteenth century; the comparative rarity of the disease in such countries as Ireland, the bulk of the population in which is decidedly poor and underfed. Among other facts brought out by Mr. Roger Williams is the rarity of malignant disease in wild animals and its occurrence in domesticated animals; the total failure of the adherents of the microbic origin of cancer to bring any evidence worthy of the name in favor of their contention; the warping of facts necessary to trace the origin of all malignant disease to tissue inclusions or embryonal rests that later resume their tendency to grow at the expense of the

general organism. The conclusion, then, of this careful and thorough study of malignant disease, is that cancer is a disease of civilization, probably brought about by the excess of nutrition which stimulates the property of growth present in every cell to an extent beyond the requirements of the organism and results in excessive and disorderly proliferation of the cells. Expressed in most general terms it is the belief of the author that there is a certain relation between the conditions of existence and the incidence of cancer, and the work of prevention of the disease at the present time lies in this direction, at least until more definite data have been presented.

Dr. Menetrier's book is devoted to a different aspect of the subject: he studies the phenomena of malignant disease in the large number of instances of it that he has observed in his capacity of pathologist. To him malignant disease is a morbid process characterized by the "autoinfection of the organism by the cells of the organism;" he sees no great differences between the cancer cells and the other tissue cells: the elements of the organism are capable of increasing and persisting at the expense of the organism just as they are capable of various proliferative, regenerating, and compensating changes. These latter phenomena are the normal functions of the cells, and the cancer process represents the pathological deviation of these functions, just as the thousand and one other perversions of function that may be observed in the morbid states and processes of the animal tissues. These generalizations are founded upon observed facts, and in so far as they show no necessity for presupposing any characteristics in the cells of malignant tumors different from those found in the normal elements of the body they fully justify the endeavor of Roger Williams to find etiological factors in the general surroundings of human beings, especially in alimentation, which may be supposed to exercise most profound influence upon the behavior of the cellular elements of the body.

Neither author, of course, claims to give final conclusions in reference to the etiology and the true character of malignant disease; their works, rather, are suggestive and stimulating in character, and in so far as they call attention to the general factors of malignant disease they serve to counteract the tendency that often crops up in modern highly specialized research work, that of losing the great aspects of the problems under consideration in the mass of details brought forward by the individual investigators.

CARROT SOUP IN INFANT FEEDING.

The reigning controversy in regard to the amount of foodstuffs necessary and advisable for an adult shows how far our knowledge of nutrition is from being an exact science, and still more is this shown when the nutrition of infants is concerned. There are almost as many methods of artificial feeding as there are pediatrists, which certainly would not be the fact if we were sure of the first principles of nutrition. The advance in the so-called "percentage method of feeding," that is, in modifying the separate constitutents of cow's milk according to the age and the individual peculiarities of an infant, has marked one great phase of progress in the latter direction. But modified cow's milk has proved to be no such universal food for infants as its enthusiastic advocates believed in the beginning, and indeed the latest observations have shown that many infants possess great intolerance to cow's milk, however modified, both in health and in disease. It is in such cases that the problem of feeding the child that may be failing in weight and in strength becomes very urgent indeed.

In the *Münchener medizinische Wochenschrift* for August 4, 1908. Dr. Moro of Pfaundler's clinic in Munich urges the use of specially prepared carrot soup for these patients. Infants suffering from acute gastrointestinal disorders, who were usually kept on a strict water diet for several days after the beginning of symptoms, were fed on the carrot soup immediately after the milk was stopped and the results were very gratifying. The symptoms of marked intoxication, the restlessness, the disturbances of consciousness, the changes in respiratory rhythm, the vomiting, and the exhausting diarrhea were quickly subdued by such a diet. A rapid fall of temperature usually followed, and with it the weight curve of the infant again assumed an upward tendency, quickly making up for the loss in weight during the acute attack. After a few days, cow's milk could be given and the interrupted development of the child would again take its natural course. Infants suffering from chronic malnutrition and showing various marantic symptoms improved very markedly on the diet of carrot soup, the gain in weight following the control of the constant vomiting that was a frequent feature of these cases. Clinical observation showed that the retention of water was especially increased by the use of carrot soup and at the same time the fairly high sugar content of the soup was easily borne by patients who could digest no sugar whatever in other preparations. The bacterial flora of the intestines seemed to be very markedly affected in most cases, the usual abundance of Gram-positive organisms present in cases of acute intoxication giving way to a prevalence of Gram-negative bacteria, the total number of organisms being, at the same time, remarkably diminished.

Moro thinks that patients suffering from acute intoxication, with great loss of fluids, and bottle-fed children with chronic malnutrition are best treated by this diet. The latter must never be used or continued with patients who show excessive retention of fluids as manifested by the appearance of edema. Carbohydrate intolerance is likewise not to be treated by the administration of carrot soup. These contraindications leave a vast number of cases in which the new diet may be tried, and such trial is certainly advisable on the strength of the results obtained in the Children's Clinic at Munich.

Street Car Accidents in New York.

Strangers coming to New York frequently accuse us, among other things, of a total disregard for human life. Like most other generalizations this statement is all too sweeping, yet one is bound to admit that it has a foundation in fact for which the most of us are properly ashamed. The very

keen competition in the struggle for existence makes of any large city an abode which is somewhat the reverse of Utopia. Most drivers of moving vehicles from the snail-traveling push cart to the swiftly flying automobile assume for themselves the right of way over all creatures that are obliged to use their legs as a means of locomotion. This is a partial explanation of the fact that in July of the present year, 1,305 persons were knocked down while alighting from street cars. The driver does not figure that when a car stops directly in front of him some one may intend to get off—perhaps he does not use the tramways enough himself to have ascertained that fact, but it is time that the truth were thrust upon him, and that he cease from his reckless ways. The open car with its narrow running board is responsible for many accidents. Any one who rides every day has seen people pushed off who were indulging in the foolish habit of standing on this narrow ledge or in the more foolish habit of trying to get on while the car is in rapid motion. As a result we have these appalling figures for July: Persons killed outright, 35; persons receiving fractured skulls, 13; persons having limbs amputated, 4; persons having limbs fractured, 54. Most accidents are the result of deliberate and wilful carelessness, and the fault is not always with the man who holds the controller. In the hurry-scurry of life in New York people forget danger and miscalculate distances, as well as their agility. The old man of seventy catches at the rear end of a rapidly moving car, the conductor of which is inside, and forthwith somebody is obliged to call an ambulance. Pedestrians take too many chances, and drivers do nothing else. There is a sort of fascination in balancing one's self on the very edge of danger and trusting to overestimated skill or sheer luck for a happy outcome. It is an hypertrophy of this "psychic" element that makes all of our expert "artists" perform their daring feats; yet even they themselves would scarcely question the foolhardiness of these so-called accomplishments. Among four millions of people who must some time or other make use of public conveyances there are bound to be accidents, and many of them, but these accidents should by some means be lessened. Each and all of us need to learn the lesson of making haste slowly. The conductor who slams gates in people's faces and rings his bell before the last foot is aboard his car should receive some greater punishment than that of losing his job or paying a fine. As for "the company," all reasonable excuses offered for delayed cars should be accepted and the present penalties abolished—this would encourage the men to greater civility toward passengers and would lessen the number of accidents materially.

Catarrhal Jaundice and Sugar Metabolism.

It is the growing conviction of both clinicians and pathologists that catarrhal jaundice is not such a simple affection, to be explained by the tumefaction of the duodenal mucosa and the consequent obstruction to the escape of bile at the papilla of Vater, as it has been thought to be. While there is little doubt that icterus may be caused by catarrh of the upper intestines, yet behavior of a great many cases speaks against the possibility of this alone causing prolonged jaundice with the great disturbance of nutrition that is so often observed. Of late, physiological chemistry has given us new data which seem to show that in so-called "catarrhal jaundice" the metabolism of the body is affected much more than has been suspected. Thus Richard Bauer reports in the *Deutsche medizinische Wochenschrift* for August 27, 1908, the results of his study of the excretion of galactose in this condition, which show that the functions of the liver are markedly affected. All the patients suffering from "catarrhal jaundice" showed intolerance to this special form of sugar, excreting it in much greater degree than normal after the administration of a uniform amount, such intolerance continuing not only during the manifestations of the disease, but even for several weeks after all symptoms of jaundice and of intestinal catarrh had disappeared. Patients suffering from jaundice caused by obstruction of the common gall-duct by a stone did not show this phenomenon, nor could it be demonstrated in malignant disease of the bile passages. Cirrhosis of the liver, on the other hand, seemed to have the same effect upon metabolism, and it is, of course, granted that in this disease the functions of the liver are markedly impaired. Pathological conditions involving the gastrointestinal tract similar to such as are supposed to result in catarrhal jaundice were likewise not accompanied by this phenomenon, and consequently the supposition that an additional factor must be present in jaundice is well supported. What the real nature of this factor may be remains to be shown, but the presence of alimentary glycosuria in catarrhal jaundice, beyond being an important fact in the differential diagnosis of this condition from malignant disease and from obstruction by gallstones, points to the liver as the site of the important disturbance, whether functional or anatomical and not to the gastrointestinal tract.

Lactic Acid Bacteria for the Relief of Constipation.

Constipation is one of the troubles that we have with us always, and for which the remedies are legion. Yet most of these remedies have proved unsatisfactory in the end because their effect was but temporary and the result of treatment was paresis of the intestine. One of the modern forms of treatment is by means of cultures of lactic acid bacteria. Gaillard, in the *Journal de Médecine de Paris*, for August 8, 1908, details his method of treatment and gives the histories of ten cases treated with lactic acid bacteria as an adjuvant to a change in diet. Constipation, according to this author, is closely linked with autointoxication, the decomposition of albuminoids particularly ending in the formation of toxic materials. Antagonistic to this is the action of the bacteria which act on the vegetable compounds, and which produce antiseptic compounds in the form of organic acids, such as lactic and acetic acids. The author begins his treatment by placing the patient on a diet that includes vegetable gruels made with milk, potatoes, eggs, and small quantities of meat. He thus encourages the proliferation of the amylolytic microbes which are useful, at the expense of the proteolytic organisms, which are harmful. The patient is also given a bouillon culture of lactic acid bacteria, which by its action produces antisepsis. As soon as the digestion has been regulated in this way defecation occurs with regularity without other treatment. In the ten cases treated by this method the results were in the main favorable, there having been four undoubted cures. In some of the patients there was produced at first a crisis of enteritis, and this was repeated in one case whenever the medication was attempted. The method is worthy of further study and experiment, based as it is on rational theories.

News of the Week.

Wesley M. Carpenter Lecture of the New York Academy of Music.—On Thursday, October 8, 1908, at 8.30 P.M., the Wesley M. Carpenter lecture upon "Tuberculosis of the Heart, Blood Vessels, and Lymphatics" will be given by Dr. Andres Martinez-Vargas of Barcelona, Spain. The lecture will be in Spanish, but a pamphlet with the English translation will be presented to every person in the audience so that the lecturer can be readily followed. After this lecture there will be a reception by the President and Fellows of the New York Academy of Medicine and the Committee on Entertainment of the International Congress on Tuberculosis to the visiting members and delegates of the Congress.

Cholera in Manila and St. Petersburg.—The situation in St. Petersburg is said to be greatly improved. Provision for the care of the sick has been made by converting several public schools into hospitals, and official steps have been taken for the distribution of medicines and disinfectants, but there has been considerable delay in interring the dead. Since the outbreak of the disease up to September 27, there had been in St. Petersburg 4,945 cases and 1,875 deaths. In the rest of the country the cases numbered 10,857, and the deaths 5,226. Russian emigrants to America are detained at Hamburg for five days before embarkation as a precaution against the spread of cholera. The outbreak of the disease in the Philippines has caused considerable discussion as to the risk of allowing the fleet now on its way there to touch at Manila, and preparations for a formal welcome which were being made by the city have been postponed. The situation in the islands is, however, rapidly improving.

New Tuberculosis Hospital.—Plans were filed on September 25 for the new hospital building to be erected on Blackwell's Island for the treatment of cases of tuberculosis in conjunction with the other city institutions. The building will be 291 feet long and four stories high, with wide verandas surrounding each story. There will be a roof garden over the entire length of the building with a solarium at either end. The local island stone will be used with bluestone trimmings. The estimated cost is $250,000.

The Chicago Tuberculosis Sanatorium, located at Winfield, on an elevation fronting the DuPage River, will be opened in a short time. The head of the medical staff is Dr. Theodore Sachs. The institution was established under the auspices of the women of the Chicago Jewish Club.

Insane in Maryland. Figures recently published indicate that the State of Maryland has fewer insane persons in proportion to its population than any other State in the union. There are at present only 3,200 insane people in public and private institutions in Maryland, as against 11,000 in Massachusetts, and even larger numbers in some of the other States. There is at present no State care of the insane in Maryland. Those unable to pay for treatment are cared for in semi-public and private institutions, some of which receive State aid. Notwithstanding the small number, every institution in the State is overcrowded, and this lack of facilities has caused a general investigation of the problem, and the State will probably soon undertake to provide for all cases.

The College of Physicians and Surgeons, Columbia University, New York, opened on September 23 with a registration in all classes of 290, which number, however, will probably be somewhat increased later. The first year class numbers 90, and of these twelve students are seniors and juniors from Columbia College who have elected the course. The opening exercises were held on September 24, when addresses of welcome were delivered by Professor Burgess, acting president, and Dean Samuel W. Lambert. Professor M. Allen Starr, of the department of Neurology, also addressed the students on "The Duty of the Medical Profession to the Public."

Opening Exercises of the Chicago College of Physicians and Surgeons.—The twenty-seventh annual course of instruction of the College of Physicians and Surgeons, Medical Department of the University of Illinois, began September 28, at which time the introductory address was delivered by Professor Channing W. Barrett.

Civil Service Examinations for the positions of assistant in clinical psychiatry at a salary of $2,000; health officer, town of Wells, Hamilton county, and physician, sixth grade, for State hospitals and institutions, $900 and maintenance, will be held by the New York State Civil Service Commission on October 17, 1908. The last day for filing applications for these positions is October 10. Full information and application forms can be obtained upon request to the Chief Examiner of the Commission at Albany.

New York's Death Rate.—For the week ending September 19, the figures were 15.46 deaths per 1,000 of population, the total number of deaths being 1,311. For the same week last year the rate was 16.73, and the total number 1,374. Among children under five years of age there were, during this week, 538 deaths in 1907, and 480 deaths in 1908. Among children under the age of one year the number of deaths was 388 in 1907, and 348 in 1908.

Flies and Disease.—Dr. Daniel D. Jackson, of the Merchants' Association Committee on Water Pollution, has been trapping flies during this summer at a station near Prospect Park, Brooklyn, and comparing the record of his captures with that of last year and with the Health Department mortality figures, to verify the theory that flies and not hot weather are responsible for the prevalence of intestinal diseases. He reports the relation between the number of flies captured and the number of deaths substantially the same as last year, the highest death rates occurring at the same time as the largest catch of flies, and a decrease in the number of flies being accompanied by a fall in the rate. Dr. Jackson thinks that the education which the people have had in the last year in regard to the dissemination of disease by flies has probably had a share in keeping the death rate down during the summer of 1908.

Charitable Bequests.—The Massachusetts General Hospital and the McLean Insane Hospital of Boston each receive $50,000 under the will of the late George F. Parkman of that city. Among other bequests are $40,000 for the Newport Hospital, $20,000 for the Female Orphan Asylum, $20,000 for the Children's Island Sanatorium, and $10,000 for the Boston Floating Hospital. The residue of the estate is left to the city of Boston, the income to be used for the improvement and maintenance of public parks. The will of the late Jonathan J. Broome of New York and East Orange provides for the gift of $2,500 to the Orange Memorial Hospital, and of $500 to the Record Ambulance, of Orange. The Floating Hospital of St. John's Guild benefits to the amount of $10,000 under the will of the late Henry J. Braker of New York. A number of institutions profit under the will of the late Winfield Tucker of

New York. The Presbyterian Hospital is to receive $22,500 to endow three beds in perpetuity, the Fresh Air and Convalescent Home at Summit, N. J., $3,000, and $5,000 each is left to the Post Graduate Medical School and Hospital, the New York Throat, Nose and Lung Hospital, and the House of Rest for Consumptives at Inwood-on-the-Hudson.

To Rebuild Hospital.—St. Mary's Hospital, at Orange, N. J., is to be enlarged by the addition of a six-story extension, to cost $60,000. The new building is a part of a general plan for the practical rebuilding of the institution, the cost of which will probably be about $200,000. The popular "tag day" idea is to be used to raise funds for the work, and October 3 is the date selected. The new building will contain a basement kitchen, dining-room for convalescents, and staff-rooms on the first floor, children's wards on the second floor, and wards for men and women on the third and fourth floors. The fifth floor will be devoted to the maternity ward, and the top floor to operating rooms. There will also be a roof garden which can be reached by the elevator.

Jewish Hospital to be Erected.—Orthodox Jews in Chicago have organized an association, licensed as Miamonides Kosher Hospital Association, to erect and maintain a Jewish hospital. About $10,000 has been subscribed already, and a permanent building will be erected. It is proposed to carry out the orthodox Hebrew dietary laws and habits in the institution.

School Inspection.—Seven hundred pupils of the Chicago public schools were barred from attendance during the last week, the result of examination by medical inspectors. Less than 10 of these had symptoms of contagious disease, but many had parasitic diseases.

Sixteenth Year of Pasteurization.—September 21 marked the completion of the sixteenth year of Mr. Straus's work of dispensing pasteurized milk to the poor. During the past year there has been a large and steady increase in the use of the milk which is sold at less than cost at seventeen stations in New York, and it is estimated that nearly 2,500 babies have been fed daily on the output from these stations.

Illinois Health Commission Named.—Governor Deneen of Illinois has appointed a commission to investigate and report upon the most advisable methods for providing for the health, safety, and comfort of employees of public and private institutions, in accordance with a joint resolution passed by the Illinois Legislature.

Cocaine Sellers Sentenced.—Two men, frequenters of Chinatown in New York, who were recently convicted of selling cocaine in this district, were sentenced on September 23 to one year each in the penitentiary by Judge Malone. "The crime must be stopped," the judge is quoted as saying, "and the only effective way is to send cocaine sellers to jail."

Dr. Wilhelm Karo, of Berlin, Germany, read a paper on Tuberculosis of the Bladder at a meeting of the Richmond (Va.) Academy of Medicine and Surgery on September 22.

Dr. Morton Prince, professor of nervous diseases at Tufts College Medical School, will give a course of lectures at the college on the value of mental suggestion in forms of nervous depression and similar affections. The new course is said to be largely due to the Emmanuel Church movement.

Dr. Daniel W. Finnimore, of Potsdam, N. Y., a graduate of Fort Wayne Medical School in the class of 1881, has been nominated for the office of Lieutenant-Governor of New York, on the ticket of the Independence Party.

The American Electro-Therapeutic Association.—At the eighteenth annual meeting of this Association, held September 22 to 24, at the Engineering Societies Building, New York City, the following officers were elected: *President*, Dr. Edward C. Titus of New York; *Vice-presidents*, Drs. William D. McFee of Haverhill, Mass., and Thomas D. Crothers of Hartford, Conn.; *Secretary*, Dr. J. W. Travell of New York; *Treasurer*, Dr. Richard Joseph Nunn of Savannah, Ga.; *Executive Council*, Drs. Morris W. Brinkmann of New York, Charles Rae Dickson of Toronto, Canada, W. Benham Snow of New York, Fred H. Morse of Boston, Herbert F. Pitcher of Haverhill, Mass., and Francis B. Bishop of Washington, D. C.

American Dermatological Association.—At the meeting of this Association, held at Annapolis and Baltimore, September 24, 25, and 26, 1908, the following officers were elected for the ensuing year: *President*, Dr. William Thomas Gilcrist of Baltimore; *Vice-president*, Dr. William Allen Pusey of Chicago; *Secretary and Treasurer*, Dr. Grover William Wende of Buffalo. The next meeting of the Association is to be held in Philadelphia in May or June, 1909.

The National Wholesale Druggists' Association held its thirty-fourth annual convention at Atlantic City on September 21 to 25. Some opposition was made to the recommendation that the United States Pharmacopeia be issued every five years instead of every ten, as has been the custom, but the Association finally decided in favor of the five year plan. Dr. F. L. Carter of Boston was elected president for the coming year, and Mr. J. E. Toms of New York, secretary. The next convention will be held in Richmond, Va.

The Washington State Medical Association held its annual convention at Walla Walla during the second week in September. The following officers were elected for the coming year: *President*, C. A. Smith, Seattle; *Vice-president*, Y. C. Blalock, Walla Walla; *Second Vice-president*, W. D. Kilpatrick, Bellingham; *Secretary*, C. H. Thompson, Seattle; *Treasurer*, L. L. Love, Tacoma; *Delegate to American Medical Association*, J. R. Wenn, Tacoma; *Alternate*, H. H. McCarthy, Spokane. Plans were made for holding the next annual meeting in Seattle in July, 1909, in association with the State societies of Oregon, Idaho, and British Columbia.

New York and New England Association of Railway Surgeons.—The eighteenth annual meeting of this Association will be held at the Academy of Medicine, New York City, on November 17, and 18, 1908, under the Presidency of Dr. F. A. Stillings of Concord, N. H. The morning session of the first day will be devoted to a symposium on "What Are the Causes Leading to Railway Accidents and What Remedies Can Be Suggested?" The secretary of the Association is Dr. George Chaffee, 338 Forty-seventh street, Brooklyn, N. Y.

Obituary Notes.—Dr. John A. Hegeman of New York died suddenly at his home on September 23, aged 56 years. Dr. Hegeman was graduated from the College of Physicians and Surgeons of New York in 1879 and practised in Passaic, N. J., until three years ago, when he retired to enter into business life.

Dr. J. C. Driver of Atlanta, Ind., died at his home on September 16, from cancer, aged 76 years. Dr. Driver was graduated from the medical department of the University of Michigan in 1866 and was the oldest physician in his county.

Dr. Neal O'Donnell Parks of Ashton, Mass., died suddenly at his home on September 17. Dr. Parks was born in Ireland, and graduated from the medical school of the University of Dublin in 1859, coming to this country a few years later. He was the author of a number of books and magazine articles.

Dr. Charles H. Osgood of Cincinnati, O., died on September 12, aged 78 years. Dr. Osgood was a veteran of the Civil War.

Dr. Zophar F. Guerin of Columbus, O., died suddenly on September 15, aged 87 years. Dr. Guerin had been a practising physician since his graduation from Starling Medical College in 1852.

Dr. Claudius R. Grosser died at Wilkes-Barre, Pa., on September 24. He was graduated from the medical department of the University of Pennsylvania in the class of 1898.

Dr. Clark Evans, formerly a resident physician at Jefferson Hospital, Philadelphia, died at Lehighton, Pa., on September 26 at the age of 26 years. He was graduated from Jefferson Medical College in the class of 1906 and he was for a time assistant physician at the White Haven Sanitarium.

Dr. Philip L. Reichard died at Allentown, Pa., on September 26, at the age of 65 years, in consequence of a fall resulting from an attack of vertigo. He was graduated from Jefferson Medical College in the class of 1864. He was an army surgeon during the Civil War, was for many years pension examiner, and for a long period local surgeon for the Lehigh Valley Railroad Company.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

SCIENCE AT DUBLIN—PHYSIOLOGY—HALDANE'S ADDRESS—TUBERCULOSIS IN IRELAND—SLEEPING SICKNESS—CHOREA, A SPECIFIC—LUNACY REPORT—GOVERNMENT SCIENCE GRANTS—UGANDA—OBITUARY.

London, September 11, 1908.

Dublin's feast of science is over. Some few are endeavoring to form an opinion as to the probable results, but it is too soon for such speculation. One can hardly say much even of the impression produced by the president's address, of which I sent you a brief sketch. It was looked forward to with unusual interest, and certainly Dr. Darwin did not disappoint those who expected he would make some further application of his father's theory in opposition to more recent views. Whether his statement that plants form habits, and that implies a sort of memory, will obtain general acceptance remains to be seen. At present there does not seem much inclination to discuss the matter. But perhaps that is largely due to the wealth of material provided by the sections. Some of these are of general interest and touch on the daily life, occupation, health, and even political progress of the nation. I can therefore only allude to some of the more strictly scientific subjects closely connected with medicine.

In the physiological section Dr. J. S. Haldane, F.R.S., delivered the address, in which he contended that biological phenomena differ not only in complexity, but also in kind from chemical and physical processes. He declared that the conceptions of physics and chemistry cannot make physiological phenomena intelligible. The problem is not to obtain piecemeal explanations, but to discover by observation and experiment the relatedness to one another of all the details of structure and activity in each organism as expressions of its nature. One example of the necessity of such research was a subject on which he had been working, viz., the regulation of respiration. On this he said: "Current accounts of the clock-like action of the respiratory center during normal breathing, with the expansion and contraction of the lungs acting as a sort of governor through the vagus nerves, always filled me with suspicion, as it seemed to me that such a regulation was altogether unlike a physiological one. This led me to investigate the matter further, along with Mr. Priestley, and we had the satisfaction of being able to prove that the ventilation of the lungs is actually regulated with exquisite exactness, in such a way as to keep the partial pressure of carbon dioxide in the alveolar air, and, presumably, in the arterial blood, constant. In reality, therefore, the lung ventilation is regulated in accordance with the requirements of respiratory exchange, and what seems the true physiological explanation has been advanced a short stage." Similar evidence is accumulating in all directions that the blood supply to various parts is determined by their physiological requirements. So it seems clear we are only at the beginning of a vast development of our knowledge in this direction, for which far more refined methods of dealing with the chemistry of the body will be needed. Further, the president held that as our attitude toward biology has changed so it must toward evolution. Our conception of an organism is different in kind as well as degree from that of a material aggregate, therefore in tracing back life to primitive forms we can get no nearer to what is called a biogenesis. That is, only to widen biological ideas. In short, we must not aim at reducing organic and inorganic, but at bringing inorganic phenomena into the domain of biology. In conclusion Dr. Haldane referred to the relation of physiology to psychology, and remarked that the higher organisms at any rate are conscious and intelligent and "just as biology is something more than physics and chemistry, so psychology is something more than physiology, with the added assumption that consciousness is tacked on to certain physiological processes, if such a crude conception has any definite meaning." Treating sensation as the physiology of the sense organs is physiology, but nothing else, as it leaves out the elements of consciousness. "Life is not intelligence and men or animals as intelligent individuals involve a deeper aspect of reality than biology deals with. Our fundamental physiological working hypothesis cannot be successfully applied to the phenomena of intelligence, and the sooner and more definitely this is realized the better for physiology."

The Earl of Aberdeen (Lord Lieutenant) was present in the Physiological Section on Tuesday to hear an address by Sir Robert E. Mathieson, Registrar-General for Ireland on the antitubercle crusade initiated by the Countess. This special meeting was naturally largely attended, and on the proposal of Dr. F. Darwin Lord Aberdeen took the chair and expressed the satisfaction of the Countess at the subject being brought before the association. Sir Robert set forth the problem of tuberculosis in Ireland and detailed the history of what has been done. Some of the results are a notable change in the habits of the people as to open windows and cleanliness, a decrease in the habit of spitting, a recognition by mothers of the unsuitability of white bread and tea as food for growing children, the substitution of home-made bread, porridge, milk, or vegetables, greater care by local authorities as to milk supply, segregation of advanced cases, provision of district nurses, disinfection of houses after deaths, scavenging the streets, and water supply.

Professor E. J. McWeeney, who has been lecturing during the crusade, testified to the enthusiasm of the people addressed in various parts of the country, and in this he was corroborated by his colleagues in subsequent speeches.

Sleeping sickness was discussed in this section in conjunction with that of zoology. Dr. Nickenstein gave an account of his researches on atoxyl and said he was driven to the conclusion that while it is very successful in the case of some animals, it is useless in others. Experiments with the trypanosomes taken from a donkey which had been treated by atoxyl showed this. Professor Moore considered this result important and related an experiment on two sets of rats, one set treated with atoxyl, the other with mercury. The former all died, but 50 to 60 per cent. of the latter recovered. He inferred that the parasites could be attacked with mercury when atoxyl failed. He suggested arsenic and antimony in combination. Dr. Breinl narrated the life history of the trypanosome and said when it disappears from the blood under atoxyl minute bodies may be found in the spleen, which develop into the parasite when the antibodies disappear from the blood.

Dr. Essex Wynter thinks that chorea is as certainly amenable to treatment by chloretone as rheumatism is by salicylates. He read a paper at Sheffield relating 50 cases of different degrees of severity. Some showed only disorderly movements, some could not speak or feed themselves, and for a few padded cots had to be used on account of the violent movements. The dura-

tion before admission to hospital had varied from a few days to months and in one case three years. The majority were first attacks, but there were some second, third, and fourth. Chloretone is trichlor-tertiary-butyl-alcohol and has been introduced for some time as a sedative to the central nervous system, but non-depressor of the circulation or respiration. Dr. Wynter gives 5 grains in half an ounce of petroleum emulsion every four, six or eight hours, according to the patient's age and the severity of the symptoms. In two, three or four days the dose is to be reduced by half and may be given less frequently. In the 50 cases the average duration of treatment was nine days. In many, movements ceased in four, six or seven days, in a few not for twelve or more. These last had resisted other remedies for long periods, three or four months, a year or more, six for three years. About half the children had cardiac disease, but the average stay in hospital was only three weeks. After the chloretone had subdued the movements, iron, cod liver oil or arsenic was prescribed, as seemed indicated, and the patients were under observation for a further three weeks in the convalescent home. If continued too long or given in too large doses chloretone will cause stupor and occasionally a condition resembling catalepsy. This passes off in a few hours, but may easily excite the anxiety of friends. One or two cases had a punctiform erythema and two others desquamation of hands and feet. Only one relapse occurred. Laxatives increased the effect of the chloretone, probably by stimulating absorption. The rest in bed and diet were admitted as important adjuncts.

The report of the Lunacy Commissioners, issued a few days ago, shows that on January 1 the certified insane under care in England and Wales numbered 126,084, an increase of 2,096 over the number at the same date last year. The annual increase for the last ten years averaged 2,411. There has been for some time an increasing proportion of lunatics cared for in county and borough asylums, and these institutions now contain about three-fourths of the total number. Concomitantly there has been a decrease in the number treated in pauper institutions and in private licensed houses.

In the county of London we have an increase of 410 as compared with that of 356 in the preceding year.

Nearly three-fourths of these annually certified as insane are in their first attack. The remainder are recurrent cases. The commissioners think that in some future time convalescent homes may be established and result in a decrease of the readmissions. At present there is the after cure association, but its scope is very limited. The commissioners say that if it received the support it deserves it would contribute to a real decrease in the insanity in this country.

Colonel Sir David Bruce, M.D., is about to visit Uganda to inquire further into sleeping sickness on behalf of the Army Medical Advisory Board.

The Local Government Board has completed the allocation of the scientific grant for 1908-9 by authorizing the following researches in addition to those of which I have previously informed you: (1) By C. G. Moor, M.A., and Dr. Hewlett as to the influence of softening and other chemical processes on the purity of water supplies from chalk; (2) production of disease by certain streptococci and poisonous substances produced by them. This research is to be by Professor Sidney Martin, F.R.S.

The Dublin University took the opportunity of the meeting of the British Association to confer the degree of D.Sc. on the President, F. Darwin, and on Professors Sherrington, Macullum, and Kossel.

Among recent deaths in the profession are two nonogenarians. Dr. Lightfoot, formerly of Newcastle-on-Tyne, in his 94th year, died on August 27, and Dr. John Taylor, well known in Essex, on September 4, aged 90.

Dr. F. H. Alderson, J.P., of Hammersmith, on the 3d inst., in his 70th year.

Dr. Alex. Louis Achard, on the 4th inst., aged 46.

Lieutenant H. A. Knight, M.B., I.M.S., on the 4th, aged 28.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

MEETING OF THE MANILA MEDICAL SOCIETY—ANEURYSM OF THE AORTA—TREATMENT OF THE OPIUM HABIT—INTESTINAL BILHARZIOSIS—THE CHOLERA SITUATION—CURE OF LEPROSY BY X-RAYS.

MANILA, P. I., August 15, 1908.

THE first meeting of the Manila Medical Society since the recess which was taken during the hot season took place at the Philippine Medical School building on Monday evening, August 3. Among the pathological specimens shown was an aorta which had ruptured into the esophagus. The clinical history showed that no symptoms of the aneurysm were found during life in spite of the fact that the patient had complained of a pain located deep in the chest at about the fifth rib, and he had been physically examined by a number of different medical officers. In this connection Major Borden related a case in which the patient had been an unusually robust man and presented no physical symptoms of disease. One day he became intensely cyanosed, especially about the head, neck and face, and died several hours afterward. The autopsy showed that an aneurysm of the aorta had ruptured into the vena cava. The first paper of the evening, entitled "The Treatment of the Opium Habit at the San Lazaro Hospital," by Dr. A. S. Rochester, was read by the secretary. The treatment of over 300 cases was reported, practically all Chinese, who came under observation as the result of the "Opium Law," which went into effect last March. An analysis of the cases showed that nine-tenths of them had been using the drug by the means of a pipe and that these were able to give up the habit with little difficulty; those who used the drug by mouth suffered somewhat more upon its withdrawal, and those who used it hypodermically suffered the most, but in no case was a period longer than ten days required to enable any case to give up the drug entirely. The treatment used was the gradual withdrawal method. Upon arrival at the hospital the cases were admitted to a receiving ward, where they were kept a sufficient time to enable them to be searched a number of times for any opium or its derivatives that might be secreted. In the case of Chinese, opium or morphine was found a number of times in the hair of the patient. The gradual reduction of the daily dose was then begun; those who suffered no severe symptoms were transferred to a separate ward and placed under the charge of reliable attendants. Those who were more severely affected were transferred to a separate ward where American women trained nurses were in charge. As soon as possible—usually within three or four days—the cases were transferred to the convalescent ward, where no opium of any kind was given, and if no symptoms manifested themselves they were discharged ten days after they reached this ward. The impression produced upon the writer was that the smoking of opium by Chinamen produced no more symptoms or serious effects than the use of alcohol in moderate quantities did in the white race and that the habit was given up with equal ease.

The next paper, entitled "A Case of Intestinal Bilharziosis," by Dr. G. W. Jackson, was most important on account of the fact that it was the first case of bilharzia that has been reported from the Philippine Islands. The patient was a soldier and had only been in the Philippines for about one year; previous to that he lived at a number of different places in the United States, none of which are known to be infected with this parasite. However, more than four years ago he lived in Porto Rico, which is known to be infected. During the past few months he has been afflicted with amebic dysentery, and a few weeks ago, while making routine stool examinations at the army hospital at Fort McKinley at which the patient was confined, the eggs of the bilharzia parasite were detected. Specimens of the same were demonstrated at the meeting. A most interesting discussion followed, in which the Chief Surgeon of the Philippine Division, Colonel Hoff, and the Director of Health, Dr. Heiser, took part. The great importance of such a case to the public health in a community which had all of the necessary factors for propagating the infection and in which it had not yet been introduced, was clearly brought out, and the consensus of opinion was that such a case should be rigidly isolated, and if at all practicable a person so afflicted should leave the islands for a colder climate, which would give the patient a better chance of recovery and at the same time remove the danger of infecting the Philippines.

The cholera situation in the Philippines remains about the same. The average number of cases is still about 150 per day, as the disease slowly disappears in those sections in which it appeared originally, it is gradually spreading to other portions of the islands. So far the disease has spread entirely by land, the cases that were carried by vessels having been promptly detected and the infection eradicated. In the provinces there has been no difficulty in tracing the infection from person to person, while in the city of Manila, a number of cases have occurred in which it has been impossible to trace any connection whatsoever with any other case.

In the annual report of the Bureau of Health for the fiscal year ended December 30, 1908, another case of leprosy cured by the *x*-ray is reported.

OUR LETTER FROM COPENHAGEN.

(From Our Special Correspondent.)

MODE OF EXCRETION OF ATOXYL—HIGH-FREQUENCY CURRENTS IN NERVOUS DISEASES—PEPTIC ULCER OF THE JEJUNUM—SMALLPOX IN CHRISTIANIA.

COPENHAGEN, August 31, 1908.

At a meeting of the Swedish Medical Society Mr. A. Blomquist read a paper on the excretion of atoxyl after subcutaneous injection. Professor Welander had tried the atoxyl treatment of syphilis and had prompted the speaker to investigate the excretion of this new drug. It turned out that the atoxyl passed through the organism without being altered, which fact explained how such large doses as 60 centigrams could be administered without hurt to the patient. Of such a dose one generally found 60 or 70 per cent. again in the urine passed during the first twenty-four hours after the injection. Very small quantities only could be demonstrated in the urine for the subsequent fifteen to twenty days. Very little was also found in the feces, and the sudoriferous glands did not in all probability play a greater rôle in the excretion. The question, what had become of the quantity of the injected atoxyl, which could not be found again in the urine, was solved by examination of the blood, in which a relatively large amount was retained for a long time. Only freshly made solutions of atoxyl ought to be employed, as older solutions are apt to become moldy. Professor Welander considers the action of atoxyl on syphilis as uncertain, and opines that in those cases in which the atoxyl has shown a curative effect better results would doubtless have been attained by the use of hydrargyrum and potassium iodide. Professor Edgren had tried atoxyl in pernicious anemia without result. He drew attention to the fact proved by Mr. Blomquist's researches that atoxyl did not act as an arsenic preparation, as it passed through the organism without being decomposed in its constituents. It was consequently a mistake to use atoxyl in cases in which arsenic was indicated, though several authors had been misled to do so by the seeming possibility of introducing very large quantities of arsenic into the organism without danger.

At a meeting of the Copenhagen Medical Society Dr. V. Christiansen read a paper on the use of electric currents of high frequency and tension in nervous diseases. He had tried the treatment in 121 patients, 56 of whom were suffering from functional diseases of the nervous system, while the disorder was of an organic nature in the rest of the cases. His opinion was that the neurologist possessed a useful means of suggestion in the high-frequency current. They were successful in certain cases of insomnia and had proved useful in rooting out hypnotic drug habits. Finally, they had been able to relieve painful attacks, except those found in hysteria and in locomotor ataxia. Dr. Fischer said he had used the treatment since 1901 and had found it very helpful, perhaps not so much in neuralgia as in cases of insomnia and mental depression. Even if suggestion might explain much of the efficacy of the method, he did not think that the successful results could be ascribed totally to suggestion. Professor Friedenreich was very much pleased by the sound skepticism expressed by the two previous speakers. That the Tesla current proved useful in such cases as mentioned could not be doubted. But those were exactly the same cases in which formerly static, galvanic, or faradic electricity was employed with success, and of which Möbius had truly said that the result was due in three-fourths of the patients to autosuggestion.

At the same meeting Dr. Jörgen Jensen read a paper on peptic ulcer of the jejunum. This rare complication of a gastroenteroanastomosis presented a very great danger to the patient, because the ulcer might perforate and produce a fatal peritonitis. It would therefore be well to perform a pylorectomy or a gastroduodenostomy in those cases of ulcer of the stomach, where such operations were feasible, and only employ the gastroenterostomy in the remaining cases. Dr. Ernst had had a case of the mentioned jejunal ulcer under treatment. On operation he found at the site of the gastroenteroanastomosis an irregular ulcerous tumor and performed, therefore, an enteroenterostomy below the previously existing anastomosis. The patient had remained cured for more than a year, probably because the ulcerous tumor was now less irritated by the sour contents of the stomach. Professor Th. Rovsing had always fought against the excessive use of gastroenterostomy in gastric ulcer and agreed with Dr. Jensen that the ulcer ought to be extirpated in all suitable cases. Judging after his own operative experience, he did not think that the mortality should be higher than after gastroenterostomy.

In Christiania an epidemic of smallpox has created not a little sensation among the public. Nearly the whole population of the town has been revaccinated, and there are signs that the epidemic has already culminated. About one hundred patients are suffering from the disease. Only very few deaths have occurred.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 17, 1908.

Analysis of the Symptoms in Forty Cases of Suppuration of the Pelvis of the Kidney.—A. L. Chute reviews his own experience. He admits that the tabulation of a larger number of cases might give somewhat different percentage figures. He finds that of his own cases, less than one-half (42.5 per cent.) with a history of lumbar pain, or a little over one-quarter (28.5 per cent.) could he detect any enlargement of the diseased kidney. Tenderness was present in 38.5 per cent. Casts appeared in 17.5 per cent. Eleven of the forty cases (27.5 per cent.) presented neither pain, appreciable renal mass, tenderness, or casts. The constant sign is the turbid urine. His next most frequent sign is a disturbance in micturition (85 per cent.). Both these symptoms also occur almost constantly in conditions limited to the bladder. In this particular series in 27.5 per cent. only these two signs were present. In view of the lack of distinctive symptoms in many renal suppurations and the absolute unreliability of negative findings in these cases, the vast importance of cystoscopy in the study of urinary suppurations is at once obvious.

Non-Tuberculous Bone Infections About the Hip Joint a Clinical and Roentgenological Study.—A. T. Legg and A. W. George present the histories of ten cases adding an excellent collection of radiographs. The authors believe that many cases treated as hip-joint tuberculosis are really not such, but rather suppurative processes pure and simple. As surgery offers the possibility of a complete cure, early recognition is most desirable. The series of cases here offered are instances of pyogenic infections producing acute or chronic osteomyelitis. Such cases constitute about one-seventh of all cases of hip disease. Clinically, the symptoms of acute pyogenic infections *outside* the hip-joint, namely, acute onset, rapid thickening of the neck, trochanter or upper shaft, pain, spasm, and constitutional symptoms with high white count, will generally easily differentiate this class from tuberculosis. The differential diagnosis of the chronic cases, those produced by a low-grade organism, is, however, much more difficult from a clinical standpoint. The deformity, limitation of motion, spasm, and atrophy may be the same as that seen in tuberculosis of the hip. Thickening is felt earlier than in tuberculosis and the white count is considerably higher than we find in uncomplicated tuberculosis. There may be no more constitutional symptoms in this class of cases than is seen in tuberculosis. Of all points in the physical examination of cases referable to the hip-joint, *rotation* is of the greatest importance. In cases with a focus outside the hip-joint, rotation may be free, limited, or even absent. If any is present, however, it will have the normal quality, while, where any change has taken place in the articular cartilage, the rotation, if present, has a peculiar characteristic quality. In the acute pyogenic infections *within* the joint we have classical symptoms of acute joint infection, acute onset, rapid joint distention, pain, constitutional disturbance, and high white count. The sub-acute or chronic cases, those starting in the epiphyseal line or as a general joint infection, may differ in no respect clinically from tuberculous hip disease. These will generally clear up much earlier than tuberculosis, with possible perfect function. This type will show an ultimate permanent lengthening from the irritation of the epiphyseal cartilage. Of course, secondary pyogenic infection may follow a primary tuberculous lesion.

New York Medical Journal, September 19, 1908.

Bacterial Treatment of Erysipelas.—H. A. Duncan and G. M. Illman report three successful cases. The dose varied from thirty to sixty millions dead streptococci. In the first case the fever dropped in twelve hours and re-

covery after was uneventful. In the second case the treatment was given on the morning of the third day of the disease and in twenty-four hours the temperature was nearly normal. In the third case, the disease was ushered in by an angina and later the usual facial symptoms were present. Some slight improvement was noted for two or three days, but later the disease took an unfavorable turn and the erysipelatous inflammation spread down as far as the mammæ. In the latter part of the second week, an injection of streptococci was given. Some reaction was noted on the day following. There was a considerable remission in temperature on the second day. No further extension of the inflammation occurred on the chest, and there was a marked drop in the temperature, with no subsequent rise. The temperature was 99.2 degrees F. on the third day. Some extension of the inflammation occurred on the arms, but no further rise of temperature was noted. The temperature was normal on the fourth day, and there was no further extension of the inflammation. Recovery was uneventful. The author admits the futility of drawing lessons from merely three cases, and reports them only for their face value, hoping that others will follow the same therapy and publish their results.

Psychotherapy.—A. M. Stuart says that every skillful physician must be a mind healer or he will not succeed, no matter how great his knowledge of disease. He considers the patient's mind in everything he says and does. The author discusses the mental healing of Mesmer and the more accurate and scientific work of Charcot. He then considers the Emanuel Church movement and the work of Dubois of Bern. The latter he considers as superficial and non-scientific. "He has an eye for just one thing—a neurosis. He admits that even if he discovers tuberculosis he ignores it, because otherwise he would weaken his power of cheerful suggestion. * * * He objects to methods of exact diagnosis on the ground of their increasing the fixed ideas of the patients. He admits the necessity of surgery for appendicitis and similarly serious troubles, but he scoffs at medication, calling it a bungling form of suggestion, practised because the public has been trained to it. The effect on the general public of this latest claim on the part of the clergy of the power to cure disease by suggestion is, the author thinks, liable to lead to a most unfortunate state of mind on the part of the general public, who will lose its faith in legitimate medical therapy. He thinks that the clergy have a most important responsibility in this matter and fears that many of them will indulge in a most unfortunate dabbling with disease. They will assume control of cases they have no business to touch. If," says he, "a minister was really anxious to ameliorate the suffering of humanity, I could educate him in a week. I should like him to spend that week in a large children's hospital and live among the little crippled bodies and wizened yellow faces of those innocents slain from their birth, who shall never come out of tribulation, for they are destined to bear the burden of all the sins and ignorance and greed of our society. There let the minister ask and answer his questions as to the actuality of disease."

Ischochymia.—By this term F. H. Murdoch refers to a condition characterized by the constant presence of food in the stomach in the fasting state. It may be either acute or chronic. The acute form is often called acute dilatation of the stomach and is due either to a paralysis of the gastric muscles, to a pyloric spasm, or to both. It may follow a gross dietetic error and occasionally follow chloroform anesthesia. Of 64 recorded cases, 47 proved fatal, 29 of these following chloroform anesthesia. The chronic form may follow mechanical pyloric obstruction or weakness of the gastric expulsive forces. Detailed enumeration of the causes acting under these various headings are given. Two degrees of the affection are distinguished. If food taken at night is found in the stomach the next morning, it is considered to represent a high degree of ischochymia; if food persists seven hours after ingestion, a low degree. In regard to treatment, the author quotes Hutchinson as follows: Operation is never justifiable as soon as the diagnosis of congenital pyloric stenosis has been made. One can never be sure that medical treatment is going to fail until the condition of the child is already so bad that the chance of recovery after operation is almost *nil*. He believes with Bloch, that the stenosis in these cases is the result of spasm which leads to a secondary hypertrophy of the pylorus, and that this hypertrophy disappears as the spasm passes off. Miller and Wilcox likewise believe that the medical treatment yields the best results, and are of the opinion that those children who die under medical treatment die with diarrhea, because the intestine has become too atrophic to deal with the food which passes into it when the pyloric spasm has been relaxed. Two cases are reported showing what may be done by medical means for the relief of benign pyloric stenosis in adults. In one case the stenosis followed the healing of a chronic gastric ulcer. Treatment consisted of rest in bed, liquid food, principally buttermilk, and silver nitrate in pill form. No cause could be assigned in the second case. Liquid diet and lavage effected a cure in this instance. The author observes that there is no doubt that gastroenterostomy would be the ideal treatment for all cases of benign stenosis of the pylorus if it were entirely free from danger, but so long as even a small percentage of patients die as a result of this operation it is the duty of the physician to employ every available means for the patient's relief before advising surgical intervention.

The Explosion of the Theory of Heredity.—A. Lapthorn Smith notes that while the idea of heredity in tuberculosis has undergone in the mind of the public a wonderful and beneficent change, the views along this line as regards cancer and insanity have remained almost where they were one or two centuries ago. In regard to the increase of cancer, the author says that he believes it due to the terrible mistake of regarding it as hereditary and unpreventable, whereas it is highly contagious. He finds it quite the exception to find anything hereditary about it. He believes it to be due to an ameba which gains access to the system through either the alimentary canal or some abrasion. It may circulate in the blood for indefinite time and finally find lodgment on some weakened area. To attack this enemy nature causes a cell proliferation in the vicinity and this proliferation becomes hard, due to a calcareous secretion from the ameba itself. We have considered as the disease itself, the manifestation which nature makes to stop the disease. This cell mass may gradually crumble before the assaults of the enemy and begin to ulcerate. Because cancer is considered hereditary and not contagious, no means are taken to stamp it out. It is therefore on the increase, while tuberculosis is on the decrease. In the beginning it is an absolutely local disease and should be removed at the earliest possible moment after its presence is suspected. A similar line of reasoning is followed with reference to insanity. The development of the latter affection is largely a matter of environment and habits of life. It is not logical to say that a malady is hereditary simply because it happened to a parent as well as to a child. The same *laissez faire* plan has been followed with reference to insanity as to cancer. The same idea holds true as to drunkenness. This also has been considerd as hereditary, but the author is convinced that it is simply a matter of inanition. He says he knows of several families where the father was a confirmed drunkard long before the children were born, and yet not one of those children care for alcohol; in fact, they loathe it. These children were for the most part educated away from home. In another family, where the father only took to drink after all the children were born, the five boys were brought up with the constant example of a drinking father before them, and four out of the five have become drunkards. If drunkenness was recognized as contagious instead of hereditary many a family might be saved from this disease, either by isolating the drunken father or by sending the children away when practicable.

Journal of the American Medical Association, September 19, 1908.

Genital Tuberculosis.—A. Martin, who says that, while the primary occurrence of genital tuberculosis from sexual contagion is possible and is to be considered, yet in the great majority of cases it is secondary to tuberculosis elsewhere in the body. It is not easy to estimate its frequency by specimens or autopsies, but he is convinced that thorough examinations would show it to be astonishingly common. The clinical diagnosis is usually difficult on account of the characteristic slightness of the symptoms. Tuberculosis of other organs, heredity, and contact with other tuberculous subjects are important in the diagnosis, and Martin attributes considerable value to the von Pirquet test, especially in pregnancy cases. A positive reaction, as shown by E. Martin, indicates that the patient has still the power to produce antibodies, so pregnancy may be allowed to continue. A negative reaction proves the deep injury that has been inflicted on the defensive powers of the organism, and interruption of the pregnancy is indicated. It is to be hoped that A. Martin's researches will be confirmed by the investigations of others. Ulcers of the external parts are suspected to be tuberculous when their sloughing surfaces are indurated, where undermined borders resist local treatment, and when testing shows they are not syphilitic. The microscopic determination in such cases is often difficult, many slides being needed to reveal the bacillus. The peritoneum shows two kinds of reaction, exudative and sloughing, giving rise to the development of hard masses of considerable size. It is impossible to say why the reaction takes one form at one time and the

other at another. This tuberculous peritonitis, especially the exudative form, is astonishingly frequent in young girls who rarely show in the beginning any localization in any other organ. The sloughing form was seen by Martin in one-third of his cases, and one-fifth of these were complicated by local infection of the adnexa. Two-thirds were of the exudative form, and one-half of these showed local infection of the genitals. The clinical diagnosis of peritoneal tuberculosis can be made in many cases with relative certainty. Ascites is always suspicious in the absence of neoplasms and diseases of the heart, liver, and kidneys, particularly in young women. The dry or sloughing form of peritonitis gives rise to hard masses simulating neoplasms or inflammatory infection. In most cases these show an abnormal location, not connected with the organ. The history and the localization of tuberculosis elsewhere, etc., will aid the diagnosis. The prognosis in all these cases is grave. There is always the chance of a latent localization elsewhere than where we see it. As to treatment, Martin confines his considerations to local and surgical measures. Ulcers of the vulva and vagina and of the endometrium can easily be removed. In the latter he prefers the application of strong astringents after curetting. Cases complicated with gonorrheal or septic infection need special care; in these he does not advise immediate operation, but waits till urgent indications call for it. When operation is indicated he prefers to remove only those parts so thoroughly diseased that healing seems impossible. Radical operations can not be considered here, as the possibility of hidden tuberculosis elsewhere can not be excluded. If possible, he operates by the vaginal route. Ascites he treats by free abdominal incision, by which he can reach its localization as a rule, occasionally only by the vaginal route. The removal of large nodules and sloughing masses, especially when connected with the intestines, seems to be useless from his experience. Conservative operations were done when indicated, and generally with good results. Especial attention was given to the after-treatment, the family physician, friends, and in case of poor patients some charity organization interested in the case were all instructed in the modern methods of phthisico-therapeutics. In some cases much benefit was observed from the use of guaiacol and creosote preparations. In none of his cases did the operation prove unfavorable in itself, as in no case was it performed except under urgent indication. Of 27 patients observed for over a year after operation, 16 were well and 6 have been considerably improved. Lumbar anesthesia was found well adapted to the cases. In all the cases the bacillus was present; if other cases in which tuberculosis was not so definitely diagnosed were included, the results would be still more favorable.

Symptomless Fibroid.—T. B. Eastman calls attention to the possible dangers from fibroid tumors of the uterus which may give rise to no symptoms and may be unsuspected before being revealed by operation, or in some cases even only by microscopical examination. It is generally conceded that there is an etiological connection between fibroma and cancer of the uterus, and Eastman quotes authorities on this. The alleged rarity of uterine sarcoma is, he says, more apparent than real; the proportion of cases of sarcomatous degeneration is increasing because they are being found out. There is little force in the argument that such tumors are not really degenerations, but were sarcomata from the beginning. Necrotic degeneration, which, according to Tracy's statistics, occurs in nearly 5 per cent., is the most dangerous one with which we have to deal. Including carcinomatous, sarcomatous, necrotic, and myxomatous degenerations, we have 12.1 per cent. of fibroids that ought for safety to be removed, and which in most cases might pass unsuspected by the examiner. The teaching, that it is well to advise patients with symptomless fibroids to temporize as regards operation is therefore bad—the radical advice to have them removed is much better for the patient. The mortality of 6 per cent. in the hands of competent operators is a less risk than the 12 to 14 per cent. of threatened degenerations which will be fatal if neglected, and in which a later operation will be much more serious.

Typhoid Carriers.—W. H. Park gives the results of investigations made at the Research Laboratory of the New York City Board of Health. These include the history of a cook who carried and spread the disease nearly everywhere she was employed, and who still after sixteen months' isolation and unavailing treatment with internal antiseptics, etc., is discharging the bacilli in great numbers. Examinations were also made of convalescents from the disease in two State insane hospitals and typhoid germs were found in the stools of 6 per cent. These results show that the same conditions exist in this country as in Europe, namely, that fully 2 per cent. of persons who have had typhoid fever are typhoid bacilli carriers. But besides these there are many who have become infected without developing the disease, and Park estimates their number as probably one in every five hundred adults. As most typhoid cases occur before the age of thirty, the average life of typhoid carriers must be about twenty-five years, so that we have the appalling fact that there are at least half as many recovered typhoid cases carrying bacilli as there are typhoid cases in any year, let alone the number of carriers who have never themselves had the disease. Park thinks that isolation is therefore out of the question except in special cases, like the cook mentioned, and that we shall have to rely on the more general methods of preventing infection and safeguarding our water and food supplies, not only when typhoid abounds, but at all times, as we now know that in every community unsuspected typhoid carriers may exist.

Hemorrhoid Operations.—J. D. Singley points out the danger in the ligature method of treating piles from possible infection of veins, he having observed one case of fatal pyemia, and a number of cases of embolism following this apparently simple operation by capable and clean surgeons. There is certainly a definite though low mortality that should cause it to be discarded in favor of better methods. The Whitehead operation is most satisfactory from the operator's point of view, but it may cause simple or infection embolism, and there is a risk of stricture and of incontinence which should outweigh its operative attractiveness. The clamp and cautery method, in his opinion, is free from these objections if properly performed. The hemorrhoidal masses should all be caught and brought down before any of them are cauterized, the clamp should be applied in the long axis of the bowel to avoid annular stricture, and it is better to burn away the clamped hemorrhoids instead of cutting them off before cauterizing, to avoid possible hemorrhage and infection. While less attractive as a surgical procedure, the freedom from the objections stated above, he thinks, should make it the operation of choice in almost every case.

Ranula.—T. L. Gilmer says that he formerly held the opinion that ranula was due to obstructions in Wharton's duct or the ducts of Rivini, but having found no cases of ranula on the floor of the mouth which prevented the passage of a probe through the whole length of Wharton's duct, and not having seen a case in which the sublingual or submaxillary gland enlarged or became painful, he has come to the belief that the usually held theory is wrong. Other observations showing obstruction or stenosis of the ducts without interruption of the flow of saliva have strengthened this opinion. Chronic inflammation resulting in enlargement and hardening of the glands is the most common disease, with the exception of epidemic infectious parotitis, and is most common in the submaxillary gland, but may occur in the others. It comes on slowly and is not painful, therefore the physician is not often consulted until some disfigurement results, and he reports a case in which a calculus seemed to be the originating cause. His observations lead him to believe that ranula is most often due to either cystic degeneration of parts of the sublingual gland separated from the main portion, cysts originating in the gland itself, or cysts originating in the mucous glands in the floor of the mouth. Calculi in the salivary glands are, he thinks, merely incident to diseased conditions already existing. He has never found them except in Wharton's duct. The disease described by Mikulicz is mentioned. It is manifested by symmetrical swelling of the salivary or lacrymal glands, or both. Its etiology is obscure. Other conditions noticed in the paper are tuberculosis of the sublingual gland and diverticulum of Steno's duct, cases of which are reported.

Blood Pressure.—J. Eichberg holds that test of blood pressure should form a part of the routine examination of each case, account being taken of both systolic and diastolic pressures. The Recklinghausen tonometer provides for both and is in other respects a satisfactory instrument. Examinations should be made under different conditions in the same patient before estimating the blood pressure as an element of diagnosis, and they should not be too prolonged. Variations in amplitude, or the difference between systolic and diastolic pressure, in the same individual constitute a very important part of the study. It increases in organic disease of the kidney, arteriosclerosis and aortic insufficiency, and diminishes for other organic diseases of the heart, affecting the valves or myocardium. In a healthy circulation it increases with moderate exercise, but every deficiency of the circulation shows itself in a reduced amplitude, even if the systolic pressure is increased. Systolic values of over 130 mm. call for further study. The most important feature of the study of blood pressure is found in its behavior under tests with varied amounts of measured work. Eichberg reviews the various conditions that influence blood pressure, pointing out especially the important influence of the nervous system.

It is in chronic conditions that the study is of the greatest value for diagnosis and treatment. Mere high or low pressure determinations are of little use; hypertension of itself is not a disease and may be conservative, as in chronic kidney disease, calling for no interference, but a pressure that is at all times above normal may be the only and often the earliest evidence of arteriosclerosis. The question of whether the high tension is injurious depends largely on the condition of the heart and its adaptability to the work required. If it still has a certain training capacity, compensatory hypertension is not needed.

The Lancet, September 12, 1908.

Two Cases of Gallstone Ileus; Operation; Recovery.—The patients of G. P. Newbolt were women of 54 and 58 years, respectively. The stones weighed when dry 303 grains and 280 grains. They were removed by longitudinal incisions in the gut. The main point of interest, says the author, was the type of bowel obstruction present. Though the symptoms were in both cases acute in onset and lasted some days, neither patient looked as ill as might be expected and the soft though distended abdomen with absence of tenderness on pressure was most marked. Both women were too stout to allow palpation either before or during anesthesia to give any information. Neither gave any history suggestive of malignant disease, and rectal examination during anesthesia was negative. Nor did the history of either case reveal any previous experience with gallstones.

The Action of Two Sera Upon a Carcinoma Occurring in Mice.—Experiments were made by C. E. Walker with the injection of a testis serum and a tumor serum, the full details of which are laid down. The conclusions reached are suggested by the following statements: (1) In 743 mice not treated with either of these two sera the tumors in two have dried up and dropped off spontaneously. (2) In a batch of ten mice treated with testis serum obtained 14 days after last injection of rat, the tumors in seven became suddenly gangrenous. In one the tumor dried up and came away. (3) In a batch of ten mice treated with tumor serum obtained 14 days after last injection of rat, the tumors in seven dried up and came away as small scabs. (4) In mice treated with testis or tumor serum taken from rats killed eight days after the last injection, the tumors became markedly hyperemic. This did not occur in mice treated with normal rat serum. They also grew more rapidly than the tumors in mice treated with normal serum. (5) In mice treated with testis or tumor serum taken from rats killed 14 days after the last injection, tumors grew at much less than half the rate of the tumors in mice treated with normal rat serum. If these facts are not due to a remarkable series of coincidences, it would seem that the prolonged injection of the living cells of the testis of the mouse into rats, produces in the blood of the rats a body which has a selective action upon the cells of the particular tumor dealt with in these experiments and upon those cells of the testis that are out of co-ordination. It would seem probable also that this body would have a similar action upon any cells out of co-ordination with the rest of the body and therefore upon other malignant tumors occurring in mice. The same seems likely to be the case with the blood of the rats treated with the injections of the living cells of this particular tumor, except that there would probably be a selective action upon this particular tumor only and not upon any others.

Fatal Toxemia after Chloroform Anesthesia.—M. F. Taylor's patient was a male child of two years and nine months, admitted to hospital for operation on an inguinal hernia. He appeared perfectly well and his previous history was negative. Chloroform was given with occasional small quantities of ether on the open mask. The course of the anesthesia was normal and its duration twenty minutes. Twenty-four hours later the child showed marked symptoms of collapse. The usual remedies gave no result. In thirty hours the temperature began to rise and the patient became very restless. In thirty-eight hours after operation he became comatose and died in that state. The case closely resembles those already reported both in symptoms and pathological findings. In two ways, however, it appears to differ. First, in the evidence of hyperplasia of the lymphatic tissues to the extent indicated; secondly, in the appearance of the blood, a bright cherry-red color being very apparent in the lungs and over the skin area rendered hyperemic by friction during preparation for operation. The first condition leads one to consider the possibility of a moderate degree of lymphatism acting as a predisposing factor in cases of delayed chloroform poisoning. The second condition leads to the suggestion of the possibility of chemical alteration of the blood, leading to the fatty changes observed in the organs. There has been great stress laid on the finding of acetone, diacetic acid, and β-oxybutyric acid in the urine. The condition is often described as an "acid intoxication." The "acidosis" is by no means a constant feature and when it occurs it is more likely to be a symptom of the condition than a cause. If acetone is derived from fat or if from proteid, there is sufficient excess of the former or disintegration of the latter as certified post-mortem to account for the appearance of β-oxybutyric acid or its derivatives in the urine in these cases. There is an intoxication but it remains qualified.

Deutsche medizinische Wochenschrift, September 3, 1908.

Pyocyanase in Throat Affections.—Saar has used this preparation as a spray in diphtheritic sore throat, in Vincent's angina, and in sore throat of scarlet fever. Every case was diagnosed by bacteriological examination. Previous laboratory experiments showed that the preparation had a solving effect upon the diphtheritic membrane, partly inhibited the growth of diphtheria bacilli in cultures, but did not bind the toxin of that disease. Clinically, the spraying with pyocyanase led to rapid diminution in the extent of diphtheritic membranes; the sore throat of scarlet fever, accompanied by streptococci, was quickly relieved; Vincent's angina was controlled in two or three days by the spray; simple sore throat with exudation upon the pharyngeal and tonsillar mucous membranes was likewise very favorably affected by the new preparation. Pyocyanase cannot take the place of diphtheria antitoxin, but may enable the use of smaller doses of it than usual. It has a distinct bactericidal action, but does not seem to possess antitoxic properties.

Effect of X-Rays Upon the Testicles.—Herxheimer and Hoffmann have studied this question by experiments on rabbits. They conclude that the most differentiated cells, that is, the spermatozoa, are the first to be injured by the rays; later the various cells out of which the spermatozoa develop are affected. The basal cells of Sertoli, on the other hand, begin to increase in number and with the greatly proliferated interstitial cells fill up the seminal canals. After a certain time a few remaining partly differentiated cells begin to regenerate the seminal elements, which process is much more complete than has been assumed from previous experiments. Spermatozoa are certainly produced in such regeneration, and this observation is of great practical value in the light it throws upon the possible outcome of similar x-ray injuries in human beings.

French and Italian Journals.

Elephantiasis Nostras of the Female Genital Organs.—R. Traina and E. Marconi base their observations of elephantiasis on a case observed by them in the person of a little girl of 6 years who had enlargement of the genital organs beginning in her third year. The growth removed was carefully examined microscopically. There were no enlarged or altered glands, and no history of syphilis, congenital or acquired. The authors consider especially the etiology of this affection. It has been attributed to syphilis, trauma, erysipelatous inflammations, blenorrhagia, and altered lymphatics and blood-vessels. The author believes that we are not justified in saying that syphilis is always its cause because in many cases there is no history and no other evidence of syphilis, and while syphilis is frequent elephantiasis is comparatively infrequent. Neither inflammations, obstructions of the lymphatics, nor of the blood-vessels alone are competent to cause the condition, and in the temperate climates the filaria sanguinis hominis is not found. The authors conclude from the examination of their case and their study of the literature of the affection that it arises from a number of causes combined at the same time. It generally occurs between the ages of 20 and 40 years, and pregnancy causes the growth to enlarge rapidly.—*Annali di Obstetricia e Ginecologia,* April, 1908.

Erysipelas in the New-Born.—A. Herrgott describes erysipelas in the new-born infant as a very serious and generally fatal disease. The fatality depends on the absence of reaction against the germs, due to the absence of phagocytosis in the new-born child. After the age of three months the prognosis is quite otherwise because here phagocytosis goes on normally. Starting from the solution of continuity at the umbilicus the germs enter the tissues and are not opposed by the lymphatic glands. They enter the lymphatics of the subcutaneous tissues, where they are found in great numbers, as also in the outer coats of the blood-vessels. A rapidly fatal peritonitis closes the scene. The external redness and swelling are slight, the symptoms of peritonitis being the first seen. Treatment has no effect.—*Annales de Gynecologie et d'Obstetrique,* May, 1908.

Special Article.

IMPERIAL INSTITUTE FOR THE STUDY OF INFECTIOUS DISEASES, TOKYO, JAPAN.

By S. MATSUI,

TOKYO.

LIBRARIAN OF THE INSTITUTE.

History.—In the year 1890 Prof. Kitasato returned to Japan, being honored with the title of professor by the German Government, after he had spent five years of study in that country and made himself known among the scientists of the day. The people of Japan received him indifferently.

FIG. 1.—Prof. Dr. S. Kitasato, Director of the Institute.

There were, however, more delicate minds, perceiving at once the true merit of the professor and of bacteriology. The late Mr. Fukuzawa, one of the greatest educators of new Japan, and the late Mr. Nagayo, president of the Japanese Private Hygienic Association, rendered Prof. Kitasato substantial assistance. The foundation of the Institute was there laid in the form of a private institution consisting of a few laboratories in a building given by Mr. Fukuzawa, situated at Shiba Park, Tokyo. Meanwhile Mr. Hasegawa introduced a bill in the Imperial Diet providing for a yearly grant of 15,000 yen for three years, and it was passed. At the expiration of the term specified for the annual appropriation a new grant was made to cover another three years. In the year 1899 the Institute was made a government institution.

The Institute then consisted of three departments, with a director, three department chiefs, and some twenty assistants. During this period its work chiefly consisted of the study of infectious diseases in general, their causative agents, and the means of their prevention. Besides, a course of lectures in bacteriology thrice a year, each covering three months, was given to physicians and veterinarians. It, however, again underwent a change in the year 1905.

Prior to this time the government of Japan had established a serum institute and a lymph farm, each separately. But it was thought more convenient in the way of administration to unite the three under one Institute for the Study of Infectious Diseases. This was effected by a bill passing the Diet in 1904, and the present Institute was completed in the year 1906.

Organization.—By the provisions of Imperial Order No. 88, 1905, the enlarged Institute was organized, and its work set down by the Minister of the Home Department in a proclamation issued the same year. The order and instruction are partly as follows:

Imperial Order No. 88—The organization of the Institute for the Study of Infectious Diseases shall be as follows:

1. The said Institute belongs to the Home Department and transacts the following work: Investigation of the causative agents of infectious diseases; study of prophylactic and curative means; examination of prophylactic, disinfecting, and curative methods; technical instruction of medical men in the study of infectious diseases, and preparation of vaccine lymph, sera, and other bacteriological, prophylactic, and curative materials.

2. The said Institute shall have the following offi-

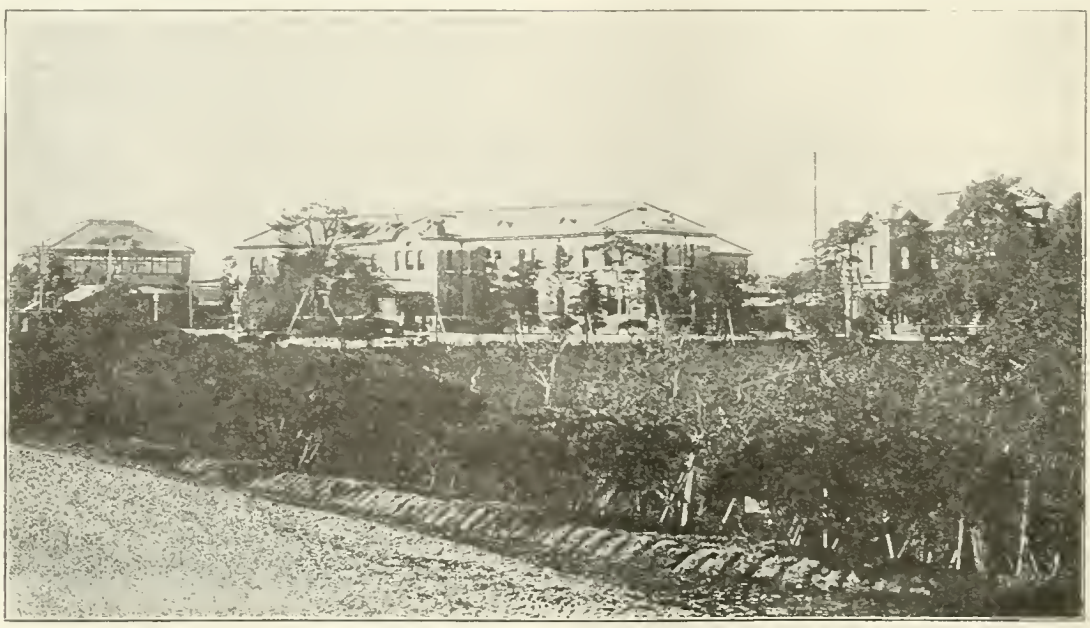

FIG. 2.—General View of the Institute

cials: a director, seven experts, twenty-three assistants, and seven clerks. It may have less than twenty assistants without pay.

3. The director is an official of "chokunin" grade (*i.e.*, an official who is nominated by the Emperor). He is under the direction of the Minister

Fig. 3.—Corridor of the First Main Building.

of the Home Department, and shall have charge of the administration of the Institute and superintend the subordinates.

4. The experts are guided by the director and participate in the work of investigation, examination, instruction, and preparation.

5. The assistants are directed by their superior officials and carry out the work of investigation, examination, instruction, and preparation.

6. The clerks are directed by their superior officials and shall attend to the clerical work.

In order to carry on the work of the Institute under Prof. S. Kitasato, it is divided into the following six departments:

1st Department. All kind of work regarding the investigation of the cause of infectious diseases and their prophylactic methods is done in this department. This department is further divided into three laboratories, *i.e.* the bacteriological, the protozoological, and the chemical. The department chief is Prof. T. Kitashima, who is also the chief of the bacteriological laboratory. Chief of the protozoological laboratory is Prof. M. Miyajima, and that of the chemical is Dr. Y. Teruuchi.

2d Department. All kind of work relating to the treatment of patients with infectious and other diseases is done in this department. To this department are annexed laboratories, a hospital, and medical offices for patients. Prof. G. Shibayama is chief of this department.

3d Department. Examination of disinfecting, curative, and prophylactic preparations for infectious and other diseases, and instruction of medical men in bacteriology and epidemiology are the work of this department, of which Dr. S. Hata is chief.

4th Department. Preparation of sera and other bacteriological, prophylactic, and curative products is made in this department. Prof. K. Shiga is chief of this department.

5th Department. Preparation of vaccine lymph is made in this department. Veterinarian S. Umeno is chief of this department.

6th Department. The sale of lymph, sera, and other preparations and clerical work are attended to in this department, of which Mr. T. Yoshizawa is chief.

There are nineteen assistants working in the departments and laboratories. Six clerks belong to the sixth department, with nine employees. Besides these, there are about seventeen non-commissioned members belonging to one or other of the departments.

Description of the Building.—As we stated above, the new enlarged Institute requiring a spacious building in order to carry on its whole work, the government allowed a sum of 300,000 yen for erecting the new Institute. A hill situated at the southwest extremity of the city, by the name of Shirokane, was chosen for its site. The whole compound, covering an area of 100 acres, constitutes a most charming spot for this kind of work. More than seventy large and small buildings are scattered over the compound. The brick house and the wooden one of two stories standing together in the middle of the grounds are called the first and the second main building. To the left of the second main building and close by is the pest laboratory building, and to the left of it and facing the first main building is the administration building, of two stories. To the back of this building are the hospital and the nurses' dormitory, each one story. To the back of the second main building are a shed for the preparation of culture media, the engine house, and the disinfection building. A stable for small animals stands to the left of the culture media building and at the back of the pest laboratory. Back of this stable is the photographer's building. In front of this building is the lymph preparing building.

A short distance apart from these are nine stables, eight of which are built parallel to each other. They have complete compartments for about 200

Fig. 4.—Students' Laboratory.

horses, which is the average number the Institute has for the purpose of preparing sera. They face a number of stores, employees' dormitories, the blood collecting building, all of which stand in one row with a drive between them and the stables.

Three stables for calves (having compartments for eighty-four calves) and an employees' dormitory, a veterinary dissecting building together with the building for the preparation of lymph, make another row standing parallel to the last-mentioned dormitories and stores.

At the northeast corner of the compound are an

Fig. 5.—Interior of the Research Laboratory.

isolating stable for cattle and the autopsy building. At the north corner is a veterinarian's residence. At the southeast corner, on another hill, separated from the main grounds by a natural vale making a pond, are a recreation ground, the dining-room, five official residences, and a kitchen. On this side of the hill is the main gate, whence a drive of about 200 yards leads to the main building of the Institute.

Equipment and Arrangement.—Let us come back to the first main building to examine what sort of equipment and arrangement are provided for each laboratory in order to make a complete investigation and study in this branch of science which we call the study of infectious diseases. This building contains six laboratories of experts, the private office of each adjoining his laboratory. Along the entire available window front of each room is a microscope table, 30 inches above the floor and 25 inches wide, and each room has three windows, so that three persons may have their seats

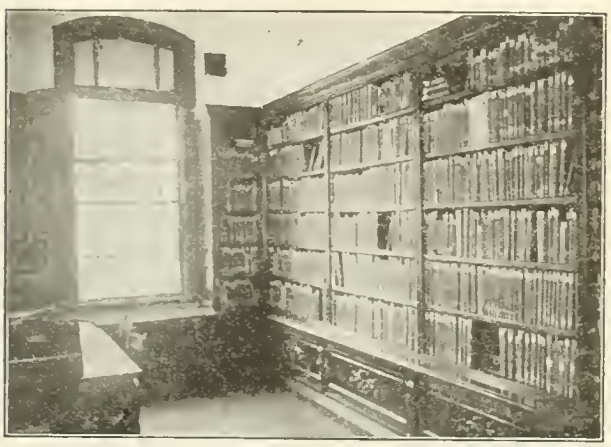

Fig. 6.—A Corner of the Library.

in a room. Beside each window, at a convenient point, is a gas bracket. Each table has closets and drawers. In the center of each room is a large double work desk supplied with gas and water, with a large sink and drip board at one end. The desks are 35 inches high, and are intended for the general work of the laboratory, providing facilities for heating, filtering, distilling, etc. On these tables and desks are arranged the apparatuses, such as microscopes, sterilizers, microtomes, surgical instruments, glass utensils of every kind, stains, chemicals, tissue fixers, etc. Besides, each room is provided with an incubator and some cages for the

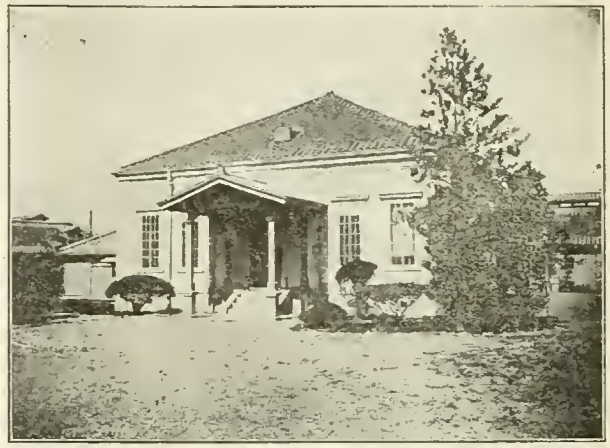

Fig. 7.—The Plague Laboratory.

feeding of animals, such as rats, mice, etc., under examination. Indeed, the number of apparatuses, both large and small, is very large and ample. Enumeration of them would exhaust the space allotted to this article. These are the chief and general equipments which each room in the first main building has.

The library is at the left corner of the first floor, occupying two rooms, one of which is used as a reading room and the other is filled with book racks; it is of fireproof construction. It contains over 3,000 volumes and 1,500 pamphlets, written in English, German, French, Italian, Spanish, Russian, Danish, etc. But most of them are German and English books. Besides, there are about 1,500 Japanese books and periodicals. With the exception of about 300, all of these are medical and bacteriological works.

The specimen exhibition room is at the left corner, just above the library. It is divided into two rooms and has six large showcases. In these cases

Fig. 8.—Entrance to the Hospital.

are arranged various kinds of specimens of sera, lymph, toxins, and other bacteriological products, both domestic and foreign. Here are also exhibited pathological and anatomical specimens.

Let us now pass on to the second main building, which may be reached by a long covered hallway.

The first floor of the right wing is mostly occupied by the chemical laboratories. A narrow hall runs through the middle of the building. To the right of the hall are three rooms, the library (branch room), an apparatus storage room, and a weighing room. To the left are a dark room for spectrum

Fig. 9.—Serum Collecting Room.

analysis and a furnace room. At the end of the hall is a large chemical laboratory. It is rectangular in shape. Along both short sides, which have windows, are two microscope tables, and in the middle is a broad work desk. To the wall just opposite to the door leading to the hall is attached a hood, which will supply facilities for work with such materials as should be excluded from the general laboratory air. Along this room, and quite apart from the main building, is built a small room with another hood over the furnace; here is done such work as would cause an offensive smell, or even give rise to poisonous gases. The chemical laboratory is well equipped with every kind of apparatus and chemicals which are necessary to carry out the work of the most advanced science of biochemistry, as well as chemistry in general.

To the left are three rooms for assistants and a refrigerator room. To the left of the large room, and separated from the main building, is an incubator room. It is supplied with a large incubator, 9 feet in height and 6 feet in width, with a gas boiler which supplies steam to the incubator. In this room is a microscope table, which is supplied with gas and water. These rooms are used for preparing various kinds of toxins.

The second floor of this building is again divided into two wings by the hall in the middle. The right wing has three laboratories along the hall and an expert's private room. These rooms have also the same equipment and arrangements as the other laboratories, and are used for preparing materials for Pasteur inoculation. Pathological and anatomical examinations (but not dissections) are made in one of these rooms.

The left wing has the same number and arrangement of rooms as the right. These are used entirely for the study of veterinary medicine and surgery, especially for the examination of lymph prepared at the lymph farm.

The culture media room is provided with autoclaves and sterilizers. All sorts of culture media are prepared in this room. The stable for small animals, such as rabbits, guinea pigs, monkeys, cats, dogs, and the like, is provided with about 100 cages, each containing two or three animals.

The pest laboratory building has two laboratory rooms, one culture media room, one animal room, one sterilizing room. These are all in one building with special device for rat exclusion, and all windows and other openings are covered with wire screens, in order to protect the rooms from insects.

The engine room equipment consists of a Westinghouse 29-horsepower gasoline engine, directly connected to a Westinghouse 17-kilowatt generator, besides a vacuum pump, several electric motors connected with a storage battery, a 6-horsepower gasoline engine connected with a large centrifugal apparatus and a vacuum pump by means of belts. Adjoining this room is the boiler room. It is equipped with a 5-horsepower boiler connected with a water pump and an autoclave, in which all infected clothing, bedclothes, and the like, used in the hospital are disinfected. The boiler also supplies hot water for the baths.

The photographer's room is divided into two parts, one apparatus room and the other the dark room. Its equipment consists of a great photomicrographic apparatus of Zeiss, an ultramicroscope, an ultraviolet-microscope, etc., together with a switchboard and other necessary electrical apparatus.

The lecture course building consists of two large rooms, with some smaller compartments for a culture media room, a dining room, a waiting room, etc. The work room occupies the whole area upstairs, four walls of which are covered with glass sliding doors, so as to furnish as much room for microscopic examination as possible. There are seats for seventy persons. The largest room downstairs is the lecture hall, which is constructed so as to be darkened when it is necessary to use lantern slides during the lectures.

The hospital equipment consists of two physicians' offices, two pavilions, the kitchen, the dining room, the nurses' dormitory, the meeting room, the bath, the autopsy room, and the wash room. The first physicians' office is further divided into two consulting offices, the physicians' room, the dispensary, the meeting room, the resident physician's room, etc. The second physicians' office is divided into disinfecting room, two consulting offices, the examination room, the dark room, the apparatus room, the meeting room, etc. The first pavilion consists of the operating room, seven wards, with

Fig. 10.—Interior of the Animal House.

accommodation for fifteen patients, provided with the latest equipment. The second pavilion is divided into eight wards, with twenty-five beds. The ground under the floor of the sick ward is covered with concrete, and the floor is double, so that the room may always be kept dry as well as warm.

All the windows are provided with wire screens to keep away insects and other intruders.

Present Work of the Institute.—Bacteriology, or we may more properly say the study of infectious diseases in general, was of very limited scope ten years ago, but it has gradually increased its field, and nowadays a bacteriologist must have a complete outfit of microscopes, chemical laboratories, stables in which various kinds of animals are kept, with an ample knowledge of medicine, zoology, botany, chemistry, etc. We have, therefore, not only medical men, but also zoologists, veterinarians, and chemists among our staff. Manifold as the work is, it may be divided into two great parts for convenience sake. One is the official which is required by the regulation, and the other, more individual in character, which is freely granted to every member of the Institute.

The official work consists of preparation of sera, lymph, prophylactic fluids or vaccines, examination of disinfectants, pathological material, and the like for the public, and the instruction of medical practitioners in bacteriology.

The sera supplied by the Institute for the public are as follows: antidiphtheria serum, in liquid and dried form; antitetanus serum, also in two forms; antityphoid serum, antidysentery serum, anticholera serum, antipest serum, antistreptcoccus serum, antivenom of "Habu," a venomous snake inhabiting the Loo Choo Islands. These sera are highly efficacious, and especially those of diphtheria and dysentery. Here is pepared an antidiphtheria serum, one cubic centimeter of which contains 2,000 immunization units, which is said to be very rarely prepared in any laboratory, and we owe it to Prof. Kitashima and to the technique of Dr. Hida, who has in charge the preparation of the serum. Prof. Shiga has succeeded in preparing a polyvalent antidysentery serum which is highly prized for its efficacy by medical practitioners.

The vaccine lymph is prepared after the method Mr. Umeno has introduced. His method is to prepare lymph exclusively of animal origin never passing through the human body, and it is highly efficacious. Its yearly preparation reaches the enormous amount of more than 1,700,000 tubes, one tube containing a sufficient dose for five persons, and therefore we can safely affirm that over 8,000,000 persons receive vaccination with the lymph of our make each year out of 50,000,000 of the Japanese population.

The prophylactic fluids or vaccines prepared in the Institute are those of pest, typhus, dysentery, and cholera. These are used whenever those epidemics break out.

Besides these the Institute supplies tuberculin and erysipelas antitoxin. All these biological products, viz., sera, vaccines, tuberculin, and erysipelas antitoxin are sold to physicians and druggists at home and abroad.

The examinations of disinfectants and pathological material is made from time to time at the public request.

The instruction of medical men is given thrice a year, each term lasting three months, to which physicians and veterinarians are admitted.

The most valuable achievements, in the light of science, which have hitherto been accomplished in the Institute, are the discovery of the dysentery bacillus by Prof. Shiga, experiments on treatment with various kinds of sera, prophylaxis by means of preventive vaccines, the therapy of erysipelas, the prophylaxis of hydrophobia, and works on the immunization theory.

Book Reviews.

Handbook of Medicine and Therapeutics. By Alexander Wheeler, L.R.C.P. and S.E., and William R. Jack, B.Sc., M.D., F.F.P.S.G.; Assistant to the Professor of Practice of Medicine, Glasgow University; Assistant Physician to the Western Infirmary of Glasgow. Third Edition. New York: William Wood & Co., 1908.

The object of this little volume is to enable the student to digest the main features of the various diseases in the most concise manner at the time he is engaged in clinical work, thereby enabling him to verify at the bedside the statements he has read; and to enable the busy practitioner to see at a glance the principal points of each disease, which he can elaborate by his experience. Though of small size, the volume is much more than a mere compend. The diseases of the special organs are prefaced by a brief summary of the anatomy and function of those organs in health; and the physical signs of the various diseases are not only described, but as far as possible their production is explained. The book is well arranged, and the material presented is calculated to be of benefit to the student and practitioner.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. June 1, 1908. Philadelphia and New York: Lea & Febiger.

The current number of Progressive Medicine contains articles on: (1) Hernia, by W. B. Coley; (2) Surgery of the Abdomen exclusive of hernia, by E. M. Foote; (3) Gynecology, by J. G. Clark; (4) Diseases of the blood, diathetic and metabolic diseases, diseases of the spleen, thyroid gland and lymphatic system, by A. Stengel; and (5) Ophthalmology, by E. Jackson. The Contribution on Gynecology contains a most important and timely section of forty pages on cancer of the uterus, and the subject of cancer in general is incidentally discussed. Progressive Medicine is too well known to need more than a mere mention of the appearance of the June number.

The Treatment of Gonorrhea in the Male. By Charles Leedham-Green, M.B., F.R.C.S., Surgeon to the Queen's Hospital, Birmingham; Surgeon to the Birmingham and Midland Hospital for Children; Consulting Surgeon to the Birmingham General Dispensary. Second Edition. New York: William Wood & Company, 1908.

The fact that a second edition of this book became necessary in less than two and a half years of the first issue, demonstrates its acceptability. This edition is certainly written up to date, including, as it does, a description of Goldschmidt's irrigating urethroscope and the use of Bier's hyperemic treatment in gonorrheal arthritis. It is singular that so careful an author as Leedham-Green should have omitted the fact that George Walker of Baltimore published the details of an urethroscope like the one mentioned at the same time that Goldschmidt presented that described. The author accepts a misapprehension regarding the employment of the Valentine irrigator, in that he implies that in order to obtain varying pressures it is necessary to elevate the irrigator to varying heights. The fact is that the receiver of the irrigator is kept at the same elevation throughout and the varying pressures needed are obtained by a simple stop-cock. Aside from such minor oversights, the book certainly supplies the demand for a brief, concise work to serve as an introductory to the study of this important disease. The author's manner of handling his subject justifies the hope that a larger, more exhaustive work may in the near future be expected from his pen.

Bradycardia and Tachycardia. Part II, in a Series of Monographs on the Symptomatology and Diagnosis of Disorders of Respiration and Circulation. By Prof. Edmund von Neusser, Professor of the Second Medical Clinic, Vienna; Associated Editor of Nothnagel's Practice of Medicine. Authorized English translation by Andrew MacFarlane, M.D., Professor of Medical Jurisprudence and Physical Diagnosis, Albany Medical College. New York: E. B. Treat & Co., 1908.

This small volume contains the translation of the two lectures by Professor Neusser on bradycardia and tachycardia, long well known to such medical men as read German. Dr. MacFarlane has put the German text into very readable English and Dr. Malcolm Douglas has supplied the appendix containing short abstracts of English and American articles, as well as a foreign bibliography of the subjects considered by Neusser.

Physical Signs of Diseases of the Thorax and Abdomen. By James E. H. Sawyer, M.A., M.D. (Oxon.); M.R.C.P. (Lond.); Casualty Assistant Physician and Medical Registrar, the General Hospital, and Physician to Out-Patients, the Children's Hospital, Birmingham. New York: William Wood & Co., 1908.

This book is intended for medical students, and will serve as an introduction to the study of physical diagnosis. There are two introductory chapters on the general condition of the patient, and the topographical anatomy of the thorax and abdomen. Then follow chapters on the physical examination of the thorax and abdomen, with explanation of the signs as ascertained by inspection, palpation, mensuration, succussion, percussion and auscultation. The volume contains numerous illustrations, and a few tables of differential diagnosis.

The Student's Handbook of Gynecology. By George Ernest Herman, M.B. (Lond.), F.R.C.P., F.R.C.S.; Consulting Obstetric Physician to the London Hospital, Consulting Physician-Accoucheur to the Royal Maternity Charity and to the Lower Hamlets Dispensary, Late President of the Obstetrical Society of London and of the Hunterian Society, etc. With 170 illustrations. New York: William Wood & Co., 1908.

This is a condensed edition of the author's larger and well-known work on the Diseases of Women. All explanatory, argumentative and speculative matter has been omitted, as well as references to rare cases and descriptions of operations not commonly performed. No space is devoted to instruction on anatomy, anesthetics or antisepsis, as the student is supposed to obtain the necessary information on these points from other sources. The present volume will prove of great value to students in the wards and dispensaries; it is the size of an ordinary compend, with the contents of a first-class textbook, and is written by a recognized authority. It has all the good qualities of the larger work, is only a quarter of the size, and half the cost.

Cancer, Relief of Pain and Possible Cure. By Skene Keith, M.B., F.R.C.S. (Edin.); Author of "Introduction to the Treatment of Disease by Galvanism," "Electricity in the Treatment of Uterine Tumors," "Gynecological Operation," and George E. Keith, M.B., C.M., Author of "Text-Book of Abdominal Surgery," with Mr. Skene Keith. New York: The Macmillan Company, 1908.

This is the description of the treatment of malignant disease, carcinoma and sarcoma, by means of an injection of a solution of iodipin, arsenate of iron, cacodylate of iron, and cinnimate of sodium. The modest claim of the authors is well expressed in the title. They do not assert that they have found a cure for the disease, but only that an experience of five years has convinced them that the method will often afford marked relief, assuaging the pain and apparently prolonging life, and in a few most favorable cases even seeming to cause a disappearance of the neoplasm. Although having little hope in the curative power of the knife, the surgical method is still strong enough to lead them to advise operation in every case when possible, following it with the injections. In very early cases, however, where a delay of three or four weeks would not imperil the success of a subsequent operation, they advise a resort to the injections first and an indefinite postponement of surgical treatment so long as improvement continues. The book is well worth a careful reading by all who believe that cancer can ever be cured definitely only, if at all, by medicinal means, and that surgery at the best affords but a chance of permanent relief.

Health at Its Best v. Cancer. By Robert Bell, M.D., F.F.P.S., Formerly Senior Physician to the Glasgow Hospital for Women; Author of "Cancer; Its Causation and Treatment Without Operation;" "The Cancer Problem in a Nutshell;" and "The Woman in Health and Sickness." London and Leipsic: T. Fisher Unwin, 1908.

In this book the author pleads for freedom of speech and open discussion of health topics, the suppression of which through motives of false modesty is responsible for the great amount of ignorance in sanitary matters which still prevails. As a rule the directions on health subjects given by Dr. Bell are in every way excellent, though he appears to have a leaning toward raw food faddism, that latest development of vegetarian extravagance. In the chapters treating of cancer the author expounds his well known views regarding the etiological action of autointoxication, and the curative effects of thyroid extract. The work is interesting, even to those who cannot accept all its teachings, and is provocative of thought, which is, after all, or should be, the chief aim of any book dealing with subjects not yet definitely settled, for it is the gaining of an audience and a hearing that is the most difficult work of the preacher of a new doctrine. If the message he has to give is true, it will prove itself if only attention can be drawn to it. There is much outside evidence to lead to the plausibility of Dr. Bell's theory of the causation of cancer, and there is also some corroborative testimony regarding the value of thyroid extract in the treatment of the disease.

The Pathology of the Eye. (Awarded the Nettleship Gold Medal of the Ophthalmological Society of the United Kingdom.) By J. Herbert Parsons, B.S., D.SC. (Lond.), F.R.C.S. (Eng.), Assistant Ophthalmic Surgeon, University College Hospital; Assistant Surgeon, Royal London (Moorsfield) Ophthalmic Hospital; Ophthalmic Surgeon, Hospital for Sick Children, Great Ormond Street. Volume IV. General Pathology—Part II. New York: G. P. Putnam's Sons. London: Henry Frowde and Hodder & Stoughton, 1908.

The fourth volume of "The Pathology of the Eye," by Parsons, is devoted to the pathology of injuries to the eye and orbit, to the pathology of exophthalmos and enophthalmos, panophthalmitis, orbital cellulitis, embolism, sympathetic inflammation, symptomatic diseases of the eye, and to the influence of heredity on the eye, the whole under the heading "General Pathology." The plan of the work is similar to that of the preceding volumes. The text is not prolix, but is comprehensive and to the point. The bibliography is extensive. The illustrations, all of which are in the text, are as a rule excellent, faithfully depicting the conditions that they are intended to represent. The entire content of the work is valuable. The chapter on heredity is of particular interest, the effect of heredity on the various tissues of the eye being given in detail. Diagrammatic charts representing the transmission of the various conditions through generations, graphically depict the various conditions that have been detailed. The work of Parsons is truly monumental and is fully worthy of the high appreciation which has been accorded to it by ophthalmologists throughout the civilized world. It is a store of knowledge of the pathology of the eye from which the present and succeeding generations will derive great benefit. No ophthalmic surgeon can afford to be without it.

Movable Kidney. Its Pathology, Symptoms and Treatment. By Harold W. Wilson, M.B., and C. M. Hinds Howell, M.B. London: Edward Arnold, 1908.

An attempt has been made in this book to give a concise account of the various conditions included under the term movable kidney. The experimental work was done at St. Bartholomew's Hospital. While the little volume is carefully and attractively written, it does not appear that the authors bring anything new to the study of a subject well known to general surgeons. As a compilation of all that is best in the literature of the subject the assiduity of the authors deserves the commendation of all who have to do with this essentially surgical condition.

Studies from the Laboratory of Surgical Research, Department of Surgery, Columbia University.

The College of Physicians and Surgeons is doing very important work in the field of experimental surgery and in this first published volume of studies results more or less conclusive are arrived at. There are studies in intestinal exclusion, in antiperistalsis and upon the function of pylorus and stomach after gastroenterostomy. In addition to these Dr. J. W. Draper Maury has done some interesting work in "technical surgery," including his twine triangular stitch for gastro- and enteroenterostomy, and records his observations upon a form of exophthalmic goiter in a dog. The use of methylene blue as an aid in diagnosis of pyelonephritis is explained by Dr. Edwin Beer, and Dr. N. B. Leggett has written a report of his studies in rectal anesthesia carried out on animals in the laboratory, and upon patients in the operating rooms of Roosevelt Hospital.

Points of Practice in Maladies of the Heart. By James Sawyer, M.D., F.R.C.P., etc. Birmingham: Cornish Brothers, 1908.

This book consists of three lectures delivered at the Royal College of Physicians of London. The aim of the lecturer was evidently to interest rather than to instruct. The author thinks that "true valvular thrill always shows forth structural valvular disease." If we could cure worry we would be far toward the cure of many "valvular neurotisms." He does not believe that either the presence or absence of an increased pulmonary second sound, either of high or low degree, is of any value in a diagnosis between mitral stenosis and mitral insufficiency. In the matter of diagnosis of cardiac lesions he prefers a solid wooden stethoscope.

Society Reports.

SIXTH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Held in Washington, D. C., September 21 to October 12, 1908.

(Special Report to the MEDICAL RECORD.)

FIRST GENERAL SESSION.

Monday, September 28.

HON. GEORGE B. CORTELYOU, SECRETARY OF THE TREASURY, PRESIDING OFFICER, IN THE CHAIR.

THE Sixth Triennial International Congress on Tuberculosis was opened on Monday, September 28, at 11 A.M., in the National Museum by Secretary Cortelyou, who represented President Roosevelt. He said that he considered it a great honor to be called upon to preside over such a distinguished gathering and especially to do so as the representative of the President of the United States. He said that the President had sent his congratulations in the name of the American people upon the work that had already been accomplished and upon the promise of far greater accomplishments in the future. He assured the foreign delegates that our people appreciated not only the interest but the cordial spirit of good will which the governments had shown in sending their delegates. He said that we were living in an age not only of great material but of great moral movements. It was a time of widening vision, deepening research, and broadening cooperation. The time when the people sat idly by and left the study and investigation of evils which menaced the welfare of humanity to the desultory investigation of a few had passed away and we now had concerted action either under governmental inspiration or governmental encouragement. A very brief outline of the work done in this country in combating the ravages of tuberculosis would not be out of place. The first organized movement in the United States was begun by the Pennsylvania Society for the Prevention of Tuberculosis in 1892 under the leadership of Dr. Lawrence A. Flick. Since that time numerous other organizations had been formed, until we now had more than 200 such organizations in the United States. The National Association for the Study and Prevention of Tuberculosis and other similar societies were independent of governmental control, but the national government had prescribed rules to prevent the spread of the disease among its employees and had also established governmental sanatoria. The United States Public Health and Marine Hospital Service had established a sanatorium at Fort Stanton, N. M., on a governmental reservation of forty-five square miles and having an altitude of 6,251 feet. Here an average of 200 patients could be accommodated. The War Department had a sanatorium at Fort Bayard, N. M., and the Navy Department had a sanatorium in Colorado. The Agricultural Department was furnishing most valuable additions to our knowledge from time to time. Congress had made provision for a hospital in the District of Columbia for the treatment of indigent persons suffering with tuberculosis and also for an investigation as to the prevalence of tuberculosis among the Indians and the desirability of establishing sanatoria for them. A number of the States had provided for the creation of commissions for the purpose of making investigations as to the extent of tuberculosis in the various States and the best means for prevention and treatment. In a number of instances these investigations had led to the establishment of State sanatoria for the treatment of those afflicted with this disease. He referred to the First International Congress held in Berlin in 1899, which was the first to be held with governmental sanction. This congress and the Peace Congress at The Hague were the most notable events of that year, and of these the former was the most important since its efforts were directed against an ever-present enemy, while war was only an unfortunate incident in the history of a country. He spoke of the menace of tuberculosis from an economic and hygienic standpoint. In spite of the panics that had been caused by yellow fever there had not been as many deaths from this disease in 115 years as there were from tuberculosis last year in this country. It was estimated that there had been 100,000 deaths from yellow fever during this period, while there were 160,000 deaths from tuberculosis last year in the United States. The bubonic plague in India, since its outbreak in 1896, had not caused as many deaths in proportion to the population as had tuberculosis in this country during the same time. Tuberculosis had caused nearly three times as many deaths during the past four years in the United States as were occasioned directly as the result of the Civil War. The importance of such an international congress could hardly be overestimated. It had stimulated the crusade against tuberculosis in England, France, Germany, and Italy. In this country even the preparations for the congress had already exerted a wholesome effect in awakening interest and enlisting support in every State in the Union. In his letter to Dr. Flick, President Roosevelt had emphasized the good results of such an international meeting in the following words: "The International Congress of Tuberculosis is in the interest of universal peace. By joining in warfare against a common foe the peoples of the world were brought closer together and made to better realize the brotherhood of man." A similar idea by one of our leading reviews which said that this congress would be a peace congress since so many different nations with no thought of separate boundaries would join in making common plans against the most common and dangerous enemy of the people. This crusade against disease, unlike others in the past, was based upon exact knowledge and not upon empiricism, and he hoped that the results would mark a most notable advance in the crusade against this dread menace to national and international welfare.

The Hon. B. F. MACFARLAND, Health Commissioner of the District of Columbia, welcomed the delegates to the congress in behalf of the District. He said that although many international congresses were held here, none could exceed in importance the one which began on this occasion. In such a gathering as this nations, planning for the victories of peace, formed ties that were hard to break in order to war with one another. The executive government of the National Capital had just completed the newest municipal tuberculosis hospital and had secured municipal legislation for the registration of tuberculous cases and the free examination of sputum. It was endeavoring to improve and safeguard the milk supply, was eliminating the alley slums and cooperating with public-spirited citizens in the instruction of the people on the home treatment of the sick. The presence and counsel of the congress far outweighed the hospitality that they had to offer but not their desire to make their guests at home.

The remainder of the session was devoted to the responses of the foreign delegates, all of which expressed enthusiasm for the work and admiration for the achievements of the United States in combating tuberculosis. The speakers and the nations they represented were: Dr. Fermin Rodriguez, Jr., Argentina; Baron Hengelmüller von Hengervar, Austria; Prof. Denys, Belgium; Dr. F. Montizambert, Canada; Dr. L. Sierra, Chile; Dr. Jee, China; Dr. Juan J. Ulloa, Costa Rica; Dr. Joaquin L. Jacobsen, Cuba; Dr. Bernard Bang, Denmark; Dr. C. W. Richardson, Ecuador; Prof. Louis Landouzy, France; Dr. Arthur Newsholme, Great Britain; Dr. Lawrence Coromilas, Greece; Dr. Bengoechea, Guatemala; Dr. Josselin de Jong, Holland; Dr. Antonio Stella, Italy; Dr. Eduardo Liceaga, Mexico; Dr. F. Harbitz, Norway; Dr. Echeverria, Panama; Dr. Ladislaw Detre, Hungary; Dr. Sylvio Gurgeldo Amaral, Portugal; Dr. S. Trimescu, Roumania; Dr. A. Vladimiroff, Russia; Dr. Camilo Calleja, Spain; the Hon. Conrad Cedercrantz, Sweden; Dr. Fr. Egger, Switzerland; Dr. Luis Melean Lafinur, Uruguay, and others.

Prof. Robert Koch of Germany, who responded to the welcome for Germany, said that the tuberculosis situation in Germany had been distinctly favorable during the past three decades, the rate of mortality having been reduced one-half, which was equivalent to a gain of 30,000 lives per annum. They were still active in trying to diminish this decrease. Many sanatoria had been established in which 40,000 patients per year were cared for. Germany watched the work of the congress with the keenest interest. The enactment of laws for the housing of the masses were contemplated. The Robert Koch "Stiftung" had been created for the purpose of studying tuberculosis in all its aspects, and in order to find new ways and means of successfully combating tuberculosis. The work of this institution was not confined to Germany. He recommended it to the good will of all who desired to participate in the crusade against tuberculosis.

Dr. Edward L. Trudeau of Saranac Lake, N. Y., said that as a veteran who had been in the struggle against tuberculosis for 35 years no one could better appreciate the meaning of such a congress than he. He had struggled for long years against darkness and indifference. It gave him great satisfaction to see the reduction in mortality and the recoveries and to see the light flashing from nation to nation; all this meant much to science and to humanity and the end was not yet.

Secretary Courtelyou closed the meeting by thanking the delegates for all they had said in regard to the excellence of the work of this country in combating tuberculosis in behalf of the government and expressed the hope that much that would be of value would result from the meeting.

THE EXHIBITION.

This exhibit was the largest and most complete of its kind ever brought together in the history of the crusade against tuberculosis. It was of the greatest educational value, giving the most effective object lessons as to both the treatment and the prevention of the disease. There were exhibits from nearly every State in the Union, from the Army, the Navy, the Marine Hospital Service, institutions of learning, individuals, and societies. Many foreign countries were represented, and among them Germany, France, England, Switzerland, Sweden, Hungary, Russia, Belgium, Austria, Canada, Argentine, Brazil, Uraguay, and Japan contributed exhibits that bore witness to their interest in this crusade. The exhibit conveyed an idea of the extent and variety of work along both purely scientific and practical lines that could not have been presented so effectively in any other way.

Argentina.—The exhibit from this country, the work of the Argentine League against tuberculosis consisting of models of dispensaries, hospitals, municipal sanatoria, together with its educational propaganda, which won the first prize at the St. Louis exhibition in 1904, and two gold medals at international exhibitions in South America, was presented.

Austria contributed her literary work and a collection of fifty-two microscopical and pathological specimens.

Belgium exhibited 155 anatomical specimens, 250 photographs, plans for a hospital, a number of instruments, and the literature disseminated for educational purposes.

Brazil presented diagrams showing the mortality from tuberculosis compared with that from epidemics in the towns of Sao Paulo, Santos, and Campinas. Plans for a model dispensary and for popular sanatoria were exhibited.

Canada sent an excellent pathological exhibit from McGill University. The colors of these specimens were preserved by the method of Kayserling and most skilful mounting was displayed. The specimens demonstrated the lesions caused by the tubercle bacilli in every organ of the body. There was also a series of Petri, Pasteur, and watch-glass specimens, in all of which the colors were preserved.

France.—Dr. Paul Courmont and Professor Arloing of Lyons, presented a number of microscopic specimens and demonstrated lantern slides. Dr. Leon Petit, of Paris, exhibited illustrations of hospitals, educational pamphlets, and apparatus for purifying air.

Germany.—The exhibit had been arranged to present a clear picture of the state and success of the campaign against tuberculosis in the countries taking part in this congress. Most of the exhibitors had agreed to leave their exhibited objects in possession of the National Association for the Study and Prevention of Tuberculosis in Washington to be used for a permanent exhibition in Washington. The work had been carried on under the direction of the Central Committee for Combating Tuberculosis. It was this committee that organized the notable first "Congress for Combating Tuberculosis as a Public Disease." This committee advocated the establishment of information stations and stations for the care of pulmonic patients, which, since 1803, had been in existence in numerous cities in Germany and represented one of the principle factors in the list of measures for combating tuberculosis. Within the last year a number of forest recreating stations were erected. As the latest achievement among antituberculosis measures the forest school was described. Among the tuberculosis institutions in Germany were 99 public health stations with 10,539 beds, 36 private institutions, with 2,175 beds, so that 50,500 persons could be treated annually. Tuberculous children were cared for by 18 institutions, with 837 beds, and those threatened by tuberculosis by 73 institutions with 6,843 beds. One hundred information and providing stations were in operation. There were 82 forest recreating stations, 3 forest schools, 2 rural colonies, 13 invalid and nursing stations, 13 convalescent homes for tuberculous patients, and 18 special lupus stations. There was a graphic description concerning the general mortality and the mortality from tuberculosis. The tuberculosis mortality in Prussia for the year 1875 was 31.9 per ten thousand living persons. This proportion remained almost stationary during the following ten years, but a rapid retrogression of the mortality rate had been manifested since this time in consequence of the combative measures employed as the result of the discovery of the tubercle bacillus. In 1906 only 17.26 of every ten thousand living inhabitants died of tuberculosis. There were illustrations and plans of the healing stations, forest recreating stations, invalid homes, and children's recreating homes. Illustrations were furnished of plans for dwelling house for tuberculous workmen. These houses, isolated and situated near the forest in sunny locations, were either one or two stories high and were accordingly intended for one family or for six families. Each dwelling had one room entirely separated from the others. This separate room was especially large, heatable, well ventilated, with an adjoining veranda, and special water closet for the pulmonic patient. This granted the tuberculous person the greatest possible isolation without compelling him to live entirely separated from his family. For the purpose of obtaining the cheapest sick bed, the cheapest daily maintenance under the best conditions for therapeutic success, a new architectural style founded on the principle of increasing the surface of the building which came into contact with the free atmosphere, a system known as the "Terrace system" had been devised by which the front of each story was built behind the front wall of the story underneath. Besides better air penetration of such a terrace house, was the fact that all the rooms of the building were more exposed to the sun, and that on account of the slanting direction of the front, all rooms had the full benefit of longer daylight. The great advantage of this system was that from every window of every story one could enter at any time under open sky. This made it obvious that this system gave the possibility of bringing two valuable modes of treatment in full favor, the rest cures and the air baths. This new architectural style possessed the advantage of be-

ing quite fireproof and of making possible very attractive and picturesque buildings. The system was applicable especially for hospitals, but was quite desirable for hotels and living houses. The invalid insurance of the German Empire was a part of the imperial workingmen's insurance law, which aimed at protecting the workingman in their economical existence against the unavoidable danger and injuries of their vocation. This insurance system had been extended so as to provide help to tuberculous workingmen, and had proved to be of invaluable assistance in combating the disease.

Great Britain.—The pathological exhibit was especially notable for the fine technique displayed in the preparation of pathological specimens. There were exhibits from the pathological department of the Western Infirmary, Glasgow; from the Humphrey Museum of Cambridge University; from the University of Manchester, and that of Leeds; also from the University College of Bristol.

United States.—Many of the States had exhibits of institutions, sleeping tents, and all the paraphernalia for combating tuberculosis.

Federal Government.—The work of investigation of tuberculosis among the Indian tribes was of special interest. The census of the Indian tribes in June, 1907, was 68,919; the number of deaths from tuberculosis from this time until June, 1908, was 539; the proportion of deaths per 10,000 population was 78. Of these 34.3 per cent. were males above 16, 37.5 per cent. females above 16, 28.2 per cent. children under 16. Deaths from other than pulmonary forms of tuberculosis were 19 per 10,000 population. The work of the United States Public Health and Marine Hospital Service showed that the death rate per 100,000 was 173.5 for white men, 485.4 for the negro, and 506.8 for the Indian. Deaths from yellow fever in the United States since 1793 had been 100,000, while deaths from tuberculosis during the past year had numbered 160,000. Deaths from tuberculosis during the last four years were 640,000, while deaths from wounds in the Civil War during four years were 205,670. Comparing tuberculosis in the United States with the plague in India there were 23 deaths per 1,000 population from tuberculosis, while there were 19 per 1,000 from the plague in India during the past twelve years.

Pennsylvania, which was the first State to initiate organized work against tuberculosis, had a system of dispensaries for the free treatment of tuberculosis, one being located in each of the sixty-seven counties, embracing an area of over 46,000 square miles, and bringing the dispensary within the reach of 6,928,575 persons. It was from these dispensaries that the inmates of the State sanitaria were recruited.

New York.—The exhibit of this State received the attention of many. It was divided off into sections as follows: No. 1 showed where tuberculosis was bred. Here was to be found the permanent traveling tuberculosis exhibit of the Charity Organization Society of the City of New York, which was viewed by 150,000 people during a six weeks' stay at one place in New York City this year. No. 2 showed how tuberculosis spread. No. 3 showed the extent of the disease; over 10,260 people died of tuberculosis in New York City in 1907; 75,512 people died of tuberculosis in the United States in 1906. The records of the Health Department showed that there were 23,917 living cases of tuberculosis in New York City. No. 4 showed how tuberculosis was cured; also (a) how tuberculosis was discovered; (b) how tuberculosis was treated in the early stages; (c) how tuberculosis was treated in the late stages; (d) the home treatment of tuberculosis. No. 5 showed how tuberculosis was prevented. There were also exhibited many tuberculosis mottoes. Tuberculosis in New York City was largely a disease of the tenements, and there are still 300,000 dark rooms without a window of any kind, even to an adjoining room; this made the tuberculosis problem here unique. A model of interest was that of a block of existing tenement houses as it stood in 1900. This block, bounded by Chrystie, Forsyth, Canal, and Bayard Streets, then included 39 tenement houses, containing 605 different apartments, occupied by 2,781 persons, of whom 2,315 were over 5 years of age and 466 under 5 years. It contained 1,588 rooms, but only 264 water-closets and not one bath. Only 40 apartments were supplied with hot water. There were 441 dark rooms, having no ventilation to the outer air and no light or air except that derived from other rooms, and 635 rooms getting their sole light and air from dark and narrow airshafts. During five years there were recorded 32 cases of tuberculosis from this block, and during one year 13 cases of diphtheria. In addition during five years there were 665 different applications for charitable relief.

Bureau of Animal Industry.—This exhibit embraced many specimens of tuberculous lesions in various organs of animals used as food. One specimen of particular interest was that of tuberculous disease in guinea pigs which was the result of inoculation from the udder of a cow that had been inoculated with a tubercular culture of low virulence six years and four months before the material was obtained for use on the guinea pig. The inoculation did not cause a progressive tuberculosis in the cow, but the bacilli had lived and multiplied for more than six years and had produced fatal disease in the guinea pig. There were specimens of tuberculosis produced by inoculating guinea pigs with milk containing tubercle bacilli and specimens from hogs that had contracted the disease from eating feces of cows affected with tuberculosis. A group of interesting specimens demonstrated the action of light on the tubercle bacillus, showing that in dark places the tubercle bacillus retained its virulence thirty-two days or longer, while in electric light it died within thirty-two hours, and in direct sunlight it perished in one-half hour. Another interesting group of specimens showed how long the tubercle bacillus might live and retain its virulence in the ordinary salted butter. Tuberculosis had been caused by butter in which the bacillus remained alive after one hundred and thirteen days, after one hundred and thirty-three, and even after one hundred and sixty days. Another group of specimens demonstrated that the feces of tuberculous cows frequently contained the tubercle bacilli and that the introduction of such feces into the milk infected it with virulent bacilli, and that butter made from such milk also contained the bacilli. The amount of feces was very small, no more than usually found its way into the milk pail. It was shown that tuberculous cattle presented a better general appearance than most dairy cattle.

SECTION ON PATHOLOGY AND BACTERIOLOGY.

First Day—Monday, September 28.

THE PRESIDENT, DR. WILLIAM H. WELCH, IN THE CHAIR.

Address of the President.—Dr. WELCH, in declaring the first section of the Congress open, said it was his honor and privilege to extend a most cordial welcome to all in attendance upon this section and especially to the medical confrères from foreign countries. This section, he said, represented that aspect of tuberculosis work on which all intelligent and scientific activity must be founded. All measures must be based upon accurate knowledge of the spread of the disease and it was a matter of great gratification that there was present in the section Professor Koch, the discoverer of the organism, the greatest discovery made in this domain. Bacteriology and pathology must constitute the foundation of the campaign against the disease and he thought this section the fundamental one of the Congress. He expressed the hope that all in attendance would have an instructive, enjoyable, and profitable time.

Viability of the Tubercle Bacillus.—Dr. M. J. ROSENAU of the Marine Hospital Service presented this

paper. He said that practically all observers agree with Koch that human sputum is the chief source of infection. He considered the life of the tubercle bacillus outside the body and said that the belief that the tubercle bacillus contained a spore still lingers; that while there is absence of spores it contains a waxy substance which surrounds it as an envelope. The usual habitat of the bacillus protected it, but this protection was a question of environment, and not an inherent property of the bacillus. We possessed no satisfactory criteria of death and there was great difficulty in distinguishing between live and dead tubercle bacilli and between the lesions caused by the dead and the live bacilli. It was necessary to resort to secondary inoculations for this differentiation. In a series of eight guinea-pigs inoculated with the dead bacillus three died as a result. The discrepancy in experimental results was largely explained by failure to make secondary inoculations. The thermal death point was well established as 60 degrees C. for twenty minutes. The short life of cultures under most favorable conditions contrasted with the long life claimed for the bacilli under unfavorable conditions. The viability of the tubercle bacillus in sputum, soil, and water was discussed. In dry sputum it might live several weeks or months and therefore be a danger, but how great a danger was a question. When dried the great majority died quickly. The writer said that very little work had been done to determine the viability of the bacillus in water.

The Action of Diffused Light Upon Bacillus Tuberculosis.—Professor JOHN WEINZIRL of Seattle, Wash., said the action of direct sunlight upon bacteria had been the subject of numerous investigations; the results, however, were obtained by unsatisfactory methods and greatly minimized the effect of this important factor. By making direct exposures, *i.e.* without the intervention of media, etc., which absorbed the light, the writer had recently shown (*Journal of Infectious Diseases*, 1907, Sup. 3) that non-sporebearing bacteria, including tuberculosis, are killed by direct sunlight in a remarkably short time, generally between two and ten minutes. It appeared desirable to take advantage of the new method to test likewise the action of diffuse light upon bacteria and especially upon *B. tuberculosis*. Much had been written regarding the importance of light in dwellings, which must of necessity be largely diffuse light, but up to the present there was no satisfactory data on which to base conclusions regarding the action of diffuse light. The results of the present investigation indicated a considerable degree of variation in the powers of resistance shown by different species of bacteria. For example, *B. prodigiosus* was killed by diffuse light within a day, while controls kept in the dark lived five or six days. On the other hand, *Str. erysipelatos* showed strong endurance, five to nine days of continuous exposure being required to kill it; controls endured twelve days and might have lived even longer. Other bacteria tested presented intermediate degrees of resistance. *B. tuberculosis* was always killed within a week, and the shortest time was within twenty-four hours; controls grew for a longer time, but never after ten days. It was thought that desiccation would be the most serious disturbing factor and, hence, other controls were placed in moist chambers and exposed to diffuse light; almost invariably these controls were killed in a shorter time than the other cultures. The problem, therefore, becomes a very complex one, but it appeared certain that diffuse light materially shortens the life of the tubercle bacillus, the organism being killed within a week.

A Chamber in Which Dried Tubercle Bacilli May Be Handled Without Danger.—Dr. A. P. HITCHENS of Glenolden read this paper. The chamber was designed to avoid exposure of the operator during certain manipulations with dried bacteria, necessary for the preparation of the so-called new tuberculins. The chamber was 30 inches long, 24 inches deep, and 24 inches high over all. It had no bottom, but rested upon a very thick soft rubber gasket. It was made of heavy plate glass, the frame being brass. The lower half of the front, of reinforced tinned copper, could be removed. It was held in place by bolts and wing-nuts, accurate closure being obtained by the use of a rubber gasket. There were two openings, 8 inches in diameter, in this lower front. These openings had sealed into them rubber gauntlets long enough to permit the hands when inserted into them to reach all parts of the chamber. At one end of the chamber near the bottom was an oblong box, 8 inches long by 4 inches high by 4 inches deep. This was open on both sides, except for a fine wire screen at the inner side and a removable lid at the outside. The lid consisted merely of a frame and copper gauze. This box was packed with sterile absorbent cotton and served as an inlet and filter for air. The cotton was packed tightly enough to resist somewhat the entrance of air. At the other end of the chamber was a funnel 4 inches in diameter, tapering to about a half inch. This funnel was attached by means of rubber hose to a vacuum pump, but between the funnel and the pump itself there were two wash bottles, one containing bichloride solution, the other containing sulphuric acid. To use the chamber the lower half of the front was taken off and all the material and instruments to be used during the operation was put inside—in addition there was placed in a corner, out of the way, a dish of unslaked lime and a quantity of formaline-permanganate, or formaline magnesium sulphate mixture. It was the custom to throw a quantity of some antiseptic into the gloves so that if it should happen that there was a little opening in one of them there would be no danger of live germs getting upon the hands. The removable front was then put on and screwed down tightly; the vacuum pump was started—on account of the resistance offered to the entrance of air by the cotton filter, there was a slight negative pressure inside the chamber. If it should happen that there were any small cracks about the chamber, air would be drawn in at these openings, thus obviating any danger of the bacillary dust being forced out, when, for instance, the gloved arm was thrust suddenly into the chamber. After the work had been completed the product to be kept was sealed up. The formaline mixture was poured upon the lime and both the vacuum pump and the air filter-box were closed. Sufficient formaline was generated to destroy exposed living organisms within the chamber. The next morning the air filter was opened and the vacuum pump started, in order to remove the formaline before the chamber was opened. The advantages this chamber had over the usual devices for handling dried masses of virulent organisms were quite obvious. In some laboratories it was customary to use the ordinary hood with a current of air constantly carrying the powdered material away from the operator, but hoods did not always work, and if the old law "that what goes up must come down" applied to bacteria there would seem to be some danger to the immediate neighborhood from such a method. With this chamber the operator was absolutely protected and all the effluent was sterilized. The chamber might be used, not only for handling tubercle bacilli, but also for handling dried tuberculin, and other dangerous biological or chemical substances.

Dr. LILE of Cincinnati, discussing these papers, said that an important point brought out by the second paper was that the controls placed in moist chambers were killed in a shorter time than the others; if such was the case, our ideas of climatology in the treatment of the disease might not be rational. If humidity had a curative influence it should be dilated upon. He thought this phase of the subject should be gone more fully into.

Dr. WEINZIRL of Seattle, replying to this, said the experiments were not sufficient at the present time to establish such a principle. He thought that while dryness as such had nothing to do with the disease it did have an influence in changing temperature; in a dry atmosphere as

soon as the sun set it got cool and the patient got a good night's rest.

New Homogeneous Cultures of the Tubercle Bacillus.—Professor S. Arloing and Dr. Paul Courmont of Lyons, France, presented this paper. They considered this the most important question since it had been learned how to grow the bacillus. The method had been discovered in 1898 and had been confirmed by many observers. It consisted in the reduction of the bacillus in 5 per cent. glycerine bouillon; agitation made mechanically or by hand. By this method there was produced a culture that was homogeneous, that is to say, the individual bacilli were not gathered together; but lay separate in the culture. It resembled the culture of the colon bacillus; it was cloudy. Important changes were produced in the morphology; the bacillus was longer and finer, the length increasing with age of culture and there were bifurcations of the germs. In some were found streptococcic forms. The coloring properties were also changed. The acid-fast property was not present to a great degree. The virulence was greatly changed; it was diminished and injections into guinea-pigs were not particularly fatal; in the rabbit death might occur in days or weeks; in dogs there was great resistance and a powerful serum was therefore obtained. A serum was produced agglutinable by serum of tuberculous patients. The agglutination property might disappear after some months. This was not a rare culture, but the same cultures had been made in France by three or four investigators, and similar ones in Germany and in Philadelphia. It was not a particularly rare human bacillus form. Two of the cultures made were of the bovine bacillus.

Variation of the Tubercle Bacillus.—Professor S. Arloing, of Lyons, presented the work of twenty-two years in testing by inoculation and culture the varying degrees of virulence. He found that the guinea-pig was easier to inoculate than the rabbit. He classified the lesions according to degree of infectiousness. He found that in the surgical disease there was generally diminished virulence, as compared with the pulmonary tuberculosis, but that certain forms of bone infection equaled in virulence the pulmonary type. He had determined that there was a great variation in virulence from that easily cured to the greatest virulence. He explained the different results more upon the difference in virulence than upon any distinct race or type. He had carried out the same experiments with human and bovine bacilli and found the same degree of variation. By cultivating these different bacilli he had obtained all grades of virulence. He mentioned that in his first experiments made public in this line he found that he could change the type by producing a homogeneous culture and by increasing the temperature of the culture at different stages. By this method their properties were changed and the virulence diminished. He also found it possible to increase the virulence by subjecting the cultures to varying atmospheric pressures. As compared with human, the range of virulence was the same with bovine, but the degree of infection was greater with bovine. He concluded that it might be said that all tubercle germs were of one kind; that there were these variations, but they were not sufficient to form distinct types. He did not entirely agree with Dr. Koch in this respect.

Comparative Examinations Concerning the Practically Important Acid-fast Bacilli.—Drs. N. Jancso and A. Elfer, of Kolozsvar, Hungary, presented this paper, which was read by Dr. Detre. It presents the following conclusions: Cultures were made from 93 tuberculous patients, 11 bovines, 1 pig, and 18 chickens; for the greater part the inoculations were made directly on nutritive media and for futher study were employed 10 calves, 14 goats, more than 1,200 rabbits, more than 400 guinea-pigs, 300 chickens, 300 frogs, and 31 snakes. In relation to their main characteristics, morphology and pathogenesis, all of the cultures could be divided rather sharply into three groups; they corresponded to the typus humanus, bovinus, et aviarius. All the cultures cultivated from the 11 bovines were found to belong to the typus bovinus. The strains cultivated from the 18 chickens were all found to belong to the typus aviarius. The strain from the pig belonged to the typus bovinus. Among the strains cultivated from among the 93 tuberculous patients there was one with all the characteristic properties which under ordinary conditions were found only in strains living in other organisms, the typus aviarius. It might, therefore, be asserted that among the strains developed from the excreta of human beings there were also to be found some, which according to all their characteristic properties were the same living, acid-fast bacteria, as occurred under ordinary conditions in other animals—bovines, chickens; this was probably true, even though the authors were not able to isolate a single strain from among the 93 tuberculous patients (22 of whom were individuals younger than 14), which because of its characteristics of cultivation, as well as because of its pathogenicity toward rabbits and larger animals, could be counted among the bovine type. From comparative studies made by the authors with tubercle bacilli belonging to the same group, they were able to show that such organisms, even though belonging to absolutely one and the same group, might vary from each other in many of their characteristics. On the whole, most of the human strains produced but slight tuberculous changes in rabbits; several exceptions, however, had been found by the authors, in which the organisms produced a fatal termination in the rabbits; this fact the authors had demonstrated in this manner; they kept the animals which were being experimented on alive for some time and thus did not shorten the duration of vital activity of the bacilli. Organisms cultivated from different organs of one and the same individual showed marked variations from the standpoint of their most important characteristics. The investigations of the authors had shown how relatively easy it was to lessen the characteristics acquired by the different acid-fast groups in their present mode of life, and among these more particularly their specific pathogenicity; it was, therefore, to be assumed that the various acid-fast strains could be deprived entirely of their specific properties. However easy it might be, however, to lessen the degree of any of the easily recognized characteristics of individual acid-fast strains—and even to deprive them of these entirely—still it was extraordinarily difficult to convey to them new specific properties; no investigator had, in fact, ever succeeded in it in a manner satisfactory to the laws of natural science. As long as we did not have at our disposal certain incontrovertible transformation experiment performed and controlled with pure cultures, examinations with such terminal results as those of the authors would prove only that under the present modes of life the more important groups of acid-fast bacilli became more and more separated from each other in the realm of nature.

A Contribution to Our Knowledge of the Cultural Characteristics of Tubercle Bacillus.—Dr. Johan von Szaboky of Budapest-Gleichenberg presented this paper. The experiments of the author gave these results: (1) The luxuriance of growth of tubercle bacilli varied according to the nutritive medium employed. They throve best on lung-agar, next on sputum-agar and sputum-lung-agar, tuberculous lung-agar; not so well on egg media and somatose-agar. (2) The tubercle bacilli grew best and quickest on the very weak acid media, fairly on the slightly weak acid, neutral, and alkaline media, and not so well on the markedly acid media. Exceptions to this were somatose-agar and egg media. On the former they throve best and quickest when the agar was markedly alkaline, next when it was weakly alkaline, and worst when it was acid. When egg media were employed the best cultures were obtained when the reaction was markedly acid, next when it was markedly alkaline, and least when it was neutral. As in the greater number of cultures the rapidity of their de-

velopment corresponded with the luxuriance of the vegetation, accidental results must be considered excluded in these experiments. (3) The growth was constantly the best on media which were very moist, as lung-agar; worst on egg media, which possessed the least moisture. (4) It was to be supposed that the tubercle bacilli produced a change of the original reaction of the nutritive medium during their growth, as titration had demonstrated that the reaction of neutral media changed somewhat after the cultures had grown for several days. Such a change of reaction was noted in each series twice. In all the media which could be titrated, with the exception of the somatose-agar, the following change was noted: First, alkaline then acid, and finally again alkaline reaction was noted: in somatose-agar the reverse order was noted.

Second Day—Tuesday, September 29.

Routes of Infection in Tuberculosis.—Dr. J. Bartel of Vienna said that in animals we were able to demonstrate in the lymph glands, in addition to the manifest tuberculosis with specific tuberculous changes, a stage of "lymphoid" tuberculosis in which the glands showed mainly lymphocytic hyperplasia or were apparently "unchanged." The existence of such a lymphoid stage could be demonstrated in man also. Attempts at immunization, performed according to the observation of a possibility of a cure of the tuberculous infection in the lymphoid stage, gave in combination with reinfection the following results: Signs of increased tendency toward, then of increased resistance, and finally of complete immunity. Processes of complete cure in organs afflicted with manifest tuberculous changes. Mainly manifest tuberculosis of the lungs with the bronchial lymph glands and cavities in the lungs; but also isolated manifest tuberculous disease of the lungs, the portals of entrance remaining perfectly intact and all opportunity of direct lung infection being excluded. Under certain conditions, therefore, tuberculosis bore the character of a cryptogenetic infection. A similar condition must also be expected in the domain of human pathology according to the laws of natural immunity. Therefore, if only the signs of manifest tuberculosis were considered during a postmortem examination we did not have sufficient to act as a reliable basis upon which to judge the portal of entrance; the signs of lymphoid tuberculosis should also be considered. As far as could be judged at the present time infection from pharynx, stomach, and intestines was far more frequent, particularly during early life, than has generally been considered. It was difficult to judge the relative effects of deglutition and aspiration.

Sources and Ways of Infection of the Tuberculous Contagion.—Dr. G. Kuss of Angicourt, France, called to mind that the danger of infection by inspiration of dust was first proclaimed by Wielman, in 1879, and announced later by Koch. While Calmette and others insisted upon the importance of infection by the alimentary tract, he contended that the greater importance of infection by inhalation of dust must not be lost sight of. The writer undertook experiments to determine to what degree dust infected. Special devices were used in experiments, photographs of which were shown, the general line of experiment being to expose guinea pigs at various heights from the floor on which carpets had been beaten. It was found that infection was the more positive the nearer the guinea pigs were to the floor; the higher group being the safer. He considered that there was infection not only through the respiratory organs, but also through the digestive organs and pharynx. These experiments were also made with bacteria that were dried in the sun, and it was found that the ability of such bacteria to infect was lessened, showing the importance of sunlight in dwellings. He stated that it was important to note that it had been sufficient for a guinea pig to be exposed only once, and for only 20 minutes to this infection by dust to contract the disease.

Prof. A. Calmette of Lille in discussion, said that he had never wished to be understood as denying the possibility and frequency of infection by the pulmonary route, but what he insisted upon was that in chronic tuberculosis the alimentary tract was much the more usual route. He considered that there was a class of cases where infection by the respiratory route was evident, especially in young children, but outside of this period he thought that general infection was rare by that route when the respiratory apparatus was healthy. He thought the experiments of Dr. Kuss were not under normal conditions and might not be applied to human beings in that way.

Prof. K. Landouzy of Paris said that he shared the ideas of Dr. Calmette; he believed that infection by the respiratory route did not occur except through a lesion of the respiratory tract. It might occur in tracheotomized patients, for instance, the reason being that cicatricial tissue was established and phagocytosis interfered with. He referred to the prevalence of laryngeal tuberculosis, and said that in these cases there was often a history of syphilitic infection.

Channels of Entrance of Tuberculosis.—Dr. Samuel Bernheim of Paris quoted a great number of clinical facts and experiments on animals from which he concluded, contrary to the opinion of Professor Calmette, that tuberculosis was chiefly transmitted by aerial germs and by way of the respiratory tract. He thought the clinical data furnished by pathological anatomy and by experiments during half a century, instead of shaking the aërogenic doctrine of human tuberculosis, confirmed this conception of its etiology. That a great number of cases of tuberculous contagion by the dry bacilli of Koch incorporated in dry dust and numerous other objects, proved the virulence of this microbe even when not carried by a moist vehicle. The great facility of realizing in man, as well as in animals, an experimental tuberculosis by inhalation argued in favor of the view that the respiratory path was a common channel of infection. He considered the intestine as a door of entrance possible, but far from being the normal and usual one. The frequency of human tuberculosis in the countries where the use of milk and meat was very limited, the slight mortality of children by tuberculosis during the period of lactation, demonstrated, he thought, that the intestines played an altogether secondary rôle although an appreciable one, as a channel of entrance. The necessity of large doses of tuberculous products to produce an experimental tuberculosis and the numerous failures in obtaining it, he thought, did not argue in favor of the enterogenic doctrine. He believed bacillary heredity of tuberculosis did not exist; exceptionally the disease might result from hereditary contagion *in utero*, but could not be considered as an important factor in tuberculosis. He considered that the hereditary predisposition must be rejected, for infection in this way was in relation with the degree of contagiosity of the environment which produced phthisis and with the frequency of contaminations. The vascular path he considered to be rare as a channel of entrance and held that it was very difficult to demonstrate its importance. The genital tract must be considered as a factor of some importance in the propagation of the disease, as clinical observations and experiments demonstrated that this channel of entrance was far from being as rare as had been supposed. The anal orifice might also serve as a channel of entrance in the same conditions as the mucous membranes of the skin, and an important etiological rôle must be attributed to this region of the human body. The buccal mucous membrane in children must be considered as a possible door of entrance for cervical tuberculosis, and the skin might serve as a channel of entrance in conditions particularly favorable to contamination, but these could not be considered as factors of first importance.

Concerning Latent Tuberculosis.—Professor Francis Harbitz of Christiana said that some authorities con-

tended that the majority of cases of tuberculosis were due to infection in childhood or infancy; that it was now admitted that it was possible to demonstrate latent tuberculosis in the majority of individuals. At postmortem he had found evidences of tuberculosis in 70 per cent. This increased greatly in frequency with age; it could be much more frequently demonstrated in children than had been supposed; at post mortem it had been found in 42 per cent. The significance of latent tuberculosis in children was that the infection continued in the adult. In a series of cases he had been able to establish such latency after twenty and thirty years. He concluded that at present proofs were lacking to show that the majority of cases of tuberculosis in adults were due to infection in childhood, but that, considering the frequency of tuberculosis and evidence of its slow development, this must certainly be considered of great significance. As to whether infection in childhood produced increased susceptibility or a degree of immunity it was not at present possible to say.

The Predisposition of the Apices of the Lungs to Pulmonary Tuberculosis, Phthisis.—Dr. Carl Hart of Berlin said that, aside from infection, the cause of pulmonary tuberculosis in youthful individuals was to be sought in an individual predisposition due to anatomical and functional disturbance of the normal condition around the superior aperture of the thorax. These improper conditions might be congenital, hereditary or acquired during early life. The predisposition he considered at first purely local. Actual and functional diminution of the pulmonary apices not only favored the deposition of tubercle bacilli, but also diminished the natural powers of resistance inherent in the tissues. This predisposition determined the localization of the first tuberculous focus in the pulmonary apices. He considered that local predisposition was equally significant for air, blood and lymphatic infection. The final outcome of the battle between the tubercle bacilli and the tissues depended on the degree of this anatomical and functional disturbance in the region of the superior aperture of the thorax. Children did not exhibit this predisposition of the pulmonary apices to tuberculosis. In older individuals, those aged 50 or over, the predisposition was caused almost exclusively by inhibition of the function of the superior aperture of the thorax, due to senile changes. He concluded that the measures to be employed in combating tuberculosis should be directed, more than had been done in the past, against the development of an individual predisposition.

Dr. M. P. Ravenel of Madison, Wis., in discussion, expressed his absolute belief in everything Professor Calmette had said on the subject. He said it had been found that, in cattle with no pulmonary infection whatever, there was observed that condition of lymphoid infection spoken of by Dr. Bartel. It had been found that, on feeding dogs with the bacilli in an emulsion of butter, the germs could be obtained in the mesenteric glands within three and a half hours. He called attention to the work that had been done with swine by occluding the esophagus and feeding through a fistula in the stomach; with these animals they showed that the bacilli would pass from the stomach into the liver and lungs within twenty-two hours. He thought it unfair to say that these experiments did not apply to human beings It was well known that in cattle almost the first lesion was found in the retropharyngeal glands, which pointed to infection through the intestinal tract. Tuberculosis of swine, the speaker said, was increasing rapidly, yet no one claimed that they contracted the disease by respiration; the first infection was of the retropharyngeal glands.

Dr. W. H. Welch of Baltimore said, in reference to the infection of swine, there could be no question of its being of alimentary origin. It might be through the cervical glands, through the duodenum, or the mesenteric glands. But in swine we did not find the localization usual in human beings.

Tuberculosis of the Lungs and Asthenia Universalis.—Professor B. Stiller of Budapest presented this paper, in which he held that asthenia universalis was a widespread constitutional disease in the sense that it depends on hereditary tendency. Its attributes were enteroptosis, nervous dyspepsia, severe disturbance of nutrition without sufficient cause, atony of the stomach with flatulence, neurasthenia, and flacidity of the tissues. That the tendency showed itself in the atonic habit of the child; delicate skeleton; long, flat thorax; oblique ribs; small epigastric angle; and looseness of the costal girdle due to congenital defect of the tenth costal cartilage, which produced a floating tenth rib. That the phthisical habit was nothing else but the asthenic; this was its original meaning; the asthenic habit was the index of hereditary asthenic constitution, which also predisposed to phthisis. In nearly all consumptives who presented the phthisical habit there was found a floating tenth rib, and in a greater or less degree enteroptosis, nervous dyspepsia, neurasthenia, and the other attributes of asthenia. That in 70 to 90 per cent. of consumptives dyspepsia was nothing but enteroptosis or nervous dyspepsia. That the shortening and stiffening of the first costal cartilage doubtless increased the predisposition of the apices, but its etiological significance had been greatly overestimated as compared with the whole asthenic constitution. That the modern hygienic and dietetic treatment of tuberculosis in its true sense was a direct treatment of asthenia and not really of pulmonery tuberculosis.

SECTION ON CLINICAL STUDY AND THERAPY.

First Day—Monday, September 28.

Dr. Vincent Y. Bowditch of Boston, President, in the Chair.

Address of the President.—Dr. V. Y. Bowditch of Boston limited his address to a few words of greeting, and said that the session could not be comprehensive enough to include papers on all subjects, but had been limited to the consideration of only the newer methods of clinical study.

The Use of the X-Ray.—Dr. F. H. Williams of Boston read this paper. He first laid emphasis on the importance of protecting the patient so that the rays should reach him only at the point desired; and protecting the physician so that the rays should not reach him at all. This was done by putting the *x*-ray tube in a lead-lined box with an aperture sufficient to allow the rays to reach the desired area of the patient. The doctor was protected from even this beam of rays by examining the patient with a fluoroscope carrying a copper lead screen around it, and having the screen viewed through a section of lead glass. Then the quantity of light was cut down to the minimum efficient quantity. In skiagraphic work the doctor remained entirely behind a lead screen. In the fluoroscopic examinations records could be made either by the orthodiagraph or by tracings on the skin of the patient, the pencil being held in a long holder of metal, and then transferred from the skin to paper. In comparison with examination by auscultation and percussion, Dr. Williams considered the *x*-ray examination of greater value in showing more accurately the excursion of the diaphragm, the size, position, and displacement of the heart; in determining the condition of the central portions of the lungs (percussion, etc., showed only the surface conditions in the lung), and comparative densities of the lungs not only in different areas, but also in the same area on different days as shown by keeping records of the density as determined by a water densimometer used in connection with the fluoroscope. Dr. Williams said that the *x*-ray examination should not be used to take the place of auscultation, but only after

a thorough classical examination by inspection, palpation, percussion, and auscultation of the chest had been made, and the man that made the classical examination, if he were not experienced enough in fluoroscopy to make the examination himself, should at least direct it and aid in its interpretation to give the best results. As an aid in the early diagnosis of tuberculosis the value of the *x*-rays had been very great. Suspicious pictures had been obtained in cases with no cough, lung symptoms, or physical signs. In pneumothorax the diagnoses had frequently been made by the fluoroscope prior to the time when it was possible by the classical examination. In conditions simulating tuberculosis of the lungs the *x*-ray examination might be able to settle the diagnosis. Dr. Williams did not consider this method of examination infallible, but corroborative, more accurate, and sometimes earlier than the classical method.

Typhobacillosis.—Dr. L. Landouzy of Paris read a paper with this title. He said that the older classifications of tuberculosis recognized the caseous conditions and the miliary conditions, but that he had differentiated another type of bacillary septicemia, manifesting itself exclusively in a typhoid state with continuous fever, rapid pulse, and enlarged spleen, but without any visceral localization. Of great significance was the absence of rose spots. Typhobacillosis usually ended in recovery from the period characterized by the typhoid state, but later localized signs of tuberculosis appeared suddenly or insidiously, usually in the lungs, but frequently in the mesentery. In rare exceptions the continued fever terminated fatally in two to four weeks, and on autopsy nothing was found but the ordinary congestive and degenerative changes seen in all severe septicemias not limited to any one organ. The positive diagnosis during the typhoid period was made by the absence of the Widal and the presence of typhoid bacilli in stools, urine, or blood. The presence of the tubercle bacillus was proved by inoculation of the blood into the guinea pig, and by serum reactions. Moreover, the same pathological condition was produced by inoculations into animals of the tubercle bacillus. In closing, Dr. Landouzy called attention to the importance of the Widal reaction in the prognosis as well as the diagnosis of typhoid fevers, some of the cases of apparent typhoid in which the Widal was negative, being typhobacillosis with a very doubtful prognosis as to ultimate complete recovery, although recovery from the typhoid state was likely.

Mixed Infections.—Drs. M. P. Ravenel of Madison, Wis., and A. C. Klebs of Chicago presented this communication, which was based on the findings of a series of autopsies from which cultures were taken of the bacteria in the tissues, as well as in the tubercular cavities, and compared with the findings in animals of various species. The cavity formation was found associated constantly with streptococcus infection as well as the tubercle infection, and occurred principally in man and in monkeys. In cattle there was no cavity formation, but a frequent calcification. In cattle extensive mixed infections were almost unknown. In swine again there were no cavities, nor were the swine infected with the same organisms as were found in man. The animals seemed to have a different natural resistance to the strains of bacteria, some being immune to those that other animals were sensitive to. In the benefits of treatment by life in the country, Dr. Ravenel considered one of the most important factors to be the absence from exposure to influenza, pneumonia, colds, and the many secondary infections which abound in the city, and which in many cases are the direct and immediate causes of death.

Dr. S. Bernheim of Paris asked under what conditions the autopsy examinations were made, as the work of the French investigators had seemed to show that all the types of lesion and symptoms could be produced by the tubercle bacillus and its toxins.

Dr. Ravenel said that he recognized that the tubercle bacillus and its toxins had been shown capable of producing all these types of lesions, but from the fact that the tubercle bacilli were never found alone in the cavity cases and that streptococci were constantly found in and around these cavities, and that cavities could be produced by infecting a tuberculous animal with streptococci, he believed that these lesions were due to the mixed infection. He believed thoroughly in the teaching that the worst thing a tuberculous patient could do was to live in contact with a consumptive.

Duration of the Actively Infectious Stage of Tuberculosis.—Drs. R. N. Wilson and R. C. Rosenberger of Philadelphia read this paper, in which they considered congenital and acquired tuberculosis. In the congenital cases the infection from the mother was commonly granted as possibly of placental origin. The presence of congenital caseous pneumonias was well established also in the children of a healthy mother but a tuberculous father. Such tuberculous offspring had been begotten experimentally in animals from a healthy mother and diseased father. In a series of eight autopsies on men dying from tuberculosis the testicles and a couple of inches of the vas were removed and examined for tubercle bacilli, and in five of the fifteen specimens, even though the testes had all grossly appeared normal, positive smears were obtained. In the cases of acquired tuberculosis the secretions and excretions were examined, and routine examination of the sputum in cases in which there was no suspicion of tuberculosis at times showed the positive presence of tubercle bacilli. Moreover, in all cases in which the tubercle bacillus was found in the sputum it was found also in the feces, and in most cases in the urine. Inoculation into guinea pigs showed the tubercle bacillus present when it had not been found by tinctorial methods. In animal experimentation the feeding of tuberculous sputum was followed by the presence of tubercle bacilli in the feces on the third day and in the urine on the eighth day. The authors therefore considered that protection from the tuberculous patients had only just begun when all of the sputum was cared for, and that all the excreta should be disinfected for an indefinite time.

In response to a question Dr. Wilson said that the existence of the tubercle bacillus in a spermatozoon had not yet been demonstrated. The bacilli had been shown in the fluid in which the spermatozoa were suspended, but in animals it had been shown that injection of tubercle bacilli into the vagina immediately following coition of healthy animals would produce tuberculous offspring.

SECTION ON SURGERY AND ORTHOPEDICS.

First Day—Monday, September 28.

Dr. Charles H. Mayo of Rochester, Minn., President, in the Chair.

President's Address.—Dr. Mayo said that, notwithstanding the fact that tuberculosis affected practically every tissue in the body, the general public still regarded it as affecting only the lungs. It should be considered from the preventive, preservative, and constructive standpoints. Few diseases not self-limited tended so much to recovery as tuberculosis. The sources of infection should be studied. Stress should be laid upon the importance of infection from animals. Some patients reacted against the toxins of the disease, others did not. More and more the administration of medicines had yielded to the carrying out of various directions which were simply methods of correct living. Serum therapy had its place. Failures had enabled us to have better judgment in treatment. Hyperemia

was one of the recent methods of treatment. Publicity and the prevention of tuberculosis in animals should be given due consideration.

Tuberculosis of the Nose, Mouth, and Pharynx.—Dr. H. P. Mosher of Boston read this paper. He said that owing to the protective power of the nasal mucous membrane primary tuberculosis of the nose was rare. It was characterized by a superficial ulceration situated over the anterior part of the cartilaginous septum. Secondary tuberculosis of the nose was more common than the primary form. It was part of a general or of a pulmonary tuberculosis. The secondary form tended to produce tuberculous tumors. Nasal tuberculosis had a slow, painless and progressive course. As a rule it did not extend to the pharynx. In making a diagnosis of tuberculosis of the nose the chief disease to exclude was syphilis. Tuberculosis attacked the cartilaginous part of the septum, there was little if any inflammatory reaction, there was no odor, and its course was painless. Syphilis, on the other hand, attacked by preference the bone of the septum, and there were marked inflammatory reaction, odor, and pain. Tuberculous lesions were found in all parts of the mouth. The most common lesion was an ulceration. The first sign of a tuberculous lesion of the mucous membrane of the mouth was the appearance of a circumscribed area which was pale and slightly edematous. Within this there were small submucous yellow or gray tubercles. These soon broke down into a shallow ulcer. On cleaning the bed of the ulcer numerous tubercles were found scattered over it. The worm-eaten edge of the ulcer was set about with tubercles and granulations. Occasionally a tuberculous tumor or a tuberculous abscess of the tongue occurred, but the common lesion of the tongue was the common lesion of the rest of the month, namely, an ulceration. In most cases ulceration of the tongue, like other tuberculous ulcerations of the mouth, caused little if any pain; at times, however, ulcerations of the tongue were very painful. Trauma played an important part in causing and localizing tuberculous lesions of the mouth and tongue. The final and absolute test of tuberculosis of the nose, mouth, and pharynx was the finding of tubercle bacilli. Tubercle bacilli were hard to detect in tissue removed from the nose, mouth, or pharynx. The finding together of giant cells and caseation was very strong proof of tuberculosis. Before making a diagnosis of tuberculosis of the mouth, syphilis had to be ruled out. In certain cases where tuberculosis caused an abundant overgrowth of nodular tissue the presence of malignant disease was simulated. Tuberculosis of the pharynx was not uncommon as a secondary infection from tuberculosis of the lungs. Extensive tuberculosis of the pharynx was a serious complication because it interfered with the patient's swallowing. Such cases soon ended fatally. Tuberculosis of the tonsils often occurred secondary to tuberculosis of the lungs. In most instances it ran a mild course. Sometimes, however, the tonsils became deeply ulcerated like the rest of the pharynx. Primary tuberculosis of the faucial and the pharyngeal tonsil occurred in 5 per cent. of cases. The pharyngeal tonsil was infected by the air current, the faucial toncil by food. In what percentage of cases tonsillar tuberculosis was of the bovine type had not been determined. Wood maintained that 5 per cent. of children had latent primary tuberlosis of the tonsils. At any age there were few diseases which were latent in the body in such a large percentage of individuals. The tonsils were oftenest infected with tuberculosis in childhood during the time when the epithelium lining the crypts was spread apart and thinned by the passage of lymphocytes through it. While the germinal centers were active they showered lymphocytes into the surrounding tonsillar substance and upon the epithelium of the crypts. Tuberculosis of the tonsils rarely caused pulmonary tuberculosis or general tuberculosis. The great importance of tonsillar tuberculosis lay in the fact that an overwhelming majority of enlarged cervical glands were tuberculous and that these glands were infected from the tonsils. Cervical tuberculosis was limited to the glands of the neck; it seldom gave rise to tuberculosis of the apex of the pleura or the lungs. The first step in the treatment of enlarged cervical glands was to remove the tonsils by thorough dissection. The treatment of tuberculosis of the nose, mouth, and pharynx consisted in the thorough removal of the tuberculous tissue with the curette and the subsequent use of lactic acid. In this way small lesions might be made to heal for a time, but they broke down again. In small primary lesions of the nose, of the mouth, and of the pharynx the use of tuberculin would seem to have a special field.

Tuberculosis of the Larynx; the Type Which Is Capable of Recovery and the Principles of Treatment.—Dr. W. E. Casselberry of Chicago, who presented this paper, said he sought to establish for laryngeal tuberculosis that which was now realized with respect to the pulmonary affection—namely, the fact that certain persons developed a natural resistance sufficient to "arrest" the disease; and that many more offered a considerable resistance which might only just fail of the degree required for "arrest." It was shown (1) that tuberculous hyperplasia in the larynx could undergo resolution; (2) that unmistakable tuberculous ulcers did occasionally heal; (3) that favorable negative qualities which indicated a superior resistance and more hopeful outlook characterized in common the cases which had proven to be capable of recovery; and (4) that after a reasonable period of observation, these qualities persisting, it should be possible to differentiate the cases which were capable of recovery. The common conception of tuberculosis of the larynx was drawn from its harrowing course in about two-fifths of the cases—the unresisting type. Almost two-fifths composed a group in which the laryngeal complication ran a much slower but still fatal course. In one-fifth the lesions were in a state of arrest for a number of years. In the resistant type the three cardinal principles in the treatment of tuberculosis—rest, open-air life, and forced feeding—should be more rigorously enforced than in lung disease alone. Rest should consist not only in rest of the body and mind, but rest for the voice. Rest was of first importance. If it was important to immobilize a joint in the treatment of joint tuberculosis, it was just as necessary to put the larynx at as complete rest as possible in tuberculosis of that organ. As to fresh air, it should be fresh air, rather than any particular kind of fresh air. A locality should be selected where the patient could get local treatment when needed. The speaker laid special stress upon the recommendation that as soon as laryngeal tuberculosis was found to complicate pulmonary tuberculosis the treatment, not alone of the larynx, but of the disease as a whole, should be entrusted to one skilled in laryngeal technique.

Dr. Casselberry said, in discussing Dr. Mosher's paper, that a very practical point occurred to him in respect to tuberculosis of the tonsil—a point upon which he was asked to give a professional opinion more frequently than in any other phase of tuberculosis of the mouth. For instance, a child was brought with cervical adenitis and chronic hypertrophy of the tonsil. The lymphatic glands of the neck were enlarged and indurated. The duration might have been three weeks or three months. He was asked, "Are those glands tuberculous, and, if so, shall they be removed surgically?" In this connection he said he always re-

membered a series of several hundred cases examined at autopsy and after operation and reported from a hospital in Liverpool in which about three-fifths of the entire series were found to be tuberculous and the balance a simply pyogenic infection of the glands. We had no means of determining in the living child, especially where the condition had not been in existence for a great time, whether it was tuberculous or not. The speaker said that his universal opinion under these circumstances was that the enlarged tonsil, which had been the source of the infection, whether tuberculous or simply pyogenic, should be removed, wholly removed, with the capsule. The surgeon should then wait from three to six months. If the enlarged glands disappeared after the removal of the tonsils, then in all reasonable probability they were not tuberculous. If they had not disappeared, in all probability they were tuberculous, and should be removed surgically by external operation.

Dr. Mosher wished to emphasize the point brought out in Dr. Casselberry's paper, that there were two well-defined classes of cases of tuberculosis of the larynx, the hopeful cases and those that were not hopeful, and his warning to keep hands off in the nonhopeful cases.

The Construction of Hospitals for Tuberculous Patients.—Mr. Meyer J. Sturm of Chicago, in this paper, dealt particularly with the construction of hospitals for surgical tuberculosis. There should be sufficient air and sunlight, nourishing diet, facilities for securing tranquility of the mind and abundance of rest. These could be obtained in the ordinary manner except that special provision had to be made for the mechanism of supplying fresh air and a flood of sunlight. The location should be chosen so as to provide for an abundance of sunlight, absence of noise, absence of dust, absence of smoke, proper ventilation, disposition of sewage, safety from fire, possibility of future extension, and accessibility for patients, their friends, and the medical staff. Compactness could be secured by superimposed stories. It was important to have country branch hospitals, as undoubtedly many tuberculous patients did not go to a hospital because one was not easily accessible. They wished to be near their friends and relatives. It was also important to select a location with reference to its proximity to localities where tuberculous diseases prevailed. The speaker discussed in detail the location of the building on the ground, the shape of the building, balconies, porches, elevators and runways, the roof, rooms, wards, toilet and service rooms, diet kitchens, signal system for calling nurses, operating department, floors, wainscots, walls, etc.

Dr. F. Gallagher of El Paso, Texas, said that the plan of a hospital as presented by Mr. Sturm could scarcely be improved upon, even for a general tuberculosis hospital. He thought the speaker's intention was to bring out the value of a hospital for surgical tuberculosis alone. Dr. Gallagher thought it would be better, if possible, to have a separate hospital for surgical tuberculosis, and in such an event he knew of no arrangement which would more fully answer the requirements than the details presented by Mr. Sturm. Under present conditions cases of surgical tuberculosis had to be cared for either in institutions devoted to tuberculosis or in the surgical wards of our general hospitals. The hospital must be so constructed as to accommodate many patients under a single roof. The high cost of ground made the multiple story building necessary, and a building located too far from the center of business life would very largely preclude the attendance of physicians. And for the best results the attendance of doctors was necessary. There could be little doubt that the man in touch with the world of medicine outside the hospital would exercise the greatest influence for good in the hospital. Other things being equal, there could be no doubt as to the advantages of the open country sanatorium, situated away from the contaminating influences of the city where the air was largely germ-laden, and with other conditions which would permit living out of doors day and night.

Tuberculosis of the Cornea.—Dr. Oscar Dodd of Chicago read this paper. This was a rare condition, and presented a unique clinical picture, in that the lesions were of a transparent structure, allowing careful observation of their progress and the effect of treatment. It was nearly always secondary. The usual forerunner of the condition was a swelling at the corneal margin resembling phlyctenular conjunctivitis. This was composed of small foci of epithelioid and giant cells in which the tubercle bacilli were occasionally found. These foci gradually extended into the cornea, and with the general round-celled infiltration about them, gave rise to the typical clinical picture. Ordinary treatment had very little effect on these conditions, as they lasted for months, new foci occurring upon slight irritation. Tuberculin injections for diagnostic purposes caused a general and also a local reaction, which was manifested by marked inflammation of the eye, more infiltration into the cornea, and the formation of new foci. By the use of the new tuberculin (T. R.) in small doses, the spots would disappear, rarely leaving an opacity. Too large a dose of tuberculin was always followed by an increase of infiltration, taking several days to subside. This showed the care necessary in its use to prevent harm and bring about increased resistance to the progress of the disease.

Dr. F. H. Verhoeff of Boston thought that this subject should be considered from the standpoint of the tuberculosis rather than from the part of the eye involved. The ability to care for the tuberculosis was more important than the tissue involved. The condition might be either primary or secondary, but in an individual case it was almost impossible to say whether it was primary or secondary. It was extremely seldom that a case was met with that could be considered as primary. He recalled one case in which an injury of the eye was followed by a nodule in the iris. While this appeared to be a primary tuberculous nodule, yet he believed at the time that it was due to metastasis. The acute type was very rare, and went on to caseation and rapid destruction of the eye. The chronic type was characterized by a very chronic course, with a tendency to final recovery and recurrence. It seldom went on to destruction. Dr. Verhoeff considered the treatment of tuberculosis of the eye as very satisfactory. He used only the old tuberculin, and he had gotten good results. He thought it essential to get a reaction, either general or local. The patient already had resistance, and all he needed was to have his resistance stired up. The amount of reaction with the diagnostic dose would give a clue as to the size of dose to use in treatment. Dr. Verhoeff discussed the relation of phlyctenular conjunctivitis to tuberculosis. Histologically the phlyctenules resembled tuberculosis. The condition was associated with adenitis and acne of the face. Tubercle bacilli had never been found in these phlyctenules, but there was probably no doubt that they were tuberculous. He had suggested that the recent work on anaphylaxis might explain these cases.

Tuberculosis of the Ear.—This paper by Dr. Clarence John Blake of Boston was read by Dr. H O. Reik of Baltimore. The clinical aspects of tuberculous infection, as manifested in the middle ear, and the consequences evidenced in advanced implication of the temporal bone, had been described by the earlier

writers on otology, but it was only within the past ten years that more precise attention had been given to a form of invasion of the middle ear and labyrinth, characterized by considerable and rapid destruction of all tissues, this being coupled with a peculiar lack of preliminary subjective symptoms. The accessibility of the middle ear cavity to infection, through the medium of the tympanopharyngeal tube, and the character and location of the soft tissues of the epitympanum, explained the more common implication of this cavity, while the peculiarity of the objective symptoms emphasized the importance of aural examination for purposes of differential diagnosis.

Dr. Minor of Asheville, N. C., said that he saw a great deal of tuberculosis, and there was a small number of these patients who suffered with a chronic otitis, generally discharging, and in whom he had been unable to find any means of determining whether they were suffering with tuberculosis of the ear or not. He generally handled them on that assumption, but he wished to ask Dr. Reik what means there were of telling whether these cases were tuberculous or not, and also whether they had the same danger as the ordinary suppurative middle ear cases.

Dr. Reik said that tuberculous suppuration of the middle ear was not so dangerous as suppuration due to pyogenic organisms. Only a very small percentage of the cases that developed intracranial complications had shown a tuberculous history. As to diagnosis, tuberculosis of the ear generally occurred in advanced pulmonary tuberculosis, and a general examination would show a tuberculous condition of the lungs. An examination of the pus usually showed a mixed infection. Even if tubercle bacilli were found, we were apt to find also the streptococcus or the pneumococcus present. Whether we could hope for any help from the tuberculin test or the skin test, he could not say.

SECTION ON TUBERCULOSIS IN CHILDREN.

First Day—Monday, September 28.

The President, Dr. Abraham Jacobi, of New York, in the Chair.

President's Address.—Dr. Abraham Jacobi, of New York, read this, the Presidential address. He said that America had seen during a few decades many large and influential meetings, both national and international. They were dedicated to various interests, scientific and commemorative, war and peace. The grand exposition and congress of St. Louis in 1904 combined in twenty sections whatever appeared to a thoughtful and energetic central committee to be most appropriate in bringing together the best thought of the world. As to-day, great men reached our shores over the ocean, which had become a connecting bridge after having proved a severing gulf, to exhibit their own and other's achievements, and succeeded in furnishing a comprehensive and lifelike exhibit of the present conditions of sciences and arts in their influence on the cultural labor of mankind. While in this way the intellectual and social interests of the world were displayed and fostered, the normal and destructive instincts of brute man were also studied and their dire results held up to view, in the peace congresses of this and other countries. Evidently mankind was more active in the attempt to rid itself of its savage past and to develop a human future on the basis of the impulses of its heart and the dictates of its brain. If there be any concourses of more merit and endowed with more beneficent influences in shaping the future of our race than even peace congresses, it was the series of congresses of hygiene and demography, and principally those on tuberculosis, which had met during the last two decades. Representatives both of the medical professions and of the intellectual lay public of all civilized nations convened with a sternly expressed demand that there must be an end to the hecatombs of victims of the cruelest enemy of our race, which could not be combated except by an aggressive movement on the whole line. Altogether, the fight against infectious and contagious diseases was no longer a strictly medical matter. What the active practitioners and the laboratory experts could do they had accomplished. The nature of anthrax, diphtheria, scarlet and typhoid fever had been recognized and proclaimed, *urbi et orbi,* and preventatives had been found and advised. If governments and their employees had in many cases, and not in the least in our country, neglected their warnings and active measures, they, the physicians, had mourned and their fellow citizens had suffered. For, though they had the knowledge of the causes of typhoid fever at their finger's end, vigorous men, before they ever saw an enemy, had died in untold numbers in camps, and towns and country had been devastated by it, though it belonged to a class of easily prevented epidemics. Hundreds of endemics and epidemics of scarlet fever and diphtheria had followed the track of infected foods, and hundreds of thousands of promising infants and children were swept away annually by decomposed and infected milk. Tuberculosis had proved the deadliest and most obstinate enemy of them all. Its onset was insidious, its course frequently not suspected or watched, its invasion not prevented on account of the neglect of mucous membranes, its development insured by depressed vitality, its curability ignored, and its fatal termination more feared than palliated.

This section was dedicated to the etiology, prevention and treatment of tuberculosis in children, but did not discuss the mooted question of whether pediatrics deserved a place among the specialties in medical practice. Their problems were more direct. Was the tuberculosis of infancy and children exactly like that of advanced years? What was its frequency? Were most cases of tuberculosis of the adult preformed in the child, as it had been claimed? Did tuberculosis depend on milk alone, or in the majority of the cases? Or had milk feeding little or nothing to do with its origin? What was the difference between bovine and human tuberculosis? How was milk to be treated? Was it to be administered raw, pasteurized, scalded, sterilized, pure, or diluted or mixed? What had the udder or the mamma to do with it? These and many other questions were placed before them in the syllabus Dr. Jacobi distributed a year ago. The relation of the physician to the treatment of tuberculosis was twofold. As the medical adviser of the individual patient, he looked for his comfort, advised him in regard to his diet and other hygiene, selected a sanitarium, counseled change of occupation, and utilized other therapeutic measures. There were many symptoms to be relieved or removed, the power of vital resistance to be increased, the circulation to be strengthened, the digestion stimulated, and nutrition improved by hydrotherapy and by medication with arsenic, digitalis, guaiacol, or bone-marrow. Rest and food, and air, and change of air were ever so many steps in the right direction. It was true that, while what they accomplished was frequently the restoration of perfect health, it was, however, in too numerous cases life only without health that was preserved. But the individual had a right to live and to command their efforts to save and to invigorate him. It was not their fault when the average vigor of human society was undermined by the accumulation of numberless invalids who were kept alive. In such situations the subjects of their exertions were sick individuals who insisted upon salvation from death, and demanded that their lives be prolonged, though they be less than normally competent. It was characteristic for misanthropic critics to blame them for preserving inferior individuals, but not to object to wholesale destruction. No infectious disease ever left the people in so low a physical, moral, or economic condition as a war of equal duration or ferocity. At best the recovery of the tuberculous individual

was difficult, and too often doubtful. That was why prevention was a more thankful task. Too often, when the tuberculosis specialist was consulted, the preventive and curative measures of the family practitioner who was not consulted were no longer within reach. What the latter was doing for the individual or the family, medical science and the profession at large had been and were doing for the sanitary condition of the public at large and the community through well directed literature, through boards of health, and through legislation. This whole congress had reserved a whole section to the consideration of state and municipal control of tuberculosis, and of laws and ordinances relating to it. The time was approaching when the people would insist upon having its health safeguarded by the public recognition of its claims. They had no central representation of the forces that made for the physical welfare of the people and no United States board of health in the advisory cabinet of the first employee of the nation. That was why the people in their democratic and self-determining methods were gathering in societies, attempting and attaining what in many other countries it took the powers of the governments to accomplish. That was why a congress like theirs invited the public at large, and the national and foreign governments, to share the labors and responsibilities of the medical professions of the world. Nothing proved to better advantage the interdependence of the several parts of the social organism, or the absolute impossibility of one man, or one class of men, to pass a hermit life and prove useful. The individual physician deteriorated when in solitude. Intercourse with his peers corrected his ignorance, which, as the sick around him had to suffer from it more than he, was sinful. No progress was ever evolved from castes, classes, or ruts. Medicine must become a popular science. In this new century, universal ignorance of any people or race, even the white, should be esteemed an intolerable scandal, as it surely led to poverty and anarchy. It was not half knowledge that engendered superstition and lynching and sectarianism and faith cures; they originated from the same depth of darkness, *i.e.* total ignorance. As long as medical science would not enlighten the masses with its fundamental principles, it had failed in its most vital vocation. The simple facts of medicine should be taught in intelligent language in schools, from platforms, the pulpits, and last, by no means least, in newspapers. The first and best paid place on the editorial staff should be given to an all-around medical man, with no duty in life except to teach the millions of readers the axioms of physiology and hygiene, and their application to practical, every day life; they should no longer rely on the haphazard opinions expressed by medical men who were given no time to think or who were waiting for an opportunity to advertise themselves.

The unity of science had been preached this half century. Men and women must learn that hygiene was not curing, was no mere disinfection, but that it meant prevention, prevention in the life of the individual, the town, the nation, mankind. Their successes in exterminating tuberculosis, though they might have been marked, had been slow. In order to succeed fully, their work must be individual and collective.

Tuberculosis in Infants; An Analysis of One Hundred and Thirty-one Hospital Cases as Regards Etiology and Diagnosis, with Remarks Upon Prevention and Treatment.—Dr. Linnaeus E. La Fétra of New York read this paper. There were 73 pulmonary cases: 61 were proven to be tuberculosis by finding the tubercle bacilli in the sputum (necropsy also in 5); 1 by bacilli being found in the inspired air; and 11 by necropsy alone. There were 58 cases of meningitis tuberculosa; 57 were proven to be tuberculous by the tubercle bacilli in the spinal fluid (necropsy also in 5); and 1 by necropsy alone. Of the 58 cases of meningeal tuberculosis, the lungs were affected in 36; there were no physical signs in 8; there were signs of bronchitis in 20; there were signs of consolidation in 8; the tubercle bacilli were found in the sputum in 33 cases; tubercle bacilli were found in 8 cases without physical signs. There were 73 pulmonary and 58 meningeal cases, a total of 131. Tuberculosis occurred in the father in 12 of the pulmonary and in 11 of the meningeal cases, a total of 23; the mother was affected in 13 of the pulmonary and in 2 of the meningeal cases, a total of 15; an uncle or aunt was affected in 2 of the pulmonary and in 2 of the meningeal cases, a total of 4; other relatives were affected in 2 of the pulmonary and in 3 of the meningeal cases, a total of 5; a friend or nurse was affected in 2 of the pulmonary and in 3 of the meningeal cases, a total of 5; the room was infected in 1 of the pulmonary cases. These figures gave a total of 32 for the pulmonary cases (43.8 per cent.); 21 for the meningeal cases (36.2 per cent.); a total of 53, or 40.4 per cent. With regard to the location of the consolidation in 50 cases, the apex of the right lung was involved in 5 cases, that of the left in 3, a total of 8; the upper lobe of the right was involved in 4, that of the left in 5, a total of 9; the middle lobe was involved in 9 (plus 6) of the right; the lower lobe was involved in 13 of the right, in 7 of the left, a total of 20; more than one lobe was involved in 7 on the right, 6 on the left, a total of 13. This gave a total of 38 on the right side, 21 on the left side, a total of 59 minus 9, or 50. The location of cavities occurring in 5 cases showed the apex to have been involved in 2 cases on the right side; the upper lobe in 1 case and on the left side; and the lower lobe in 1 case on the right and 1 case on the left side.

The patients were all under three years, and the majority under one year of age. The mother, father or some one in close contact with the patient was found to have suffered from tuberculosis,—almost invariably pulmonary, in nearly half of the pulmonary cases and in over one-third of the meningeal cases. Of the meningeal cases more than half had pulmonary tuberculosis. It was impossible in the great majority of the pulmonary cases to make a diagnosis of tuberculosis from examination of the chest. Some cases gave no signs; many had simply generalized râles, while others had signs of broncho or lobar pneumonia; very few gave characteristic signs such as those of consolidation with adhesions or of cavity. The location of the consolidation was not characteristic. For an absolute diagnosis one must either find the tubercle bacilli in the sputum or see the lesions. A positive skin reaction in these young subjects was, however, almost certain. If careful sputum examination and the skin test were both negative, one could feel safe in ruling out tuberculosis, no matter what the signs in the chest. Of the 73 pulmonary cases, 34 died, 29 were unimproved, and 10 improved. Four patients seemed to have recovered completely, with no signs in the lungs from one to two years after leaving the hospital. Prophylactically, the mother and father in a tuberculous family should be warned, before the child was born if possible, that tuberculosis was communicated to the offspring by close contact, especially such as nursing a tuberculous mother and by kissing. As complete isolation from the afflicted person as possible, prevention from crawling on the floor, and the use of only washable rugs on the floor—these measures together with the usual hygiene should be enforced. Milk from untested cattle should be sterilized. All children of tuberculous families should be examined periodically for physical signs and for the tuberculin skin reaction. Suspicious cases should be at once put under active treatment, if possible in a country home, forest school or sanatorium. Persistent coughs in infants should be actively treated, lest tuberculous meningitis supervene.

Dr. Henry Koplik, of New York, said that if one examined the spinal fluid with diligence in cases of tuberculous meningitis they would find the tubercle bacillus in almost every case.

Dr. David Bovaird, Jr., of New York asked Dr. La Fétra how many examinations of the sputum were required in the cases he reported.

Dr. La Fétra replied that these examinations were repeated dozens of times; not only was one slide examined, but often as many as three. In answer to a question asking how he obtained the sputum, he replied in one of two ways. A soft rubber catheter was passed down to the lower part of the esophagus; the catheter was then pinched at the mouth and the tube withdrawn, with the mucus adherent. He preferred the second method, however. A piece of sterile gauze was fastened to a curved clamp, with the concavity pointing downward. With the baby's mouth opened, this was passed back and the glottis tickled, causing the baby to cough, and what came up came from the baby's lungs.

The Relation of Infectious Diseases, Measles, Whooping Cough, and Influenza to Tuberculosis in Children.—Dr. Edgar P. Copeland, of Washington, D. C., read this paper. He considered the subject important, because of the widespread nature of the disease. It was looked upon by the public with insufficient seriousness. Though tuberculosis was observed to follow measles, whooping cough and influenza as sequela and complication, it was difficult to determine the relation and the proportion of cases in which the relation was observed. Statistics showed tuberculous lesions in 31.2 per cent. of deaths from measles. The prevalence of latent tuberculosis was a subject of great importance. Catarrhal inflammation of mucous membranes, associated with hyperemia and lymphatic activity, common to all three diseases, was the key to the relation. Lymphatic activity determined a dissemination over the body. In the picture observed, usually general miliary tuberculosis, the pulmonary symptoms predominated. Influenza, although giving rise to many obscure chest conditions, seldom was followed by tubercle except when latent conditions existed. In conclusion he said that, considering the prevalence of measles, whooping cough, and influenza, tuberculosis did not follow sufficiently often to be of great importance, and its development in all cases was dependent upon a latent focus of disease, and its dissemination was directly due to lymphatic activity.

A Few Notes on v. Pirquet's Reaction in Children Under One Year of Age.—Dr. Carl Oscar Medin of Stockholm read this paper, which was discussed by Drs. Clemens von Pirquet of Vienna and Theodore Sachs of Chicago.

Second Day—Tuesday, September 29.

Report of a Case of Miliary Tuberculosis in a Child Aged Four and One-half Months.—Drs. A. L. Klotz and E. M. Green of Easton, Pa., reported the case of a female child who was born in December, 1907. At the age of two weeks the baby was fed on cow's milk; at the age of four weeks she was given certified milk modified. The baby gained steadily until twelve weeks old, when she began to gradually lose flesh. Her temperature averaged 99.4° F., her abdomen became much distended, and she died when four and a half months old. The lungs contained two small nodules only, and one or two mediastinal glands were involved. The peritoneal cavity was completely obliterated, and the intestines were firmly glued together. The tuberculous foci consisted of a mass of tubercles fused into flat yellowish masses the size of lentils. In the pancreas these masses were numerous, completely disorganizing the organ. This was a rare condition, for the pancreas was seldom involved. In the intestines the tubercles were entirely confined to the serous and subserous coats, and these were completely packed with tuberculous deposits. The muscular layers and mucosa were atrophied with small-celled infiltration. The tuberculous masses consisted of lymphoid and epitheliod cells surrounding small foci of coagulation necrosis; the giant cells were rare. The tubercle bacillus was most abundant in the epitheliod layer and on the outer surface of the necrotic foci. They were found to be almost absent in the necrotic tissue and near the giant cells. Most of the bacilli were shorter, thicker and less beaded than the ordinary bacilli found in human tissue. Investigation showed that the farm from which the first milk was obtained, although carefully managed and inspected, had one or two infected cows. They were highly bred Jersey cattle. The certified milk came from ordinary healthy inspected cattle, among which no infected cows were discovered. The child evidently became infected during the third and fourth weeks of life and so violently that death occurred three months later.

Report of Miliary Tuberculosis with Tuberculous Meningitis in an Infant Seventeen Weeks Old.—Drs. C. A. Fife and D. J. McCarthy of Philadelphia made a report of this case. The patient was a baby seventeen weeks of age, in which there was an attack of tonsilitis shortly after birth. This was succeeded by a gastrointestinal infection, with enlargement of the spleen. The principal clinical symptoms were drowsiness, stupor, transient third nerve palsy, facial contractions, rigidity of the extremities and convulsive seizures. At the autopsy an extensive miliary tuberculosis was present, affecting all the organs of the body. The source of infection in this case was in all probability from an old lesion at the apex of the right lung. In this location there was a cavity 2 cm. in diameter, with an area of caseous degeneration extending from this cavity to the seat of the right lung. The peribronchial glands were enlarged and caseous. The mesenteric glands were enlarged and were the seat of caseous degeneration. This case would appear to be one of intestinal infection with secondary involvement of the lung with primary miliary and secondary meningeal tuberculosis.

The Clinical Manifestations of Tuberculous Meningitis.—Dr. D. J. McCarthy of Philadelphia read this paper and considered the following types of atypical cases: Tuberculous meningitis as a local manifestation of tuberculous bacteriemia. Irregular fleeting palsies, especially of the eye muscles, blindness, and dilation of the pupils from internal hydrocephalus; stupor and delirium helped to distinguish this type. Minor tuberculosis and septic infection; here the cranial nerve involvement was very limited, but the pulse rate was apt to be high. Localized tuberculous meningitis, which was to be distinguished by the localizing symptoms in a case of pulmonary tuberculosis. Productive and healing types showing pathologically small tubercles with a spindle-shaped type of cell. These were the fulminating types with hemorrhage. Cases associated with traumatism, those which were of considerable medicolegal value. The purpose of his paper was to call attention to the fact that the source of infection must be discovered and the laboratory diagnosis should be valued as of secondary importance.

Tuberculosis in Children, Particularly with Reference to Tuberculosis of the Lymphatic Glands.—Dr. Theodore Shennan of Edinburgh presented this communication. Tables epitomized the results of an investigation of the post mortem reports of cases of tuberculosis in children who had been in-patients in the Royal Hospital for Sick Children, Edinburgh. Out of more than 1,000 post mortem examinations, 407 were made upon children dying from tuberculosis, and these tables were based upon the last 307 of those cases. The important facts brought out referred to the frequency of occurrence of the disease in lymphatic glands, and to the dissemination of tuberculosis from these glands. (1) These glands were affected in a very large proportion of the cases, 77.8 per cent. (2) The thoracic glands were more frequently implicated than the abdominal. (3) Excavation of the lungs was comparatively infrequent. (4) In tuberculosis of the abdominal glands, 50 per cent. were unaccompanied by ulceration of the intestine, and in two-thirds of the cases in which there was ulceration of the intestine there was no excavation of the lungs. (5) In 60 cases altogether (19.5 per cent.) ulceration of the intestine was present, without any previous excavation of the lungs. (6) In 137 cases

(44.6 per cent.) death was immediately due to tuberculous meningitis, and this appeared to follow dissemination from caseous glands, especially thoracic, in the vast majority of instances.

The Primary Localization of Tuberculosis in Children.—Dr. Woods Hutchinson of New York said that the data so far collected appeared to point toward the following conclusions: First, that the frequency of pulmonary tuberculosis in children was much greater than was formerly supposed. Second, that the lung was the most frequent site of tuberculous involvement in children, as in adults. Third, that whatever the port of entry, the lung suffered most severely and most frequently. Fourth, that instead of tuberculosis having a special preference for the bones, joints and glands in childhood, the tuberculous process in these regions and tissues would appear to be secondary to the involvements of the lung and to represent a residual stage of a generalized infection. Fifth, that it would appear probable that even the glandular forms of tuberculosis did not represent an earlier or milder form of the infection, but were secondary to a pulmonary involvement. Sixth, that the moderate but appreciable degree of immunity against pulmonary tuberculosis possessed by children who have manifested osseous, articular, or glandular forms of the disease was possibly to be interpreted on the theory that they had already survived a considerable degree of pulmonary involvement. Seventh, that such immunity as might be acquired by civilized races was probably like the immunity of the negro races to malaria—the result of the survival of attacks of the pulmonary form of the disease in childhood. Lastly, that the field in which the decisive battle of our future campaign against tuberculosis must be fought was the home; our chief enemy, infection in early childhood; our heaviest gun and our most crying need, camps, "preventoria," for the reception and cure of infected or exposed children before they had become unmistakably tuberculous.

The Distribution of Tuberculous Lesions in Infants and Young Children; A Study Based on Post-mortem Examinations.—Dr. Martha Wollstein presented this study. Among 1,131 autopsies on children under four years of age, 185 showed tuberculosis. Whereas of all autopsies performed on infants less than one year old, tuberculosis affected 12 per cent. at that age. During the second year of life 33 per cent. of all who came to autopsy had tuberculosis, and of those older than two years 34 per cent. Four cases were less than three months old, the youngest being seven weeks. There were no cases of congenital tuberculosis. In one instance the only tuberculous lesion was found in the bronchial glands; in four the lungs alone were involved, and in thirteen the lungs and bronchial glands. There were seven cases of primary infection of the digestive tract, including two cases of mixed deglutition and respiratory origin. Of the more advanced and generalized cases only two gave evidence of probable intestinal origin, while forty began in the respiratory tract. In the majority of the cases of extensively generalized tuberculosis in young children, the exact point of entrance must remain in doubt. Although the lungs were involved more frequently than any other organ, this proved their marked predisposition to tuberculosis rather than their primary infection. Nevertheless, cases of respiratory origin predominated over those of indigestion.

The Relative Frequency of Abdominal Tuberculosis in Great Britain and the United States.—Dr. David Bovaird, Jr., of New York read this paper and presented some charts of interest and one in particular showing the frequency of primary intestinal tuberculosis as determinded by post-mortem examinations. In Great Britain Carr reported 120 examinations, with 20 cases of definitely primary intestinal tuberculosis; Woodhead reported 127 examinations with 14 cases; Guthrie 77 examinations with 19 cases; Still, 269 examinations with 63 cases; Ashby, 155 examinations with 20 cases, and Shennan 413 examinations with 100 cases, a total of 1,161 examinations and 236 cases of definitely primary intestinal tuberculosis, a percentage of 20. In the United States, on the other hand, Northrup reported 125 examinations with 3 cases; Holt, 119 examinations with no cases; Bovaird, 125 examinations with 2 cases; Hand, 115 examinations with 10 cases; Foundling Hospital (unpublished), 136 examinations with 6 cases; a total of 620 examinations and 21 cases of definitely primary intestinal tuberculosis, a percentage of 3.5. Other charts showed the percentage of abdominal tuberculosis and tuberculous meningitis in three Great Britain hospitals—the Royal Hospital for Sick Children in Edinburgh; the Hospital for Sick Children, Great Ormond Street, London, and the Royal Hospital for Sick Children in Glasgow. He also showed the percentage of abdominal tuberculosis and tuberculous meningitis in the Babies' Hospital and the Post Graduate Hospital, New York, and the Children's Hospital in Boston. A great discrepancy was noted in these figures. Abdominal tuberculosis was eight times more frequent in Great Britain than in the United States. This discrepancy in the figures between Great Britain and the United States was the same as between Great Britain and France or Germany. There were, in fact, three times as much tuberculosis of all types in Great Britain than in the United States. Dr. Bovaird said he did not know where to turn for an explanation for such a discrepancy in the figures.

Tuberculosis of the Pericardium in Children.—Dr. Joseph S. Wall of Washington read this paper. He said that the occurrence of a group of cases of marked influence in the production of clinical symptoms, warranted the consideration of tuberculous pericarditis as a distinct morbid entity. This term might be used in such cases, while to other cases, characterized by their latency, which occurred as an incident in tubercular disease, might be applied to the designation, tuberculosis of the pericardium. The distinction, however, was but one of degree. The infectious diseases of childhood had an etiological influence which was distinctly suggestive, and such influence was to be attributed largely to the adenopathy of the mediastinal glands which followed in their wake. As a direct causative factor stood foremost tuberculosis of the tracheobronchial and peribronchial glands, with extension of the disease to the pericardium by continuity and contiguity of tissues. The process might be plastic; it might be associated with small or extensive exudates which were frequently hemorrhagic or, as a final outcome, symphysis of the leaflets might occur. He took up a consideration of the symptoms, prevention, and treatment and made a report of two observations made with autopsies.

Intermittent Albuminuria of Childhood Considered in Its Relation to Hereditary Tuberculosis.—Dr. J. Teissier, Professor of Clinical Medicine at the University of Lyons, read this paper and offered the following conclusions: Hereditary tuberculosis might attack the kidney in the child or in the adult in one of two ways: 1. Certain individuals presented a more or less abundant albuminuria, which was preferably intermittent, and which might affect one of the well-known classic cycles; but it disappeared as the pulmonary localization became established, or gave rise to general lesions, and might, therefore, be termed pretuberculous albuminuria. This form of albuminuria did not necessarily imply the existence of renal tuberculosis; but, on the contrary, seemed to have a toxic origin, and resembled the bacteriolysis which was an expression of the spontaneous defensive forces of the organism. As soon as this spontaneous destruction ceased tuberculosis developed, and the albuminuria came to an end. 2. The second series of cases was much more numerous. The kidney was affected in a peculiar manner, which they had been able by a long series of similar observations to determine almost with certainty; the kidney reacted very slowly and sluggishly to the action of the tuberculous toxin transmitted by the parent, and a slight degree of latent

nephritis was produced which resulted in a very relative impermeability, relieving itself in a moderate diminution of the total molecular diuresis, an increase in the coefficient of Korany, and also in a slight elevation of the blood pressure; a moderately severe albuminuria, usually intermittent; either of the matinal (morning) type, or frankly orthostatic (present during the active hours of the day); and finally—as the hall-mark of its tuberculous origin—a well-defined d'Arloing-Courmont serum-reaction often exceeding 1-15th. These cases, which made up more than 34 per cent. of our statistics of intermittent albuminuria in young subjects, did not eventuate in actual tuberculosis. For this reason they seemed to justify the term paratuberculous albuminuria, and many of these cases belonged to the category of spontaneous immunization, to which Professor Courmont had recently called attention.

(To be continued.)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE MUSCLES OF THE EYE. By LUCIEN HOWE, M.A., M.D. 8vo, 468 pages, illustrated; cloth. G. P. Putnam's Sons, New York.

THIRTEENTH ANNUAL REPORT OF THE COMMISSION OF PRISONS FOR THE YEAR 1907. 8vo, 341 pages; cloth.

CHOLECYSTO-PANCREATITE. ESSAI DE PATHOGENIE. By le Docteur REINE MAUGERET. 8vo, 150 pages, illustrated; paper. G. Steinheil, Paris.

DISEASES OF THE SKIN. By GEORGE THOMAS JACKSON, M.D. 8vo, 737 pages, illustrated; cloth. Lea & Febiger, New York.

CATARACT EXTRACTION. By J. HERBERT CLAIBORNE, M.D. 8vo, 169 pages, illustrated; cloth; $2.00 net. William Wood & Company, New York.

ESTIMATION OF THE RENAL FUNCTION IN URINARY SURGERY. By J. W. THOMPSON WALKER, M.B., C.M. (Edin.), F.R.C.S. 8vo, 274 pages, illustrated; cloth. Cassel & Company, Ltd., London.

INDUSTRIAL AND PERSONAL HYGIENE. By Dr. GEORGE M. KOBER, M.D., LL.D. 8vo, 175 pages, illustrated; paper. The President's Homes Commission, Washington.

THE THIRTEENTH, THE GREATEST OF CENTURIES. By JAMES J. WALSH, M.D., Ph.D., LL.D. 8vo, 436 pages, illustrated; cloth; $2.50 net. Catholic Summer School Press, New York.

THE POPES AND SCIENCE. By JAMES J. WALSH, M.D., Ph.D., LL.D. 8vo, 430 pages; cloth; $2.00 net. Fordham University Press, New York.

MEDICAL GREEK. By ACHILLES ROSE. 12mo, 262 pages; cloth. Peri Hellados Publication Office, New York.

THE EXTRA PHARMACOPŒIA OF MARTINDALE & WESTCOTT. By W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B. (Lond.), D.P.H. 32mo, 1,164 pages; 10s 6d net. H. K. Lewis, London.

REPORTS OF THE COLLIS P. HUNTINGTON FUND FOR CANCER RESEARCH OF THE GENERAL HOSPITAL. 8vo, illustrated; paper.

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PATHOLOGICAL TECHNIQUE. By FRANK BURR MALLORY, A.M., M.D., and JAMES HOMER WRIGHT, A.M., M.D., S.D. 8vo, 480 pages, illustrated; cloth; $3.00 net. W. B. Saunders Co., Philadelphia.

PULSATING EXOPHTHALMOS. By GEORGE E. DE SCHWEINITZ, M.D., and THOMAS B. HOLLOWAY, M.D. 8vo, 124 pages; cloth; $2.00 net. W. B. Saunders Co., Philadelphia.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Vol. 8, 8vo, 454 pages, illustrated; paper.

PREVENTABLE BLINDNESS. By N. BISHOP HARMAN, M.A. M.B. (Cantab.), F.R.C.S. (Eng.) 12mo, 109 pages, illustrated; cloth. William Wood & Company, New York.

STATE COMMISSION IN LUNACY, STATE OF NEW YORK. 8vo, 1,318 pages; cloth; 19th annual report. J. B. Lyon Company, State Printers, Albany.

DIAGNOSIS BY THE URINE. By ALLARD MEMMINGER, M.D. 12mo., 116 pages; illustrated; cloth; $1.00 net. P. Blakiston's Son & Co., Philadelphia.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending September 26, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	530	172
Diphtheria	255	24
Measles	54	—
Scarlet Fever	143	7
Smallpox	—	1
Varicella	17	—
Typhoid Fever	127	29
Whooping Cough	25	6
Cerebrospinal Meningitis	8	8
Malarial Fever	—	—
Totals	1159	247

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending September 25, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, San Francisco	Aug. 29–Sept. 5	2	..
Indiana, Indianapolis	Sept. 6–13	7	..
South Bend	Sept. 5–12	1	..
Kansas, Topeka	Sept. 5–12	1	..
Wichita	Aug. 29–Sept. 5	1	.
Michigan, Saginaw	Aug. 29 Sept. 5	6	..
Ohio, Cincinnati	Sept. 4–11	1	.
Dayton	Sept. 5–12	1	.
Texas, San Antonio	Aug. 29–Sept. 5	1	.
Wisconsin, La Crosse	Sept. 1–12	6	.

SMALLPOX—FOREIGN.

Arabia, Aden	Aug. 17–24	..	10
Borneo, Sandakan	June 9–16	..	2
Brazil, Rio de Janeiro	Aug. 9–16	738	265
Santos	June 28–Aug. 9	30	15
Canada, Halifax	Sept. 5–12	2	..
Ceylon, Colombo	Aug. 1–8	4	1
Ecuador, Guayaquil	Aug. 8–12	..	12
Great Britain, Liverpool	Aug. 22–29	1	.
India, Bombay	Aug. 11–18	..	5
Calcutta	Aug. 1–8	..	3
Madras	Aug. 8–14	..	1
Indo-China, Saigon	July 25–Aug. 8	5	1
Italy, General	Aug. 23–30	58	..
Naples	Aug. 23–Sept. 6	8	1
Java, Batavia	Aug. 1–8	3	1
Peru, Lima	Aug. 15–22	2	.
Paita	Aug. 15–22	..	Present
Portugal, Lisbon	Aug. 22–29	1	..
Russia, Moscow	April 15–22	13	10
Riga	Aug. 22–29	1	..
Warsaw	July 5–25	..	16
Spain, Valencia	Aug. 22–29	1	..
Switzerland, Zurich	Aug. 22–29	3	..
Turkey, Bagdad	July 25–Aug. 15	41	9
Constantinople	Aug. 23–30	..	4

SMALLPOX—INSULAR

Philippine Islands, Manila	Aug. 1–8	4	1

YELLOW FEVER

Brazil, Para	Aug. 22–29	1	1
Ecuador, Guayaquil	Aug. 8–22	..	2
Martinique, Fort de France	Aug. 9–Sept. 5	7	..
Mexico, Merida	Sept. 11–17	6	.
Vera Cruz	Sept. 9–24	2	.

CHOLERA—INSULAR.

Philippine Islands, Manila	Aug. 1–8	13	13
Provinces	Aug. 1–8	893	557

CHOLERA—FOREIGN

Austria, Ostrowo	To Sept. 8	76	3
China, Hankau	To Aug. 5	10	7
India, Bombay	Aug. 11–18	..	2
Calcutta	Aug. 1–8	..	8
Madras	July 26–Aug. 14	..	254
Rangoon	Aug. 1–8	..	1
Indo-China, Cholon	July 25–Aug. 1	5	5
Saigon	July 25–Aug. 8	8	8
Russia, General	Aug. 8–17	1,145	517
St. Petersburg	Sept. 10	15	..

PLAGUE.

Austria, Trieste	Sept. 21	2	1
Chile, Antofagasta	Aug. 12	3	..
Iquique	Aug. 17	4	3
India, General	Aug. 1–8	907	626
Bombay	Aug. 11–18	..	40
Calcutta	Aug. 1–8	..	12
Rangoon	Aug. 1–8	..	28
Indo-China, Cholon	July 25–Aug. 1	7	6
Saigon	July 25–Aug. 1	27	23
Peru, General	Aug. 9–22	40	18
Callao	Aug. 9–22	6	3
Lima	Aug. 9–22	1	1

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Original Articles.

THE DUTIES OF THE MEDICAL PROFESSION TO THE PUBLIC.*

BY M. ALLEN STARR M.D., LL.D., Sc.D.,

NEW YORK,

PROFESSOR OF NEUROLOGY, COLUMBIA UNIVERSITY.

YOUR presence here to-day to receive your welcome to the medical school is proof that you have weighed carefully the attractions offered by the various learned professions and have chosen medicine. It is therefore needless for me to put before you the reasons for such a choice. It may be that you have been drawn to it by the opportunities it affords for purely scientific investigation, or it may be that the application of the science to the art of relieving human suffering and benefiting humanity has appealed to your best instincts.

The search for conditions leading to diseases, whether of an infectious type or of the numerous sporadic types may excite your interest. These scientific investigations are fundamental. The discoveries of the bacteriologist, who finds in the laboratory by the aid of the microscope the minute organisms which produce so many diseases; who cultivate these little plants in appropriate soil, watching their blossom and fruitage and seed, as he can do in the study of malaria, and who transplants these bacteria, thus finding out the conditions favorable to their life or disastrous to their reproduction, may well stimulate your scientific imagination. The facts that these bacteria growing in the human body produce changes in that body of a special kind, causing, on one hand, symptoms that we recognize as peculiar to each kind, and, on the other hand, effects in the blood which we now regard as instinctive efforts of nature to kill the bacteria or to counteract their effect by producing an antidote,—all these facts and many other problems worked out in the laboratory by purely scientific methods afford a field of labor for those of you who are thus disposed.

You may, on the other hand, have the more immediately practical side of medicine in view. You may have seen the physician, calm, of keen judgment and sure insight, come to the bedside of some one dangerously ill and by his skillful direction, by his hopeful confidence, and by the use of remedies combat the symptoms and guide the patient through the illness to restored health and vigor. You may have known the surgeon, prompt to use means which seem at times cruel or daring, secure by his operative skill a rapid relief from conditions otherwise surely fatal. And this direct action for the saving of human life may be the thing which inspires you with enthusiasm and makes you feel that your work is the most practical and useful in the world. Or you may have the literary inclination of the scholar who is fascinated by the records of achievement in some of the many fields of medicine and who delights in tracing the progress of knowledge, in gathering together the thousand and one facts which are scattered through various books in different languages, in bringing these facts into an orderly sequence and in presenting in concise and accurate form the sum total of knowledge on that subject, thus making accessible to every one the labor of many investigators through many years. Surely such a writer, the author of monographs and books on medicine, does much to disseminate information and is a most useful member of his profession.

The widely varied character of the work open to you, the possibility of a choice among many different interests and activities provides an outlet for your varied energies which I have no doubt you fully appreciate. The opportunities of specialization are so numerous in medicine that there is hardly any taste which cannot be satisfied.

It is not of these things, however, that I wish to speak to-day. In your future course of study you will appreciate these various phases of the physician's opportunity more and more. The thing I wish you to realize particularly is that in studying medicine you are becoming leaders and directors of the public in those matters which most nearly relate to their material and moral welfare. The duty of the physician to the community is an active element in life to-day, and it is one whose value is being more and more appreciated. The result of these past years of scientific research and of wonderful discoveries regarding the nature and causes of disease has been to reveal many important facts that have a direct and practical bearing upon the prevention of disease. Prevention is not a matter for the physician; it is a matter for the ordinary citizen to strive for, and the citizen must be informed. He needs instruction. He sees its importance. He is willing to accept it. He is eager to apply it; if it is to keep him well or to save his children from disease and death. Here, then, is a field of labor waiting for you. Put the facts at your command before the public and it will soon appreciate the necessity of acting under your direction. Instruct them in regard to the prevention of typhoid fever by proper drainage and care in securing pure drinking water, and they will demand and secure immunity from this disease. Convince people of the need of vaccination to prevent smallpox, of the need of prophylactic injections to prevent tetanus, of the need of the immediate use of antitoxin injections of diphtheria, of the necessity of isolation of cases of infectious disease, and they will see the reason for these things and will promptly adopt the suggestions you give. Impress upon the community the facts regarding tuberculosis; the enormous mortality of this disease, which still continues to affect a quarter of the race and kills 15,000 persons yearly in this city, the possibility of its control, if its dissemination is prevented, if it is promptly cared for, and

*Opening Address to the Students of the College of Physicians and Surgeons, Medical Department of Columbia University, September 25, 1908.

if the infected persons are given specific directions regarding their manner of life, and the community will in the end welcome the knowledge. It is true that there are always ignorant or fanatical or prejudiced persons who oppose scientific progress and shut their eyes to danger. But the world as a whole is everywhere dominated by the intelligent section of the community. And just as Jenner's vaccination for smallpox has in a century fought its way to general acceptance, though at first it met with violent opposition, and just as Lister's antiseptic or aseptic methods of surgery have within thirty years revolutionized surgery, making possible hundreds of operations hitherto unheard of and thus have saved and will save millions of lives, so we may believe that proper methods of handling tuberculosis will within the next quarter of a century eliminate that scourge from the human race. The plagues of the middle ages have been vanquished and this modern plague is in a fair way to follow them. It is part of your duty to bend your energies to this great work, not only by applying your skill to the relief of those many forms in which the disease shows itself, but more especially in giving the widest dissemination to those facts which bear upon the prevention of its development and spread. Then you will perform a most widely useful service, not merely in some small community or city as a practicing physician, however large your practice, but to the world at large, which is made up of the small communities which you can reach.

This is the age of publicity. The idea of mystery in science is exploded. There are no secrets in medicine. The use of a dead language in writing our directions is destined soon to be given up. There is a demand for open facts and clear statements. And no one can present these facts so well as the expert who knows the subject. You will here learn to be such experts. You will acquire all the knowledge of disease, of its causes, of its remedies, of its prevention, which can be had. Remember that it is a large part of your duty to make this knowledge available to others, not merely by your efforts as physicians in the care of sick persons, but by your activity as citizens in your land in the care of its people.

The necessity of proper directions of the public health has already been recognized by the establishment everywhere in our country of officers and boards of health. In many cases these are most efficient, as, for example, in the City of New York, where the best talent in the profession is devoted to this service. In many other places such health officers are mere political dummies, holding the offices for their salary and being of no influence and little use in their communities. It is important that the public should be shown how great is the responsibility of such health officers; how important and useful is their sphere of operation and how necessary to the community is a well-organized board of health in every place. Such health departments are doubly necessary at the present time when the diagnosis of many diseases depends on bacteriological or pathological examinations only possible in a laboratory and impossible for the individual to carry out. Every health officer in every small community should be in close relation with a well-equipped laboratory under a special expert in the nearest city, so that there shall be no delay in the investigation of diphtheritic, typhoid, or tubercular excretions, or in those blood examinations now essential to diagnosis and to treatment. The establishment of such laboratories in all towns is a necessity, and this fact with the need of ample endowment by the State is a matter to be urged upon the State legislatures. By exerting your influence in spreading the information among the public; in making clear the need of State supervision and aid in providing proper facilities for the boards of health and in demanding pure water supplies, clean milk supplies, perfect drainage for towns, sanitary inspection of tenements and sweatshops and the prevention of overcrowding in lodging houses, and the separation of patients suffering from infectious and contagious disease, you can do much to benefit public health.

I turn now to another sphere of activity open to you and loudly demanding the efforts of the medical profession, namely, the prevention of diseases of occupation by legislative enactment. You may say, Why invoke law to treat disease? Can we not as physicians handle it? Is it necessary to appeal for aid to law givers who are not always intelligent or safe allies?

When we study the poor patients who crowd our dispensaries and hospitals and who are often ignorant not only of the nature of their affections, but of the causes which produce them, we find a large number who have incurred the disease by reason of the character of their work. They are suffering from diseases incident to their occupation and which might perhaps under certain circumstances have been prevented. The number of industries in which lead poisoning is common is not generally known. Painters and plumbers and those who work on lead become impregnated by the lead, which soon affects the nerves and causes a form of paralysis, incapacitating the laborer for many months. Those who work out of doors are far less liable to this than those who work indoors, and when, as in certain factories, the lead is in the air, the room is close and not ventilated, it is the exception for the laborer to escape the poison. In the annual report of the chief inspector of factories in England in 1906 cases of lead poisoning are reported in the following occupations: File cutting, coachmaking, smelting of metals, printing, type founding and type setting, turning and enameling, whitelead manufacture, china and earthenware manufacture, especially glazing of pottery, lithographic work, manufacture of glass, of electric accumulators, of paints and colors, and shipbuilding. In 1899, 1,258 cases of lead poisoning were reported in England among these industries. But under the restrictive laws passed by Parliament and enforced, protecting the workmen in these industries, the number of cases had been reduced to 632 in 1906. Women, who seem to be more susceptible to lead palsy than men, have been excluded by law from such employment in England.

Manufacturers of looking-glasses and of silk hats, of barometers, of incandescent lamps, and of articles which are bronzed employ mercury in their trade and employees are exposed to the fumes of mercury in these factories as mercury volatilizes at a low temperature. If ventilation is not adequate, poisoning results, producing tremor and paralysis or even death. Arsenic is largely used in arts and manufactures, and unless great care is taken it produces serious forms of disease. In all dyeworks where it is used, in the preparation of wallpaper and artificial flowers, in the manufacture of white arsenic, in curing furs and in many other factories instances of arsenic poisoning are very common. Other metals, such as copper, zinc, and phosphorus, are equally poisonous, and the last named is a frequent cause of disease among those who produce matches. In many chemical trades the employees are exposed to various poisons, such as nitric acid fumes, aniline

dyes, sulphuric acid fumes, nitro-benzene gas, and many other substances given off in gases and vapors.

In addition to the occupations where poisons are taken into the body, there are many occupations in which the laborer is exposed to undue risks. Caisson disease is seen all the time in our hospitals, this being due to the sudden change from the high pressure to the low pressure of air incurred by the workman in coming out of the caisson where he has worked under a pressure of many atmospheres. Precautions are provided by having a series of chambers, each under a different pressure, but even this is not always enough to prevent this disease. The manufacture of explosives is attended by great risks, and the number of accidents in such factories is far greater than is ordinarily appreciated. Then there are many diseases due to organic or inorganic dust in the air that is inhaled, irritating the lungs, or is swallowed, producing affections of the stomach and intestines. In the great steel industries, which involve grinding and polishing of iron and thus throw minute iron dust into the air; in the textile manufactures, where cotton, silk, or jute is handled, and other fine particles are mingled with the dust; in cement making, flourmills, sawmills, tobacco factories, and many other industries it has been found that the percentage of deaths from consumption was much greater than in other employments where dust was not constantly in the air breathed. Sommerfield has shown that of 1,000 persons employed in occupations without the production of dust, 381 died of phthisis, while of 1,000 persons occupied in trades giving rise to dust, from 480 to 598 died of phthisis. Only 115 farmers in 1,000 die of phthisis. There is thus a distinct danger to those who are exposed to the inhalation of dust or of poisons in their various occupations. Now in England, Germany, France, and on the continent generally, it has been found expedient to pass laws protecting these exposed laborers so far as possible from the dangers of their occupations. A certain air space in workshops and factories is demanded. Regular ventilating apparatus with forced draughts to carry off noxious gases is required in those factories where chemicals are used or dust is inevitable, and where trades are particularly dangerous, as the making of looking-glasses, the glazing of pottery, special devices are required by law to obviate the evil effects. Inspectors of factories report regularly their discoveries of defects. The factory acts and the protection they afford to employees in England might be taken as models for our imitation. And even processes of manufacture which carry danger have been modified by law.

One specific case may interest you.* In Staffordshire over fifty thousand persons are employed in the manufacture of china and earthenware. Ten years ago the large number of cases of lead poisoning in this district caused so much comment and criticism that the Home Secretary appointed a commission to ascertain how the danger might be removed. That commission recommended that the percentage of lead could be much reduced in the glazes and in some could be eliminated. The manufacturers protested, maintaining that their methods could not be changed. The matter was finally arbitrated and the result was that lead employed in the process was reduced from 20 per cent. or 15 per cent. to 5 per cent., a monthly medical examination of workers was made obligatory, overalls and head coverings were provided and maintained by employers for women, respirators were to be worn by persons specially exposed, and the floors of workrooms were to be sprinkled and swept daily and a scheme of compensation for lead poisoning was arranged. Under these rules the trade has been working since 1903, and the number of cases of lead poisoning has been reduced over a half. This illustrates how legal enactment is necessary in some cases to enforce conditions that are needed for the prevention of disease.

*Diseases of occupation, by Thomas Oliver, M.D. E. P. Dutton & Co., 1908.

As you go about in your various fields of medical practice you will soon come in contact with labor conditions which you will see are of evil. In many cases a careful investigation will reveal the source of evil and lead you to find a remedy. It is your work to secure that remedy. Show the employer the condition; seek his aid in its correction. But if he will not act, then make known the condition to the public, initiate and promote public legislation in your local boards, in your State assemblies and senates. Bring these matters into notice, and you will be doing a strictly medical service not to your own patients merely, but to the community and to the country.

The laboring class needs our interest, our knowledge, and our effort in securing that adequate protection in their labor which is afforded them abroad. You are the men to inaugurate this work, and as physicians you must guide the public sentiment and supply the necessary information on which the needed laws must be based. We have a department of commerce and labor in our national government. We doctors must see that it does something more than to collect statistics regarding the trusts.

There is one other relation to the public that I wish to mention as one of the duties to which you are called. It is one that will carry responsibility, but that will repay your effort and it is one that, while giving you much satisfaction, is not to be estimated in terms of money. I mean your personal influence with your patients in aiding them by advice and counsel in those various critical times and emergencies which occur and recur in every one's experience. Fifty years ago, in our simpler type of life, the clergyman stood in the community as the one man of clean, high, unselfish mind, to whom one could safely go for disinterested advice and counsel. This is still so to some extent, and many members of the community who preserve their religious faith or who are devoted to their special church rely upon the clergy. The establishment of a personal relation between priest and parishioner best elaborated by the Catholic church, while open to criticism and abuse, is one which offers a great deal of help and comfort to many uncertain minds. But to-day there are many who have no church and no priest and yet need guidance in many ways. These turn for help to the physician and he is supplanting the clergyman as the one from whom to obtain counsel and advice. Your relations with your patients are likely to be very intimate. They will come to you in perplexity and in trouble for your personal view of their complex situations and for your aid or comfort. Learn to look impartially at all sides of a question. Keep your moral sense unclouded. Do not hesitate to uphold high standards. Never compromise with deceit and fraud. And let your own lives and conduct be such that your influence in the community shall be for the best, the purest, and the noblest. In this way only can you command the confidence of your patients and the respect of the public, which is essential if you are to guide them in their difficulties, safeguard their health and welfare, and be a benefit to them both materially and morally.

These, then, genetlemen, are some of the fields of activity opening before you as you enter upon your medical career. They are broad fields, with wide boundaries and far prospects. The soil needs be cultivated, but it will yield an abundant harvest to the persistent worker. The opportunities for your effort are varied. That effort is sure to be crowned with success. To add to the sum of scientific knowledge, to find some new means of bringing comfort, help, and relief to the suffering, to protect the ignorant and to guard the welfare of the public, these surely are objects worthy of your ardent enthusiasm and of your best endeavor.

THE PRESENT STATUS OF THE RADICAL MASTOID OPERATION FOR THE CURE OF CHRONIC PURULENT OTITIS MEDIA.*

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The invitation to address the Medical Society of the Buckeye State at its annual conclave upon some subject relating to otology is an honor which I fully appreciate. In response to the invitation I submitted to your officers several topics, from which they finally selected the one which appears upon your scientific program, viz., "The Present Status of the Radical Mastoid Operation for the Cure of Chronic Purulent Otitis Media." My remarks will therefore be confined to purulent otitis media in its chronic form, and the methods for its relief. Even with these restrictions I have found it extremely difficult to arrange the material in such form as to present it in the brief time at my disposal.

Chronic purulent otitis media may be described as a chronic infective inflammatory process involving the structures of the tympanic cavity, with more or less persistent purulent discharge, and usually pathological changes in the mucous membrane and surrounding bone in the form of necrosis of some portion of the ossicular chain, tympanic walls, recessus epitympanicus, aditus ad antrum, antrum of the mastoid, the mastoid cells, or labyrinth. Cholesteatoma may or may not be present. We all know that the tendency to bone necrosis in chronic purulent otitis media renders it a complex disease, and one attended with difficulties in the way of treatment, extreme annoyance to the comfort of the individual, and considerable danger to life on account of the possibility of intracranial complications and lateral sinus thrombosis.

The line of demarcation between the acute and the chronic form of the disease may not be clearly defined. The persistence of an otorrhea beyond eight or ten weeks is, by common consent, considered to have assumed the chronic form.

In order that we may more intelligently consider the operative requirements, I shall briefly outline the etiology, pathology, and preventive measures of treatment.

Etiology.—In an otherwise healthy individual, with proper care and skilful treatment based upon modern methods, even though the disease results from some infection of virulent type, an acute purulent otitis media should always be recovered from in from two days to three weeks, the exceptions to this rule occurring in tuberculosis, syphilis, or malignant cases. It is my personal belief that if all acute cases be subjected to proper treatment, the disease in the chronic form would be almost unheard of. Without wishing in any manner to reflect upon the medical profession in general, it still remains a fact that this disease usually results from neglect or unskilful treatment of acute attacks or from failure to prevent recurrences by maintaining good general health, caring for intranasal infections and deformities and the removal of diseased adenoid tissue and hypertrophied tonsils in young children. Primarily the undergraduate college is at fault in not providing adequate facilities for instructing students in the actual diagnosis and treatment of the diseases of the ear, nose, and throat.

Chronic purulent otitis media may result from a single attack or a series of recurring acute attacks; in most instances, however, some complication, either a mastoid or at least an involvement of the mastoid antrum, has accompanied the acute infection. It is probable that a large proportion of all chronic cases have at some time had mastoiditis from which recovery has taken place without operation, but with loss of hearing, chronic offensive discharge, and all the dangers attending chronic bone necrosis. A simple mastoid operation promptly performed prevents all of these serious sequelæ and almost without exception gives perfect hearing results.

A series of predisposing factors enter into the history of every case. The most prominent of these are disease and hypertrophy of the lymphoid tissue in the vault of the pharynx and of the faucial tonsils. Recurrent attacks of otorrhea in young children are always an indication of the presence of adenoids and hypertrophied tonsils. Intranasal infections and deformities must also be duly considered. Acute infectious diseases, especially those peculiar to childhood, together with grippe, diabetes, syphilis, and tuberculosis, form a distinct class of predisposing factors. This is partially due to the virulency of the infection which accompanies them, and also to the systemic depression which is present. Such aural complications as involvement of the epitympanic space, aditus ad antrum, and mastoid antrum strongly predispose to the chronic condition, and especially so in patients who do not receive proper care and treatment. The type of infection is also an important etiological factor, a streptococcic invasion always giving a virulent type to the infective process.

Pathological changes in the chronic purulent type of inflammation are referable either to the soft tissues or to the bony surroundings. When confined to the middle ear mucosa the membrana tympani becomes partially or wholly destroyed. The inflammatory process may involve the entire intratympanic mucous tract or it may remain limited to certain localized areas. The tissue changes consist in swelling, connective tissue inflammation, granulations, polypoid degeneration, and ulceration. In the more severe forms necrosis takes place, involving one or more parts of the middle ear, and always attended with pus discharge. Bone necrosis may be confined to the ossicular chain, but as a rule the tympanic ring and bony walls of the tympanic cavity gradually succumb to the necrotic process. Unfortunately necrosis is prone to extend through the aditus into the mastoid antrum and the mastoid cells. Even the petrous portion of the temporal bone which contains the cochlea and semicircular canals is not exempt, and herein lies one of the dangers of the disease. Bone necrosis may be considered the danger signal of chronic purulent otitis media. The span of bone between the roof of the attic and mastoid antrum and the

*Read before the Ohio State Medical Society, May, 1908.

middle cerebral fossa is not great. Fortunately it possesses two firm walls through which the necrotic process must pass before entering the cranial cavity. The same holds true in regard to the enormous blood channel, the lateral sinus, which passes in close proximity to the mastoid antrum, although beneath the inner bony table. Loss of substance involving both the soft tissues and bony structures is a common pathological change observed within the tympanic cavity. Perforations of the membrana tympani, varying in size and location, are always present.

Symptoms.—Unlike acute purulent otitis media, an extensive and prolonged purulency may exist with entire absence of pain. Whenever pain is present it is an indication either of some slight obstruction to the normal pus flow or to the commencement of some more serious complication associated with an extensive purulent process. Disturbances of hearing, all the way from slight to complete deafness, are present in every case. The chief symptom of the affection is a constant flow of pus from the external auditory canal. When bone necrosis is present the pus will possess the carrion-like odor indicative of this condition. In a limited percentage of cases there is a formation of cholesteatoma. In my experience the percentage of true cholesteatomatous cases in this country is extremely small. When present, large masses of cholesteatoma exfoliate at intervals after which relief of symptoms will take place. Fever is rarely present in uncomplicated cases. Recurrent attacks of mastoiditis are sometimes observed, and when sinus thrombosis, pyemia, meningitis, or brain abscess develops, the typical symptoms of these complications make their appearance.

Diagnosis.—The diagnosis is based upon the history of prolonged otorrhea and upon the otoscopic findings. Generally the auditory canal will be found filled with pus, which varies in color from pure white to brownish or bloody, marked fetor always pointing to the existence of bone disease or to the presence of cholesteatoma. Lack of fetor may be taken as an indication that the chronic inflammation is confined to the soft tissues or is due to the absence of putrefactive bacteria. The appearance of the intratympanic mucosa varies considerably in color. It will be found red and swollen, having an edematous appearance, often with polypoid or granular excrescences. Large areas of extensive sclerosis are found in some cases. By means of a small, properly curved silver probe introduced the necrosis may often be made out.

Prognosis.—The prognosis of this disease depends upon the extent of the necrotic process, the physical condition of the patient, and largely upon the methods of treatment employed for its relief. In uncomplicated cases with the absence of bone necrosis and cholesteatoma, especially when the nasopharyngeal obstructions and diseases can be relieved by local operative interference and with modern methods of local treatment directed to the disease, the prognosis should not be considered unfavorable. Many such cases terminate in recovery, although traces of the disease may remain in the form of tympanic scars, dryness, perforations, sclerotic changes, and calcareous deposits in the membrane, and also varying degrees of deafness. Whenever any considerable degree of bone necrosis is found the prognosis must be considered less favorable on account of the difficulties present in the way of treatment, and because of the tendency to extension of the necrotic process to nearby and often vital structures. While the proportion of chronic purulent cases which at some period of life develop some serious intracranial or lateral sinus complications is not large, they do occur and they may occur in any given case.

This affection should never be considered lightly, neither should it be allowed to progress unattended by painstaking and persistent efforts to eradicate the disease process, or at least to minimize its activity. The prognosis is unfavorably influenced by granulations and polypoid masses. These usually protrude from the attic region and are indications of necrosis which may extend to the mastoid antrum.

Treatment.—In the foregoing remarks I have attempted to place before you the various phases of chronic purulent otitis media. Briefly stated, in chronic purulent otitis media we have a persistent intratympanic otorrhea with necrosis of either the lining membranes or the bony walls, in close proximity to structures so vital that should the infective process reach them a fatal termination becomes imminent. Before discussing the methods of treatment I desire to suggest the following: "What would the average physician recommend for a similar condition occurring in other portions of the body, for instance, about the hip-joint, in some one of the long bones, the pleural cavity, a chronic abscess about the appendix, or one in the pelvic region involving the uterine appendages?" Surely such patients would not be given the advice which is so often reported from patients who consult me, especially in out-door clinics: "My doctor told me to do nothing for the discharge from my child's ear, for if I did it would break out in some other part of his body." "My physician's advice was not to treat the chronic aural discharge, that it would disappear as soon as the permanent teeth appeared." "My doctor has told me that it would be a great mistake to have my child's tonsils and adenoids removed." On the contrary the patient would be advised to submit to surgical treatment, to be persisted in until cured. The ear should be no exception to the general rule that bone necrosis and pus discharge from any part of the human body offer a menace to health and often to life, and that the safety of the individual requires prompt relief and generally at the hands of the surgeon.

No treatment should be attempted until the most careful and painstaking efforts have been made to discover the exact conditions present, such examination to involve a thorough knowledge of the patient's general condition, whether or not organic disease is present, and of the state of the nose and nasopharynx, and a careful search as to the presence of necrosed bone, the condition of the ossicles, the presence of granulation tissue in the walls of the tympanic cavity or its proliferation through the perforation into the external auditory canal. In other words, the diagnosis should be made with great care, for upon it must be based the form of treatment which is to be instituted.

The treatment may be classified under three general heads, depending upon the location and extent of the disease: (1) Local measures; (2) intratympanic operation; (3) the so-called radical operation, the present status of which I shall endeavor to set before you clearly in the remaining portion of this address.

Of the three methods the simplest is that known as local treatment. This is applicable to and usually successful in a considerable proportion of cases of chronic otorrhea. The type of cases amenable to local treatment may be defined as the simple variety, wherein the soft tissues only are involved, or where

the bone necrosis is localized, and in those where the disease is aggravated by adenoids, hypertrophied tonsils, lack of cleanliness, proper nourishment and hygienic surroundings. Here the removal of diseased tonsils and adenoids, the establishment of right habits and methods of living, internal treatment with tonics and local treatment by modern methods will usually effect a cure. Primarily the local treatment should aim to remove accumulations of pus from the tympanic cavity and external auditory canal and to promote the rapid drainage of pus. In order to facilitate the flow of pus it may become necessary to remove or otherwise destroy masses of granulations or to enlarge the perforation. Obstructing polyps or granulations should be immediately removed. When of sufficient size a small snare may be employed, otherwise the most effective method is to fuse a small crystal of chromic acid upon the end of a probe and plunge it into the granulation mass.

Methods of Douching.—The cleansing of the purulent cavity by means of the douche or syringe is best accomplished by the employment of sterile normal salt solution. If large masses of dried secretion are found clinging to the walls of the cavity their removal is facilitated by previous instillation of a few drops of dilute hydrogen peroxide. If necrosis is present sterile bichloride solution, varying in strength according to the age of the patient, may be employed. These solutions should be warm, the temperature varying from 100° to 110° F. From one to two quarts of such solution in a fountain syringe, hung high up in order to give sufficient force to the stream, will serve to wash out the external auditory canal, and, when large perforations are present, the tympanic cavity. The return flow tip facilitates douching.

It is often necessary to irrigate the tympanic cavity and attic and this can be accomplished by using a slender glass or metal cannula slightly curved upward at the tip and carried well through the perforation. A more effective douche method has recently been devised by Dr. E. P. Fowler, one of my assistants at the Manhattan Eye, Ear, and Throat Hospital, by which the douche is so arranged that suction as well as douching is accomplished.

After douching there usually remain shreds of mucus or pus, and other active detritus which must be carefully wiped away with the cotton probe. Any needed intratympanic application may now be made. The success of this method of treatment depends largely upon the frequency and thoroughness with which local therapeutic measures are employed. If granulations recur applications of absolute alcohol or strong solution of nitrate of silver produce favorable results. Small areas of necrosis should receive frequent applications of nitrate of silver or iodine until the necrotic areas slough away. This treatment cannot be fully trusted to the mother and rarely even to the nurse, but the physician himself must not only examine the ear but also personally administer the local treatment almost daily for long periods of time.

At each sitting, in addition to ordinary douching, a careful otoscopic examination should be made and all remains of pus and detritus carefully wiped away. Inflation in chronic cases is often beneficial, the air douche forcing retained secretions from the Eustachian tube into the tympanic cavity. In the majority of cases it is advisable to continue the local measures above described for a considerable period of time, even for months, providing any reasonable measure of improvement warrants delay in operative procedures. The results obtained prove the merits of the method, as considerably more than fifty per cent. of all cases are cured or at least sufficiently improved to practically remove the dangers attending the chronic purulent process. Unfortunately the local measures prove insufficient when extensive necrosis exists, and some form of operative treatment must be instituted in order to eradicate the disease.

Two general methods of operation are valuable, either one of which must be decided upon according to the exigencies of the case. The first and simpler operation is the intratympanic, which is performed through the external auditory canal. This operation is also termed ossiculectomy. The second is the so-called radical operation, which is performed externally by the postauricular route.

The intratympanic operation or ossiculectomy is simpler in technique, avoids external incision, deformity, and prolonged and painful dressings. While it requires much skill and an accurate knowledge of the anatomical surroundings, it is much less formidable than the radical operation. It is necessarily limited in scope to the membrana tympani, soft tissues of the tympanic cavity proper, the ossicles, tympanic ring, and walls. Nevertheless, it is worthy of trial in cases where it can be fairly accurately demonstrated that the necrosis is confined to these locations. An ossiculectomy skilfully performed, with the curettage of all necrosed areas within reach, will in a somewhat limited percentage of cases effect a cure, and even when a complete cure is not effected the removal of the membrana tympani and ossicles opens a wide channel for the flow of pus from the deeper structures. It is a well known surgical axiom that large openings into pus cavities materially aid nature's efforts at repair.

I have repatedly succeeded in putting an end to a suppurative process in the middle ear by resorting to this method of treatment. It is somewhat difficult to define the class of cases in which it may be employed with a reasonable hope of success on account of the obstacles in the way of positively determining whether the necrotic process is confined to areas within reach; and yet the history, the amount and character of the discharge, and the intelligent use of the probe become valuable adjuvants in deciding whether or not ossiculectomy is indicated. All patients when advised to submit to this operation should be informed that it may fail to cure and that the more radical operation may subsequently become necessary.

The technique of the intratympanic operation does not properly come under the title of this paper, and enough has been said to indicate both its extent and its limitations. It is less hazardous to the patient, requires less after-treatment, besides being a procedure to which patients submit more readily than to the radical operation. Some elements of danger attend this operation, inasmuch as the necrotic process may have extended to the facial canal or to the labyrinth in some portion of its ramification. Facial paralysis, therefore, that bugbear of all operations upon the ear, may result. Again the forcible removal of granulations which may have their attachment to the exposed dura over the tegumen may open the way for meningeal infection.

These details have been introduced in order that the merits of the intratympanic operation may be compared with those of the radical.

For several years past the radical operation for chronic purulent otitis media has tended to supersede all other measures. Briefly stated, the purpose

of the operation is to convert the external auditory canal, tympanic cavity, attic, aditus ad antrum, mastoid antrum, and, if necessary, the mastoid cells, into one wide open cavity, eviscerating all granulations and diseased bone, destroying all membranous and muscular tissues, including the membrana tympani, and effecting dermatization throughout in the hope that by so doing the ramifications of the disease will be terminated once and for all.

The operation is a capital one requiring extensive dissection in the most complicated bone in the human body. Lying in close proximity to or imbedded in the structure are the cerebrum, cerebellum, lateral sinus with its ramifications, the internal carotid artery, and the facial nerve. These are among the reasons why it requires the utmost skill and a minute knowledge of the anatomy of the entire locality.

While the operation is extensive the disease is no less so, a fact which is fully proven by the percentage of failures to eradicate entirely the diseased area. Expert knowledge as to the management of venous, labyrinthine, and intracranial complications is also requisite, for at any time these complications may appear. The operation was first described by Küster, with modifications by Stäcke, von Bergmann, and others. American operators almost invariably clean out the entire mastoid cavity in addition to the specific radical work required to take down the separating walls of the various cavities.

The usual mastoid operation is first performed with a posterior incision, retraction of the soft tissues, chiseling through the cortex of the mastoid process, and excavation of the diseased areas in this neighborhood. In order to complete the radical operation a further resection is necessary of that portion of bone constituting the posterosuperior canal wall from the mastoid antrum forward to the tympanum, together with the roof of the external auditory canal, thus exposing the internal wall of the aditus ad antrum and removing the outer wall of the tympanic attic. In order to accomplish this the membranous canal is pulled forward. The malleus and incus are then separated and extracted, but the stapes should, if possible, be allowed to remain, except in cases where the purulent process has entered the labyrinth. With a curette the remaining portions of the drum, the entire lining of the tympanic cavity, and a large section of the posterior canal wall are cut away, leaving a large opening between the mastoid and the middle ear. With a small sharp curette the Eustachian attachment of the tensor tympani muscle is scraped away, with any granulations present, in an attempt to close off the Eustachian tube. After washing out the remaining cavity, if the operation has been thoroughly performed, the entire area will be bony. A flap is then made of the membranous canal in order to prevent subsequent atresia, and at the same time to favor the dermatization of the area. Some operators introduce skin grafts for this purpose. The posterior wound is then closed and the entire cavity packed with gauze—the packing being introduced through the enlarged external meatus. This completes the operation, the after-treatment of which is of great importance. All cleanly measures must be persisted in and exuberent granulations kept away until dermatization is complete, which in successful cases requires from three to ten weeks.

My fellow otologists will note that no attempt has here been made to describe the operation minutely, but simply in a general way to outline its nature and extent. This then is the operation which for the past ten years has been performed almost innumerable times in all the large cities of America, and with varying results. I shall now speak of the dangers attending the radical operation.

The first of these is the danger of injury to the facial nerve. If it can be determined that the facial nerve has a healthy bony covering throughout its course, one may curette with comparative safety, but often in cases of extensive necrosis, when the external wall of the facial canal is involved, it is extremely difficult to curette sufficiently to remove all diseased bone and at the same time protect the exposed nerve. Blood and granulation tissue obscure the view, and only by keeping before one the landmarks and course of the nerve is it possible to prevent injury. The anesthetist should watch the patient's face during dissection about the facial canal and warn the operator whenever the eye twitches.

The necrotic process will occasionally be found to have involved some portion of the labyrinth which adds a new danger to the operation, on account of the direct pathway to the brain which has become opened up to infection. It is often necessary that the necrosed bone in the labyrinth be eviscerated, even though this is attended with the danger of producing unpleasant after-symptoms. The majority of individuals suffering from purulent labyrinthinitis probably eventually succumb to the disease, unless by some good fortune or by operation, wide open drainage into the tympanic cavity is afforded. It has always seemed to me that, at least in a small percentage of cases, the radical opening of the labyrinth hastens rather than retards the fatal issue.

A third danger is found where an old undiscovered encapsulated cerebral abscess is stirred into renewed activity as a result of instrumentation during the operation. One such case happened in my practice and has been duly reported. The patient was a school boy, aged about eighteen, who was nearly six feet tall, weighed 190 pounds, and was a fine specimen physically. He had a profuse discharge of malodorous pus from the external auditory canal which did not lessen after three months of local treatment. The radical operation was therefore performed and I found the cortex so thick and hard that with the Rongeur forceps we could make no impression upon it and it was necessary to use the mallet and chisel throughout the operation. The attic tegmen was entirely necrosed and there was much necrotic tissue in the attic. The probe was passed up to the dura which looked inflamed. There was a bead of pus upon its surface which reappeared after wiping away, and the probe passed directly into a large abscess in the brain. I removed a large surface of bone over the temporosphenoidal lobe, and evacuated about two ounces of very fetid pus. The cavity was carefully drained and a cigarette drain introduced. The chiseling and other instrumentations probably had a bad effect upon the walls of the abscess, for in spite of every effort to prevent it, within two days the patient began to run a high temperature, acute meningitis developed, and he died in about ten days.

A fourth danger lies in the occasional injury to the dura, especially in unskilled hands, with a resultant meningitis.

We must add to the above enumerated dangers which occur in a very small percentage of cases, but nevertheless do occur, the further observation that even when thoroughly performed by the most skilful operators the percentage of complete cures (and by that I mean a permanent cessation of the purulent discharge) is not more than about 65. Many of the remaining have but intermittent discharge or are victims of reinfection, others throw off cholesteatomatous masses, and still others are

victims of further extension of the necrotic process. These results and statistics are gradually accumulating from published reports, and the end results are less rosy than the first enthusiasm seemed to imply.

On the other hand there are many favorable things to be said. One great benefit accrues even in cases where the discharge continues, and that is wide open drainage, which favors final healing, lessens the tendency to extension of the disease, and also lessens the dangers of serious complications. With these comments and figures before us the questions arise: "Is the operation justified?" and "Has it come to stay?"

I desire to be classed among those who believe that the operation is justified and necessary in a limited proportion of cases of chronic purulent otitis media. The enthusiasm for the new operation has made the pendulum swing too far, and from the more recent publications of our American otologists it would seem that the consensus of opinion about coincides with that which I have now expressed. I shall now attempt to describe the indications which seem to me to make justifiable the radical operation.

The radical operation is indicated: (1) When a permanent cessation of the purulent process has not been effected by prolonged local intratympanic treatment, combined if necessary with such minor operation as removal of granulations, enlarging perforation, etc. (2) When the cure has not been effected by the removal of necrosed ossicles and the curettage of the middle ear. (3) When acute symptoms of mastoiditis are present. (4) When a sudden cessation of the pus discharge produces vertigo, pain, or other unusual symptoms. (5) The appearance of facial paralysis during the course of chronic purulent otitis media. (6) Attacks of vertigo, indicating that the necrotic process involves the labyrinth. (7) In all cases where intracranial or lateral sinus involvement has already appeared. (8) Where there are positive symptoms of cholesteatoma in the mastoid antrum. (9) Where there are fistulous openings in the cortex of the mastoid process or in the osseous canal wall. (10) Whenever extreme depression or other symptoms of disturbed mentality accompany the disease.

The operation is contraindicated: (1) When the purulent process is tuberculous and accompanied by advanced general tuberculosis. (2) In advanced pernicious anemia or albuminuria and in cachectic diabetes. (3) It is usually contraindicated in young children. (4) In all cases where the disease is confined to the ossicles and tympanic cavity. (5) In adults who have scanty otorrhea without odor, with improper opening of the drum membrane, behind which are retained masses of secretion. (6) In all cases where it is possible to effect a cure by any of the other methods described.

It will be thus seen that the percentage of cases which should be subjected to the radical operation is not large, and in actual practice the statement holds true. It is also true that during the past five years too little discrimination has been employed in the selection of suitable cases for the operation. This should in no wise lead us to belittle this most important surgical procedure, for when properly performed in severe and dangerous cases of chronic otitis media it is the only safe and life-saving procedure known to surgery.

The question naturally arises as to how long local measures should be employed in chronic cases before being abandoned for the radical operation. What may be considered a reasonable length of time for such treatment? It is impossible to establish rules that will hold good for all cases, on account of the extreme variations in the character of the disease in different individuals. The general condition of the patient, his freedom from underlying organic diseases, the absence of odor or serious symptoms when free drainage exists, should lead one to persist in local treatment, especially when even a small degree of improvement attends the effort. In the simpler cases such treatment should be persisted in for from one to six months before attempting operative interference, during which time all efforts by both local treatment and internal medication should be employed. If local measures finally fail, then the question of the form of operation must be decided upon. In every instance when it may be fairly demonstrated that the necrosed area is confined to the ossicles, tympanic ring, and even the attic, the intratympanic operation should be performed, even though it may finally become necessary to resort to the radical procedure. There are certain cases in which radical operation should be performed without resort to preliminary local measures or ossiculectomy. Acute mastoiditis developing in a chronic purulent ear is an indication for immediate operation without delay of any kind. Continuous and excessive malodorous discharge, with extensive granulations, with or without cholesteatoma, is an indication for immediate radical operation. Symptoms of intracranial or lateral sinus involvement call for immediate operation.

My reasons for advising against performing the radical operation in young children are as follows: (1) The disease is rarely of sufficient extent to require it. (2) The disease usually yields to local treatment providing diseased adenoids and tonsils are removed. (3) By establishing free drainage, through a large perforation, with well maintained local treatment, a cure usually results. (4) It is better to place reliance upon these measures, aided by the marvelous recuperative powers of youth than partially or wholly to destroy his functions of hearing with all its train of misfortunes to happiness, education, the enjoyment of sounds, musical and otherwise, and finally to gaining a livelihood. I have always opposed performing double radical operations in children except to save life.

The radical operation is occasionally followed by fatal results, in the form of meningitis, sinus disease, brain abscess, and pneumonia; these do not occur as the direct result of the operation itself, but inasmuch as they follow soon after it is difficult to dissociate such occurrences in the mind of the laity. I have reported two such cases before the American Otological Society, and in the discussion that followed several members reported similar experiences.

These views represent my convictions as to the position which should be given to the radical operation in the realm of modern Otology, and it is hoped that they are neither too conservative nor too radical to meet with your approbation and approval.

HYDROTHERAPY IN THE TREATMENT OF THE INSANE.

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In taking for my subject hydrotherapy in the treatment of insanity, I am aware that I have assumed a considerable contract, especially in the limited time at my disposal. I can only hope to touch on some of the most salient points. I am more particularly

interested in reading this paper for the purpose if possible of encouraging discussion, that we may be able to glean new ideas which may be useful to us in adding to our apparatus and technique.

It is only a few years ago that a well-known author, writing on the subject of hydrotherapy, made this statement: "Although vast strides have been made in the development and use of hydrotherapy in the treatment of nervous and mental diseases, but few State institutions in this country are supplied with the proper apparatus for using this most valuable adjunct to rational therapeutics." There is no doubt that the value of this method of treatment of nervous and mental diseases is being more appreciated every day. Many of the State institutions in various parts of the country have hydrotherapy outfits. In Ohio a number of our institutions have excellent facilities, and others are installing them. For a number of years the value of hydrotherapy has been realized abroad, some of the German universities give special courses in Physical Therapeutics, and considerable time is devoted to the teaching of hydrotherapy.

Too much attention cannot be paid to treatment in our institutions for the insane. Of what value is a brilliant diagnosis if nothing is done to improve the welfare of our patients or if we do not use every effort to bring about a cure? Why cannot we expect that remedies may be discovered and methods devised that will relieve, and, yes, cure many of these unfortunates? Whenever an institution is run merely for the custodial care of the insane, and no effort made to study and classify cases, it does not rise above the dignity of an infirmary.

We all know the value of fresh air and sunshine in the treatment of tuberculosis and other debilitating diseases. The use of water as a cleansing agent and as a therapeutic adjunct is along similar lines.

One great drawback to the advancement of hydrotherapy is that for many years it has been almost the exclusive property of the quack. Such individuals started institutions largely for commercial reasons, and this most valuable remedy was in most instances used without discrimination or method. Is it to be wondered that physicians looked askance at the so-called water cures, where many lives were no doubt endangered by the ignorant application of this remedy? The medical profession is broad enough to take advantage of any agent used logically that can be applied to the cure of disease. Osteopathy, so called, is massage applied in a certain way. Christian Science is suggestion applied in such a way that it influences the minds of susceptible people with fanatical religious proclivities, and very often individuals who are not of a very high mental organization.

It is a deplorable fact that many people are careless in regard to cleansing the body, and do not realize the importance of this remedy in enabling the system to resist disease. The story is told of a physician who recommended baths to a patient, and was astonished to get this reply: "Well, doctor, I don't know as it would make any difference, yet there has not been a drop of water on my body for twenty years."

It is believed by most people that hydrotherapeutic measures can best be administered in hospitals and institutions especially fitted with apparatus for the purpose; modern plumbing, however, has made it possible to have a very fair outfit in private houses.

Hydrotherapy applies not only to the external use of water, but to water taken internally, in which way it is used for cleansing certain accessible organs of the body. It is almost a universal rule with us in the treatment of melancholia, especially the agitated form, to wash out the stomach. Many of the cases come to our institutions in a miserable condition; emaciated, tongue heavily coated, breath offensive, sordes on the teeth, etc. We find similar symptoms, as you well know, in other forms of insanity, particularly in mania, and in some forms of dementia præcox. In many instances the stomach becomes so sensitive that it will retain nothing, and the patient on account of negativism or certain delusions, absolutely refuses to take food. By introducing the stomach or nasal tube, the stomach can be washed out thoroughly with some disinfectant solution, and the operation can be repeated as often as necessary; we shall then soon be able to introduce small portions of nourishing food, and in a very short time it will be retained by the stomach without much difficulty; the mucous membrane assumes a more healthy tone, the appetite returns, and the patient is soon well on to improvement and very often recovery.

Hydrotherapy to-day is largely administered on a physiological basis. Water exercises a very important influence over the circulation, the respiratory organs, and the nervous system, also a pronounced effect on the blood pressure. It may be stated in a general way that cold applications raise the blood pressure, and warm applications lower it. We all know how readily the action of the heart is influenced by the application of warmth and cold. The warm bath increases the rapidity of the pulse, which persists for some time after the bath.

Almost every organ in the body is in reflex relation to the adjacent skin, and many with remote portions; this is the rationale of the application of counterirritants, poultices, etc.

Among the laity such savory and odorous articles are used as coal oil, onions, etc. Fortunately, such agents are rapidly going out of favor, for up-to-date physicians know that the same effects can be accomplished through the application of heat and cold, by means of compresses wrung out of water at a proper temperature, with electric pads and other appliances.

Among the effects obtainable by water may be mentioned the following: Tonic, sedative, eliminative, diuretic, expectorant, antipyretic, antiphlogistic, hemostatic, hemagogic, analgesic, vasodilator, constrictive, etc.

A single energetic hot bath leads to the loss of a considerable amount of perspiration. We know that this diaphoresis influences the circulation of the blood and lymph, and morbid products are eliminated. This is the great desideratum and a most valuable remedy in certain forms of disease. Poisons may thus be eliminated, such as mercury and lead, bacterial toxins and pathogenic microorganisms also.

Neurasthenia is closely allied to insanity, indeed some authors classify it as a psychosis; the importance of hydrotherapy in the treatment of this disease cannot be overestimated. M. Beni Bardae, the French author, recommends hydrotherapy in the treatment of neurasthenia as follows: "Begin with a spray bath at from 92° to 99° F. The spray should be applied for some time along the spinal axis, but care must be exercised to guard against sudden shock, and one should endeavor to dispose the patient toward sleep. The douche should last from four to eight minutes, if it lasts much longer the patient is liable to be excited rather than soothed. The back is first sprayed, then the anterior surface, finally the limbs. Two baths a day should be given until the nervous agitation ceases. This may take a considerable period of time to stimulate the or-

ganism. The temperature of the water may be reduced gradually during the process of the bath. Any tendency toward reaction may be relieved with hot water. If the heart is affected, only the lightest application of a stream of water over the chest is allowable."

In the treatment of neurasthenia we have found that various forms of baths have to be used to fit individual cases; the conditions change frequently and the treatment must be applied acordingly. Electric light baths, followed by gradual cooling, usually leave a feeling of well being. Neutral baths which are administered at about the normal temperature of the body are very valuable. If the patient suffers greatly from insomnia the baths should be given at night. Many in this class of cases improve under hydriatic treatment when we have had absolutely no benefit from drugs. These patients should be impressed with the fact that results cannot be obtained at once, and sometimes weeks elapse before anything seems to have been accomplished.

In our outfit we have the Turkish and Russian bath, electric light cabinet, sitz, perineal spray, foot bath, local electric light appliances constructed so they can be used on various parts of the body for the purpose of producing localized hyperemia, massage tables, wet and dry shampoo tables, electric bath and distributing outfit bearing upon the apparatus for needle shower baths, etc. One great objection to the use of bathrooms is the stale odor which permeates the atmosphere, especially when they are crowded and heated with steampipes. We are able to overcome this by having a large fan run by an electric motor; connecting with the room in which the fan is located is a large duct made from sewer pipe. From an opening in the floor of each separate bathroom, a small duct extends to the large one. When the fan is running the vitiated air is being constantly pumped out and the rooms are more pleasant and habitable.

The care of the chronic and infirm class is much easier and more satisfactory by having proper bathing facilities within easy access; the stimulating and cleansing effect minimizes the development of bed sores, the exhalations of the body are not so offensive, and the patient is more contented and happier.

One enthusiastic author writes that instead of isolating the chronic insane, he manages them in open wards through the systematic use of prolonged baths and packs. At first the patients were kept in the bath at a temperature of 98° to 100° F., from one-half to three or four hours; later, in some cases, the time was extended to from twelve to fourteen hours. He claims that the patients not only improved, gained in weight, slept better, and became quieter, but that they were also able to dispense with the use of drugs.

I doubt if it is advisable for everyone to take the cold bath, unless the person is very vigorous and the bath is followed by energetic rubbing. Water when too cold, applied unexpectedly to a large surface of the body, produces a severe shock, and care should be used in its application. At the proper temperature, and adapted to the individual, it adds to the nervous energy, stimulates the functions of the body, and improves the person's resisting power against disease. The kidneys act more vigorously, the fact that the urine is found to be more toxic after a bath is abundant proof that baths assist in the elimination of poisonous material. It stimulates respiration and so eliminates poisonous matter. The use of baths in no way interferes with the medical treatment of patients, and indeed, properly administered, they largely increase the efficiency of many drugs and do not interfere with any. The warm bath renders the surface of the body less sensitive, numbs the terminal nerve fibers, and produces a sedative action. Whenever there are delirium, restlessness, and insomnia, the neutral bath is indicated.

At Morris Plains it was found that a wet pack or full bath at from 95° to 105° F. was very useful in excited cases of insomnia. In some cases of mild excitement with confusion, the use of the wet pack will often assist to restore the normal condition.

Baker reports the employment of hydrotherapy in 26 cases of melancholia, with or without agitation, dementia præcox, hysteria, puerperal insanity characterized by slowness of thought, painful delusions, etc., cases showing lack of nervous and muscular tone, sluggish circulation, loss of weight, greasy and acne-covered skin, intestinal fermentation, and other complications. The baths in these cases are used for various periods, depending of course on the case; he reports decidedly good results, such as quieting of agitation, gradual disappearance of delusions, and physical improvement. He sums up his results by saying that hydriatic measures are valuable adjuncts to hygienic and medicinal measures.

In our own outfit we get good results from the wet pack. A sheet is wrung out of cold water and placed on a table prepared first with a rubber sheet and blanket. The patient is placed on the couch and the sheet is pulled over the body, the blanket is then brought up on both sides and tucked in around the person; a cold compress to the head and warm applications to the feet are proper; straps may be used to confine the patient to the table if needed. In many cases the patient quiets down and sometimes goes to sleep in the pack.

We use baths in almost all forms of insanity. To produce elimination we usually prefer the electric light cabinet. In many instances disturbed patients will become frightened and resistant if placed in a Turkish or Russian bath. The patient remains in the bath until in a profuse perspiration, and is then placed on a table and washed with water at about 102° to 105° F., and given what is known as a Swedish shampoo. After being thoroughly rubbed with soap, the patient is put in the rain bath, and the spray used at a temperature of from 100° to 102° F., and after being allowed to cool off gradually in the rest room, is through for the day.

Our operators find the neutral bath and pack of great value in the treatment of cases of mild excitement and restlessness accompanied by insomnia. A sheet is wrung out of water anywhere from 93° to 97° F., the patient is enveloped in this and then wrapped in a light blanket; this sheet fits so closely to the body that it is really a mild form of restraint. The neutral bath is administered in a large bathtub, which completely submerges the patient; he can be kept in this as long as is deemed necessary. We tried the continuous bath in one case. The patient was in the bath about three weeks continuously. For a time she seemed to improve, but she had a relapse and we were obliged to discontinue the treatment on account of lack of room. We are, however, so favorably impressed with the method that we are arranging to equip two rooms for the purpose of employing it.

The salt glow is a favorable procedure with our woman operator; she takes a salt known as butter salt and places it in water at about 60° F., then applies the mixture freely to the back and chest, then the arms and limbs, rubbing vigorously; the spray and douche are then applied the same as after a Swedish shampoo.

In my opinion hydrotherapy cannot be properly

applied unless the physician has skilled operators to carry out his directions. While as a rule a medical man should have general supervision, and should be capable of prescribing certain baths indicated in various forms of insanity, nevertheless a great deal of latitude should be allowed to those who administer the treatment. A physician cannot always foresee the effect of different kinds of baths on the individual any more than he can predict in all cases the action of certain medicines. Bath attendants who understand their work soon learn to recognize unfavorable symptoms when they arise, and are prepared in many instances to meet emergencies.

In preparing this paper I have drawn from numerous sources for information. I will not attempt to enumerate all. I am especially indebted to Baruch's work on hydrotherapy, to articles by the late Dr. Dent, and by officials connected with Morris Plains State Hospital.

A CONTRIBUTION TO THE STUDY OF THE DIATHETIC STATES.

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Extended inquiry has led me to the conclusion that the diatheses make possible the establishment of the great majority of diseased conditions in which there is progressive structural degeneration. If this be true, it is reasonable to assume that it is possible to determine the relationship existing between these depraved nutritional states and the various diseases, and to prevent the development of such diseases by careful management of the very young diathetics.

Every civilized individual has inherited some depraved nutritional tendencies. The majority are so profoundly affected that the stress of modern life, together with the effects of infection, dissipation, and injury, make their premature destruction inevitable. If it is possible to correct these nutritional faults while the individual is in the formative period, it is the plain duty of every physician to study the heredity of every child in his clientèle, and to see that each has the best opportunity to attain his highest usefulness and greatest longevity.

In presenting these cases I am aware that they are too few to be considered conclusive, yet certain tendencies are exhibited in the development of disease, which I hope will lead others who are more capable, and who have greater opportunities for research to continue the collection of case histories.

The classification of Bouchard, who divides the diathetic states under two heads, viz., scrofulosis and arthritism, seems the most convenient for the purpose of this inquiry. Each of these states is defined with sufficient clearness to enable the investigator to arrive at a reasonably sure conclusion with reference to the state of an individual, from the information obtainable from an intelligent person who knew the object of inquiry intimately. Height, weight, color of hair, eyes, habits, temperament, illnesses, time and cause of death, and all other obtainable data, will be in many instances sufficient to enable the careful investigator to determine accurately the nutritional state of those progenitors whom he cannot examine. This has been the course I have pursued in collecting the cases presented herewith. No cases have been included in which I could not reasonably establish the health state in a majority of the individual progenitors. Those classed as arthritics gave definite histories of gout, chronic rheumatism, asthma, obesity, Bright's disease, diabetes, etc., and displayed in their personal histories the stigmata of the arthritic state. Those classed as scrofulous gave definite histories of scrofuloderma, tardy development, etc., and showed positive indication of the status lymphaticus. I am aware that this classification is open to grave criticism; yet long study of those states leads me to believe the determinations reasonably positive.

Cancer.—Of the cases of malignant neoplasm, the eight first recorded were so-called sarcomata in the very young. It will be noted that cases 2, 3, 4, and 6 had cancerous grandparents, and that in case 4, the paternal and grand paternal grandmothers were both cancerous. The transmission in this case being from mother to daughter, and through the son to his daughter, if there was transmission. Case 7 shows but one cancerous progenitor. The remaining thirty-nine cases were adults between the ages of thirty-three and sixty-two. Twenty-two cases were operated upon, sixteen suffered further malignant development through metastases; six died shortly after operation; the remaining seventeen died without operation. In all of the forty-seven cases the malignancy was the acknowledged cause of death.

Reference to the chart will show that out of the forty-seven cases, sixteen had cancerous progenitors. Twenty-one cases, including those just mentioned, gave a history of cancer in the collateral branches of the family. Thirty-eight of the forty-seven cases occurred in individuals who were the result of procreation between two persons, one of whom was definitely arthritic, and the other as definitely scrofulous. In sixteen cases there were three arthritics and three scrofulous each in the six immediate progenitors. In eleven cases there were two arthritics and four scrofulous, in five cases there was one arthritic and five scrofulous, and in only two cases (9 and 15) were there fewer scrofulous than arthritics. Both of these were cases of renal cancer in adults. Cases 20, 26, 28, and 40, in which there were three arthritic, two scrofulous, and one cancerous ancestor, were also renal malignancies.

The conclusions that seem to be warranted by the histories of the heredity element of these cases are:

The development of malignant neoplasms is furthered, if not caused, by the admixture of the two diathetic states in procreation.

The preponderance of scrofulosis in the diathetic history is probably essential to the production of cancer.

The great majority of cancerous individuals are the result of procreation by two, one of whom is arthritic and the other scrofulous.

Transmission of diatheses is most often from father to daughter, and from mother to son, as has been determined with reference to other hereditary transmission.

Preponderance of arthritism over scrofulosis in the ancestry of an individual, is a possible factor in the production of renal cancer, when the individual has had a cancerous ancestor.

Diabetes Mellitus.—In collecting these cases of diabetes mellitus, the same method was pursued as in the preceding report. All were idiopathic and persistent.

The first five cases were in children whose ages at the time of record were as follows respectively: 5 yrs. 6 mos.; 5 yrs. 6 mos.; 6 yrs.; 6 yrs. 8 mos.; and 8 yrs. The remaining thirty-three cases were in adults, whose ages ranged from thirty-seven to

sixty. Two were less than forty, five less than fifty, and twenty-six less than sixty years old. These persons were all white, eighteen were Hebrews. Four of the five juvenile cases had diabetic ancestors. Three of the four had two diabetic progenitors. Case 6 had three, as will be noted.

Of the entire series, only thirteen cases had diabetic heredity. It will be noted that in one case (10) there was an instance of conjugal diabetes. The preponderance of arthritism in the histories presented is significant. Only three of the series had so few as three arthritic progenitors, and in nine cases all were of that diathesis. In the remaining cases arthritism predominates greatly. Scrofulosis appears in only six instances, and in these singly. Of the thirty-three adult cases, eighteen had one or more healthy progenitors. The letter x indicates that my inquiry developed nothing to indicate grave nutritional fault. In every case, however, the immediate parents were arthritic or diabetic.

The conclusions to be drawn are:

Diabetes mellitus is possibly the result of the transmission of the arthritic diathesis through several generations in which there has been little or no marital admixture of scrofulosis.

Scrofulosis is unimportant in the etiology of this disease.

The production of diabetes mellitus in the majority of instances depends upon the further development of nutritional fault that has been inherited.

Nephritis.—The cases of chronic nephritis herewith presented were investigated by the same method as pursued in the other reports.

Of the thirty-five cases, twenty-one, including the five juveniles, were of the parenchymatous, and the rest were of the interstitial type of Bright's disease. The five juvenile cases were the result of infection, two scarlet fever, one pneumonia, one diphtheria, and one measles.

Of the remaining thirty cases, none was subjected to the influence of the mineral poisons, excepting Case 17, who worked in a paint factory. Four of these were women, one of whom had parenchymatous nephritis, the others interstitial.

Of the entire series, fourteen inherited the tendency to nephritic disease from direct progenitors. Eleven of these progenitors had the interstitial type of nephritis, if such determination can be warranted by information obtained at second hand. I examined but one of these persons, the mother of Case 4.

The most important fact developed in the history of these cases, is the obvious influence of alcoholism in the production of chronic nephritis. Those progenitors designated as alcoholics were either steady drinkers or periodic drunkards. Moderate use of alcohol was not considered alcoholism. Not one of the series was free from alcoholism in some form in the family history. Eleven, including one female (Case 6), were themselves dipsomaniacs. Fourteen others were moderate drinkers, and ten, including three females and five juveniles, were abstainers.

In the entire series, thirty-one of the thirty-five cases had alcoholic heredity. Of the five juvenile cases, two had three alcoholics each, and three had two. Of the adult cases eleven had both alcoholic and nephritic heredity, and all these cases were of the parenchymatous type.

Scrofulosis is found in only four cases, two of which occurred in the great grandparents of juvenile cases. In Case 17, which shows two scrofulous ancestors, the individual was a paint mixer, and was also an alcoholic. This was parenchymatous in type, and terminated in uremic coma.

Arthritism is the basic etiological factor in these renal diseases, as indicated by the great predominance of this state of nutrition in the direct progenitors.

The conclusions to be drawn are:

Intensification of the arthritic diathesis through hereditary transmission is the most probable predisposing cause of chronic progressive renal degeneration.

Alcoholism in the ancestral and personal history of the individuals who are essentially arthritic, is the most important precipitating cause of chronic nephritis.

It is possible that alcoholism and renal disease combined in the heredity of an individual predispose to the parenchymatous type of nephritis.

The other etiological factors recognized in the production of chronic nephritis are secondary in importance, and contribute in a general way only to the development of the disease.

Scrofulosis is important in the etiology of nephritis as a remotely contributing factor.

In addition to the cases herewith presented, I have collected a number of cases of other depraved nutritional states, with the same object in view. I hope to report them at some future time.

If the conclusions are warrantable, efforts at prophylaxis must include the hygienic and dietetic management of the very young. My own experience along this line includes the management of a number of children of pronounced diathetic heredity, the majority of whom have shown marked decrease of the stigmata. It is of course true that none of them has had time to demonstrate the success of my treatment; but the benefit has been so pronounced and so lasting in such a majority of cases that I am to be excused for hoping that the continuance of the habits and mental states which I have founded will bring immunity from the long list of progressive degenerative diseases, and will greatly modify the transmission of the diathetic states to the progeny. There can be no doubt that the usefulness and happiness of these individuals will be greatly enhanced.

MALIGNANT NEOPLASMS

			—P—		—M—		——GP.——				——GM.——			
Case	F.	M	GF	GM	GF.	aM.	GF.	GM.	GF.	GM.	GF.	GM.	GF.	GM.
*1	a	s	s	a	s	G	a	s	s	a	a	s	s	o
†2	a	s	s	a	a	c	s	a	a	s	s	a	a	a
†3	s	a	c	s	a	s	a	s	s	a	s	s	a	o
†4	a	s	a	c	s	a	s	a	a	c	o	a	o	s
*5	s	a	a	s	a	s	a	a	s	a	o	a	a	a
†6	a	s	a	a	s	c	a	a	s	a	o	s	s	o
†7	s	a	s	s	a	a	s	a	c	s	a	o	s	o
†8	s	a	s	s	a	a	a	s	s	s	o	a	o	a
*9	a	s	a	a	s	a								
†10	s	s	a	s	s	a								
*11	a	s	a	c	s	s								
*12	s	s	a	s	s	a								
†13	s	a	s	s	a	a								
*14	a	s	a	a	s	s								
†15	s	a	a	s	a	a								
†16	s	a	s	s	a	s								
*17	a	s	a	a	s	s								
*18	s	s	a	s	s	s								
†19	a	s	a	a	s	s								
†20	s	a	c	s	a	a								
*21	a	s	a	a	s	s								
†22	s	s	a	s	a	a								
†23	a	s	s	a	s	s								
†24	s	a	s	s	a	a								
*25	s	s	s	s	a	s								
†26	a	s	a	c	s	a								
†27	s	a	s	s	a	s								
*28	a	s	a	a	s	c								
†29	s	a	s	a	a	s								
†30	a	s	s	a	s	s								
*31	a	s	a	a	s	s								
†32	s	s	a	s	s	a								
†33	a	s	s	a	s	c								
*34	a	s	a	a	s	s								
†35	s	a	a	s	a	s								
†36	s	s	a	s	s	s								
†37	s	a	a	s	s	s								
†38	s	s	a	c	s	s								
†39	s	s	s	s	a	s								
*40	a	s	a	c	s	a								
*41	a	s	s	a	s	s								
†42	s	a	s	s	a	s								
*43	a	s	c	a	s	s								
*44	s	s	a	s	s	a								
†45	s	a	s	s	c	a								
†46	s	s	a	s	s	s								
†47	s	a	a	s	s	a								

LEGEND

F.—Father
M.—Mother
GF.—Grandfather
GM.—Grandmother
P.—Paternal
M.—Maternal
GP.—Great paternal
GM.—Great maternal
*—Male
†—Female
a.—Arthritism
s.—Scrofulosis
c.—Cancer
o.—No information

CHRONIC NEPHRITIS

Case	F.	M.	—P.— GF.	GM.	—M.— GF.	GM.	——GP.—— GF.	GM.	GF.	GM.	——GM.—— GF.	GM.	GF.	GM.
*1	a	a	x	a	h	a	h	a	a	x	h	a	o	a
*2	h	a	h	a	a	a	a	a	x	o	h	x	a	o
†3	a	a	h	a	a	a	o	a	h	x	o	s	o	a
*4	a	c	h	a	a	a	x	s	h	o	x	a	o	s
*5	h	a	a	a	h	a	x	a	a	a	x	o	o	a
†6	a	a	h	a	c	a								
*7	a	a	h	a	c	a								
*8	h	a	c	a	a	a								
*9	a	a	a	c	h	a								
*10	a	a	h	a	h	a								
*11	a	h	a	a	h	a								
*12	a	a	h	a	a	a								
†13	h	a	h	a	c	a								
*14	a	a	h	a	a	a								
*15	a	a	c	a	a	a								
*16	a	a	h	a	a	a								
*17	a	s	a	a	s	a								
*18	h	a	h	a	a	a								
*19	a	a	c	a	a	a								
*20	h	a	a	a	a	a								
*21	a	a	h	a	c	a								
*22	a	a	h	a	h	a								
†23	a	a	c	a	h	a								
*24	h	a	h	a	a	a								
*25	a	a	h	a	c	a								
*26	h	a	a	s	a	a								
*27	a	a	h	a	c	a								
*28	a	a	c	a	a	a								
*29	a	a	h	a	a	a								
*30	h	a	h	a	a	a								
*31	a	a	h	a	a	a								
*32	h	a	a	a	h	a								
†33	a	a	c	a	h	a								
*34	h	a	a	a	h	a								
*35	a	a	h	a	a	a								

LEGEND
F.—Father
M.—Mother
GF.—Grandfather
GM.—Grandmother
P.—Paternal
M.—Maternal
GP.—Great paternal
GM.—Great maternal
*—Male
†—Female
a.—Arthritism
s.—Scrofulosis
c.—Chronic nephritis
h.—Alcoholism
x.—No diathesis
o.—No information

DIABETES MELLITUS

Case	F.	M.	—P.— GF.	GM.	—M.— GF.	GM.	——GP.—— GF.	GM.	GF.	GM.	——GM.—— GF.	GM.	GF.	GM.
*1	a	a	x	a	d	a	a	x	a	a	o	a	a	o
†2	a	a	a	d	s	a	a	a	d	x	x	o	a	o
*3	a	a	a	a	a	a	x	a	a	o	a	o	x	a
*4	a	a	a	a	d	d	o	a	x	a	o	x	a	x
*5	a	a	x	a	a	d	a	a	a	o	a	x	d	x
*6	a	d	a	x	d	a	o	o	o	d				
*7	a	a	a	a	a	a								
*8	a	a	x	a	a	x								
†9	a	a	a	a	a	a								
*10	a	a	a	a	d	d								
*11	a	a	a	a	a	a								
†12	a	a	d	a	a	a								
*13	a	a	x	a	s	a								
*14	a	a	x	a	a	s								
*15	a	d	a	x	d	a								
*16	d	a	a	a	x	a								
*17	a	a	x	a	a	a								
*18	a	a	a	x	a	a								
*19	a	a	a	a	a	a								
*20	a	a	x	a	a	x								
†21	d	a	a	a	x	a								
†22	a	a	d	a	a	a								
*23	a	a	a	a	a	a								
*24	a	a	a	a	d	x								
*25	a	a	a	s	a	a								
*26	a	a	a	a	x	s								
*27	a	a	a	x	a	x								
*28	a	a	x	a	a	a								
*29	a	a	a	a	a	a								
*30	a	a	x	a	a	a								
*31	a	a	a	a	a	a								
*32	a	a	x	a	a	x								
*33	a	a	a	a	a	a								
*34	a	a	x	a	a	a								
*35	a	a	a	a	d	a								
*36	a	a	a	x	a	a								
*37	a	a	a	a	s	a								
*38	a	a	a	a	a	a								

LEGEND
F.—Father
M.—Mother
GF.—Grandfather
GM.—Grandmother
P.—Paternal
M.—Maternal
GP.—Great paternal
GM.—Great maternal
*—Male
†—Female
a.—Arthritism
s.—Scrofulosis or tuberculosis
x.—No diathesis
d.—Diabetic
o.—No information

The field that promises most in results in this work lies in the great boys' schools of the country. Here the intelligent and conscientious medical advisor will find conditions that are nearly ideal for the work. Here he will have complete control of the boy at the time when the plasticity of both mind and body makes possible the implantation of physical and mental activities which will cling to him through life, and will insure to a great extent his development into potent manhood and healthful fatherhood.

CEPHALOCELE, WITH A REPORT OF THREE CASES IN ONE FAMILY.

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THE cases of cephalocele here reported are of unusual interest because of their occurrence in children of the same family.

Doris J., two months old, was brought to the Dispensary of the Babies' Dispensary and Hospital, February 10, 1908, for instruction in feeding. Her father, a Swede, had died two weeks previously from pneumonia. Her mother was of Irish descent and was in good health except that she had a slight cough. The parents had two other children, a boy six years old and a girl twenty-six months old, whose histories will be mentioned later. One child died five days after birth from unknown cause. There was no history of miscarriages. This baby weighed 6¼ pounds at birth. The labor was easy and the child appeared normal except for a small swelling in the nasofrontal region which increased in size when the child cried. This swelling has not changed. The mother nursed the child, and, with the exception of a mild conjunctivitis beginning three days after birth and lasting two weeks, the child has been in good health.

The baby was bright and active and weighed 3,795 grams. Her skin was clear except for a slight intertrigo in the napkin area. The head was of normal shape, except that the occiput markedly projected backwards. The posterior fontanelle was closed; the anterior measured 3 ¾ cm. In the median line in the nasofrontal region was

Spina Bifida Occulta.

a soft rounded swelling 2 cm. in diameter, which projected 1 cm. above the surface. It became larger and quite tense when the child cried. Pressure on the tumor diminished its size. Its lower border reached just to the root of the nose. A slight defect was felt in the bone by pressing deeply over the middle of the tumor. The circumference of the head was 39 cm. A few pea-sized glands were present in the post-cervical, axillary, and inguinal regions. The epitrochlear glands were palpable. The lungs and heart were normal. A small fungus umbilici was noted, otherwise nothing further was revealed on physical examination. The baby was seen on March 11, its weight being 4,153 grams, and again on April 27, weight 4,700 grams. The nasofrontal tumor has remained unchanged.

The second child Agnes J., twenty-six months old, was brought to the clinic because of weakness in her left leg. She weighed six pounds at birth. The labor was easy. Her mother nursed her until she was sixteen months old. She cut her first tooth at five months and walked at twenty-one months. She has not talked. For four months previously the mother had noticed a weakness in

the left leg, especially at the ankle, and that the foot would turn outwards when the child put her weight on it. At no time has the child had a serious illness. Since the birth the mother has noticed a swelling in the forehead just above the root of the nose. This swelling has remained the same size or has only slightly enlarged.

The child was undersized, its weight being 8,225 grams, and its musculature quite flabby. The head measured 45.5 cm. in circumference, the occiput projecting backward 4 cm. beyond the plane of the posterior part of the neck. The anterior fontanelle was still open 1 cm. In the median line in the frontal region extending for 3 cm. upwards from the root of the nose was a rounded swelling 2.5 cm. in breadth. This was soft, not reddened, and painless, becoming larger and more tense on crying. A slight defect was felt in the bone in the region of the swelling. The nose was broad and somewhat flattened. The child had sixteen teeth. The submaxillary glands were pea-sized; two bean-sized glands were felt in the left side of the neck just posterior to the middle of the sternomastoid muscle. The axillary, inguinal, and epitrochlear glands were palpable. A well marked rosary was noted in the examination of the chest. The lungs and heart were normal. The abdomen was large and the abdominal muscles quite flabby. At the lower part of the spine, 3 cm. above the tip of the coccyx, was a small dimple extending directly inwards 2 cm. and ending blindly. The child could walk, but there was an apparent weakness of the left ankle so that it turned outwards. The thighs measured the same, but there was a definite asymmetry in the two calves, the left measuring 14 cm., the right 14¾ c.m. The muscles of the left calf were quite flabby but gave no reaction of degeneration. The patellar reflex was normal. An attempt was made to test the body and extremities for sensation but no information could be elicited beyond the fact that tactile and pain sense were preserved.

The third child, a boy 6 years old, was brought to the clinic April 28 at our request. The mother said that he had a swelling of his forehead similar to that observed in the other children at the time of birth and that it disappeared gradually so that it had not been noticeable for two years. The boy was intelligent and no trace of the nasofrontal tumor could be made out, and no defects in the bone except a slight roughening of its surface. His head was large, measuring 53.5 cm. in circumference. The occiput was broad and projected 6 cm. backward beyond the plane of the posterior part of the neck, and the external occipital protuberance was large. There was nothing further of importance in the physical examination.

The extraordinary feature of these cases was the occurrence of nasofrontal cephalocele in three children of the same family. Ssamoylenko has reported two cases of nasofrontal meningocele in one family. In the second child the atrophy and weakness of the muscles of the left calf could be explained on the supposition that the defect in the spine has interfered with the root fibers of the cauda equina coming from the second sacral segment of the spinal cord. Another interesting feature was the very prominent occiput present in all the children.

Cephalocele is the term applied to the tumor resulting from the protrusion of the cranial contents through an opening in the skull due to a defect in development. Cephaloceles are classified according to their structure and contents as follows: (*a*) Meningocele when there is protrusion of the meninges alone, the sac being filled with cerebrospinal fluid; (*b*) Encephalocele when a portion of the brain itself protrudes into the sac; (*c*) Encephalocystocele when the tumor consists of a protrusion of a portion of both the brain and meninges, this protrusion being distended by a collection of fluid which communicates with the ventricles of the brain. Muscatello has divided all brain and cranial malformations into two categories. The first category, called acrania, includes defects of the entire cranial vault (holoacrania) or a part of the same (meroacrania). In these manformations either the entire brain is lacking or it is present and approaches the normal brain, but a part of the brain substance in the form of a hernia projects through the defect in the skull. This Muscatello calls exencephaly. The second category (encephalocystocele) includes those cases in which the hernia has escaped through a bone opening of narrowed dimensions, and includes inside the brain mass, as an extension of the brain ventricle, a cavity in which the fluid collects in varying amounts.

The most common situation of cephaloceles is in the anterior or posterior portions of the skull, the former being called sincipital cephaloceles, the latter occipital cephaloceles. Those of the latter variety are known, depending upon their position above or below the tentorium, as superior and inferior occipital cephaloceles. In the superior form the defect is in the median line just below the posterior fontanelle, and may communicate with the same. The defect in the inferior form is just above the foramen magnum and may communicate with it. In the sincipital variety the parts leave the cranium in the nasofrontal region, and Fenger has classified them as follows:

(1) The nasofrontal hernias leave the cranium between the frontal and nasal bones and form a tumor in the median line in the region of the glabella.

(2) The nasoethnoidal hernias leave the cranium between the frontal and nasal bones on the one side and the lateral mass or labyrinth on the other, which is forced or displaced downwards toward the nasal cavity. The tumor appears externally in the region of the border between the osseous and cartilaginous portions of the nose, hanging down toward the tip or the wing of the nose.

(3) The nasoorbital hernias leave the cranium between the frontal, ethmoid, and lacrymal bones. In the region of the latter they enter the orbit and present at or near the inner canthus of the eye.

Another interesting variety is the basal hernia, which is distinguished from the other sincipital hernias by not causing a protruding tumor in the face. Fenger, quoting Heinecke, gives three classes: (1) Cephalocele sphenopharyngea, the most common variety, leaves the cranium through an opening between the body of the sphenoid bone and the ethmoid bone, or through one of these bones, to come down in the nasal, nasopharyngeal, or buccal cavity. In Czerny's case the tumor presented in one of the nostrils; in the cases of Giraldès, Otto, Klimentowsky, and Fenger in the nasopharyngeal cavity; in the cases of Virchow, Lichtenberg, Klintosch, and Serres, cited by Larger, in the mouth through a cleft palate. (2) Cephalocele sphenoorbitalis, which leaves the cranium through the superior orbital fissure to enter the orbit behind the globe of the eye. (3) Cephalocele sphenomaxillaris leaves the cranium through the superior orbital fissure, but instead of remaining in the posterior part of the orbit, descends through the inferior orbital fissure into the sphenomaxillary

fossa. The tumor can be felt in the mouth on the median side of the ascending ramus of the inferior maxilla and is visible on the outside of the face, on the cheek below the zygoma.

The last two varieties Fenger says are very rare. In 93 cases of cephalocele Honel cited by Ruhräh found that 68 were occipital, 16 frontal, and 9 basal. Schatz, cited by the same author, in 105 cases gives 59 occipital and 46 frontal and does not mention the basal form. In 75 cases Laurence found 53 occipital. With rare exceptions the tumors are in the median line. The writer saw one case in a child seven months old where the hernia was situated in the lamboid suture 3 cm. to the right of the median line. This deformity is often associated with other malformations. Thus Laurence in his 75 cases found 16 in which there was spina bifida. In the second case of the series here reported there was a spina bifida occulta.

The size of cephaloceles varies greatly and depends upon the amount of cerebrospinal fluid that collects within the tumor. They may be so small that they escape observation, or again they may be larger than the head. In the large encephalocystoceles the brain substance becomes very thin. In cases where the opening in the cranial bones is small the tumor is pedunculated. If the opening is large the base of the tumor is correspondingly large.

Little is known in regard to the exact causes of these malformations. They occur about equally in the two sexes. Ruhräh found, in 39 cases where the sex was stated, 21 males and 18 females. H. Cushing states that the following hypotheses have been offered for their production: "That owing to some irregular division of the brain into its separate parts portions of the primitive brain vesicle come to lie outside the mesodermic coverings; that they are actual neoplasms—encephalomata (Berger); that they are brought about by the traction of amniotic strands which may have become adherent to the primitive nervous system." Cushing further states that the defect through which the protrusion takes place is not the primary factor leading to the hernia but rather that some intracranial condition leading to increased tension and associated in some way with the cerebrospinal fluid was present during fetal life. In support of this he mentions the fact that the cerebrospinal space forms and contains fluid before the lateral plates have totally enclosed the primitive nervous system, and in case there should be any increase in the amount of fluid or any obstruction to outflow by normal channels, it will tend to bulge the meninges through the areas where solid closure by the lateral plates is least advanced, and by so doing it will prevent such closure.

This condition usually produces no symptoms unless pressure is exerted on the tumor. Under such circumstances, especially in cases of encephalocele, there will be respiratory disturbances, slowing of the pulse, vomiting, convulsions, and sometimes unconsciousness. In meningocele the tumor is smooth, cyst-like in character, quite tense, nonpulsating, and can be reduced by pressure. Occasionally pressure will give the symptoms enumerated above. Sometimes the tumors are translucent and they become larger and more tense when the child cries. Only a slight if any defect can be found in the skull. In encephalocele the tumor is smooth, not translucent, and often pulsates. Pressure gives cerebral symptoms often associated with changes in the size of the pupils or strabismus. In encephalocele we have a large pedunculated tumor, which fluctuates but does not often pulsate. Cushing says that encephalocystoceles of the frontal region communicate with the anterior horn of the ventricle; those of the superior occipital region with the posterior horn; and those of the inferior occipital region usually with the third ventricle.

Various conditions must be taken into consideration in the differential diagnosis of cephalocele, viz., dermoid tumors, lipomata, sebaceous cysts, angiomata, sarcomata. A great aid is the fact that the lesions are congenital and that they are usually found in definite situations. The basal hernias which present in the nasopharyngeal space must be distinguished from nasal polypi.

The majority of these children die a short time after birth. In a few cases they may live to adult life or even to old age, but, unhappily, they are usually feeble minded. In those who survive for some time hydrocephalus is a common accompaniment of the lesion. Meningoceles usually increase steadily in size, while encephaloceles either remain stationary or the growth is very slow. Mitchell and Ronaldson, cited by Ruhräh, have reported cases of spontaneous recovery in cases of meningocele. Such was probably the case in the oldest child of this series.

Various measures have been advocated for the treatment of this condition, viz., pressure by bandage, the withdrawal of fluid from the sac, and the injection of irritating fluids such as Morton's into the sac, with the hope of causing oliterative adhesions. None of these methods gives favorable results. H. Cushing sums up the treatment as follows: "Operative measures alone can promise any permanent benefit, and even they may be futile if the hernia is accompanied by a large cranial defect through which the brain has prolapsed, by defective cerebral development, or by other congenital abnormalities. There remains a small group in which the operation is justifiable and its effect gratifying. A meningocele with a small pedicle may often be successfully removed, the opening closed, and no further symptoms result. The small encephalocele of the frontal or occipital origin may likewise be closed after amputating or reducing the cerebral protrusion and repairing the meningeal and cranial openings; if they are large, by a plastic operation of some sort. For the purpose of closing such a defect a flap of scalp or periosteum alone, or one of periosteum and bone, or one of all three coverings may be taken, leaving only the intact dura over the brain at the area from which the flap has been taken. As these operations are done on very young children, as a rule, the thin shell of bone may be easily cut in the desired form, its pedicle cracked off, and the fragment swung and sutured into position. The surgical technique must be of the very best, for a single point of weakness in the healing wound—a stitch abscess, for example—may lead to subsequent leakage, since there is a tendency toward a rapid reaccumulation of the fluid." Quite a number of cases have been operated on with good results in recent years. Fenger operated successfully in a case of basal hydrencephalocele simulating a nasal polypus.

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TREATMENT OF SECONDARY ANEMIA OF TUBERCULOSIS WITH HYPODERMICS OF IRON.

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As years go by and we make further progress in the science of medicine, new ideas are born which make stepping stones to more rational methods of treatment, and which put the science of therapeutics on a firmer and stronger basis. The hypodermic injection of medicine is fast gaining ground, and bids to be by far the most sensible, if not the most perfect way of administering drugs in the future.

In the days of our forefathers the physician was content to carry his hypodermic syringe for cases of emergency. He used it to allay pain and to administer stimulants when he thought them needed. It was then returned to its case and tucked away to await another hurry call. To-day it is gaining a place in the armamentarium of the modern physician as common as the niche filled by the bottle of calomel pills carried by our ancestors.

It is my object in this paper to point out the results obtained by hypodermic injections of iron in forty-two cases of secondary anemia accompanying tuberculosis. For the past two years we have given all our iron by the hypodermic method, and our results have been so gratifying that we think them worthy of consideration. Before we began the use of iron hypodermics we gave the usual blood tonics, such as Blaud's pills or iron in some form or another, per os. We were never able to get results worth consideration inside of three months, while by the hypodermic method we can get the desired effect usually with twenty doses, given on twenty consecutive days.

In this institution, at an altitude of six thousand feet, anemia is relatively an insignificant factor in tuberculosis. In fact, the cases reported here are from our records extending over a period of two years, in which time we have treated over 150 tuberculous invalids.

The estimation of hemoglobin was made with a von Fleischl instrument, and the results recorded in the percentage of hemoglobin in 100 grams of blood.

In giving the pulmonary status of the patient we have followed Turban's classification, and indicated the degree of involvement by the Roman numerals I, II, III, corresponding roughly to incipient, moderately advanced, and far advanced cases.

The hemoglobin percentage is indicated both on admission and after treatment, as is also the number of injections required to produce the result.

We use a number of formulas of different combinations as follows:

1. Iron citrate	gm.	.05
2. Iron citrate	gm.	.05
Sodium arsenate		.005
Strychnine sulphate		.0005
3. Iron citrate		.05
Sodium arsenate		.001
4. Iron citrate		.05
Strychnine sulphate		.001

The citrate of iron is the one best suited for anemia alone. By using the preparation of iron, strychnine, and arsenic one gets the action of the iron plus the tonic effects of the arsenic and strychnine.

These preparations may be obtained in a fused glass vial ready for injection or they can be put up by one's own druggist. We prefer the fused vial because of the readiness with which it can be used. The top is snapped off, the needle inserted into the vial, and the fluid withdrawn. The syringe is thus filled and the injection made into the gluteal region after thoroughly cleansing the part with alcohol or some other disinfectant.

Case	Pulmonary Status	Hemoglobin on Admission	Hemoglobin After Treatment	Number of Injections Required
1	II	10.96	13.015	20
2	III	10.96	12.878	20
3	II	11.645	13.7	20
4	III	11.645	13.7	20
5	III	10.96	13.7	20
6	III	11.645	13.015	20
7	II	9.59	13.7	20
8	I	9.59	13.7	20
9	III	9.59	14.385	20
10	III	11.097	13.015	20
11	II	12.607	14.796	20
12	I	11.782	13.837	20
13	III	10.96	13.526	20
14	II	10.96	12.33	20
15	III	10.275	12.33	40
16	III	10.412	13.015	20
17	III	10.96	13.7	20
18	III	11.782	12.33	20
19	III	11.234	13.974	40
20	II	10.549	12.467	20
21	III	11.234	12.467	40
22	III	9.864	10.686	20 (died)
23	III	10.96	12.33	20
24	III	10.275	12.741	20
25	I	9.59	11.782	20
26	II	10.038	13.7	20
27	III	10.96	13.015	20
28	I	10.275	12.741	20
29	III	11.371	13.152	20
30	III	11.782	14.659	20
31	III	11.645	13.152	20
32	III	9.59	13.015	20
33	II	10.275	14.111	40
34	I	10.125	13.015	20
35	I	9.59	12.33	60
36	I	11.782	13.015	20
37	III	7.946	13.015	30
38	III	10.96	11.371	20
39	III	10.96	12.33	20
40	III	10.96	11.645	20
41	III	10.275	13.152	20
42	III	10.175	11.645	20

It will be seen from the accompanying table that in all cases treated good results were obtained, and that in nearly every case after twenty injections.

Of course the anemia is not marked, but nevertheless I have no doubt that the same good results could be obtained in more severe cases. It goes without saying that in anemias of more severe type a larger number of injections would be required.

It would be interesting to determine its value in the treatment of the primary anemias, or in any condition where iron is indicated. The number of cases (42) is too small upon which to base radical conclusions, but it seems to me that the method is rational, and one deserving wider and more general use.

The Inhalation of Oxygen to Prevent Nausea from Chloroform.—M. Spargella finds that the inhalation of oxygen immediately after the termination of anesthesia is of decided advantage in preventing vomiting. He has tested it in a considerable number of cases. Nausea was slight and vomiting absent. He explains the effect of the oxygen thus: the vomiting is produced by excitation of the cortical and spinal nervous centers, the result of an active hyperemia and a bringing to the brain of a larger amount of chloroform than it can bear. The oxygen becomes combined with a portion of the poison, and lessens the excitation of these centers by the chloroform, and thus decreases the reflex vomiting.—*La Riforma Medica.*

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EXPERIMENTAL ARTERIAL DISEASE.

Two authors have recently given general summaries of the experimental work in the production of arterial disease, Adler of New York in the *American Journal of the Medical Sciences* for August, 1908, and Heubner in the new *Ergebnisse der inneren Medizin und Kinderheilkunde*. In carrying on such experimental work it was early found that the methods developed in the study of infections were not quite applicable to the study of arterial disease. In infections investigators have to deal with bacteria or their toxins recovered from diseased human beings and allowed to act in the bodies of animals. Arterial disease, on the other hand, is probably the result of some more or less constant and slowly acting causes, yet in the animal experiments gross mechanical injuries or comparatively quickly acting drugs had to be used to produce somewhat similar conditions. For instance, adrenalin injections were often used by the investigators, and when marked aortic degenerations of the aorta were found in rabbits the hasty conclusion was formed that a condition similar to the arteriosclerosis of human beings had been produced by the pressure-raising effects of adrenalin. Soon enough, however, it was discovered that the lesions were usually limited to the aorta, that only rabbits were found to be very susceptible to such injections, and that many rabbits not experimented upon showed similar lesions. These findings, of course, introduced a great element of uncertainty into the results obtained, but, as Adler points out, they opened a new and profitable field of research, namely, the study of spontaneous arterial disease in animals. The net result of the experiments, nevertheless, strengthen the old clinical view that the condition of the arteries depends upon the use they have been put to in the life process of the organism; everything that increases the wear and tear of these important structures leads to their early degeneration and the consequent early senility of the whole body. Among the influences which, in experimental work, take the place of the wear and tear of the struggle for existence Heubner enumerates the effect of adrenalin, injections of ferment into the blood, feeding with putrefying substances, poisoning with the toxins of diphtheria and other infectious diseases, mechanical injury to the endothelial lining of the vessels, artificial nephritis, infection with attenuated organisms, and poisoning with nicotine. The two factors that produce the deleterious effects upon the vessels consist in overstretching of their coats and interference with their nutrition. While the same factors are probably active in the production of human arterial disease their influence is spread over a long period of time and their ultimate sources are much more subtle and mysterious than in the experimental work. For it must not be forgotten that disease or disordered function of any tissue or organ of the body is probably reflected in the composition of the blood, which in turn influences the arteries that act both as passive containers of that fluid and as active users and perhaps modifiers of its elements.

It is thus seen that diseases of arteries offer problems quite other than those presented by the infections, and methods of experimentation used in the latter are little applicable to the study of the former. Still more important is the consciousness of the limitations that are inherent in the experimental study of these affections in the present state of knowledge. Such appreciation of the conditions surrounding research work in this field has not always been shown in the past; not the least important result of the general survey of the work by Adler and Heubner is, therefore, the accent it places upon the necessity of circumspection in drawing conclusions in regard to diseases of arteries in human beings from the results of experimentation upon animals.

MORPHINISM AND THE OPIUM HABIT.

THE opium question is well to the front at the present time. The international conference called together at the instigation of the Government of the United States to discuss action for the abolition of the growth and consumption of opium will meet in Shanghai during the coming January. The opium question in China and in some other parts of the Far East resembles in many respects the drink question in Europe. It is the opium habit that prevail among the Chinese, and it is the drink habit that exists among Europeans. Public opinion and a keen sense of the moral aspect of the affair, together with considerations of health, have brought on a crusade against drink, and the same views characterize the conduct of the coming campaign against the abuse of opium in China. The fight against the drink traffic has been fairly successful, and it is to be hoped that the evils consequent upon the consumption of opium may be checked in China. It may be anticipated, however, that it will be a very long time ere the use of alcohol is abolished in Europe or that of opium in the Far East.

Recently, Sir Dyce Duckworth delivered, in the London School of Clinical Medicine, a clinical lecture on the opium habit and morphinism. Referring to the opium habit among Oriental races he said: "Opium is largely used by natives throughout India and China, and it is certain that in many instances the results are hardly to be regarded as inimical to the bodily tissues. Habitual eaters may take 10 or 20 grains of opium in the course of a day. Some native wrestlers are said to take it while in training. There is found to be variations as to the amount tolerated by different individuals and as to that which produces poisonous effects. That eminent and level-headed physician, the late Sir William Roberts, studied carefully the question of opium eating when in India and concluded that the mischievous effects of it were not so grave as com-

monly believed and that the practice of it under some conditions of native life was probably even beneficial rather than hurtful."

As a matter of fact the Far Eastern peoples have become immune to a considerable extent against the toxic properties of opium in the same way as some European peoples have become immune in some degree against the toxic action of alcohol. Rudyard Kipling, one of the shrewdest observers as well as one of the most powerful of novelists, recognized this fact when living in India. However, the addiction to opium by Europeans is distinctly harmful and very demoralizing. Those who now indulge in the habit, and unfortunately there are a large number of persons who do so indulge, use morphine, generally by means of the hypodermic syringe to satisfy the craving. Sir Dyce Duckworth says that both the alcohol and the drug habits are oftentimes acquired by persons with fine brain and highly sensitive nervous system. He is of the opinion that no violent or sudden measures will ever rapidly abolish the evils of opium intoxication or of alcoholism. Probably the drug habit is more prevalent in this country, just as alcoholism is more prevalent in Great Britain. Both habits are demoralizing and injurious to health, and efforts to check them are deserving of every encouragement.

THE FEEDING OF THE SOLDIER.

The feeding of the soldier differs in many respects from that of the civilian. Meals are more regular, the material, perhaps, is better chosen, and it is fairly well adapted to suit the requirements of men in sound health. That the feeding of the soldier is in general good and the life healthy is demonstrated by the vast improvement that is nearly always effected in a comparatively short time in the physical condition of young soldiers. This is especially noticeable in Great Britain where the majority of the recruits for the army are drawn from a low class of society, many of whom when enlisted are undersized and emaciated, not a few showing signs of degeneracy. Among such as these the beneficial influence of a nourishing diet is most striking. In the course of a year the thin, weedy, pale town youth will often have developed into a sturdy, muscular, and well nourished man.

But although the soldier's diet in the American and British armies is generous and satisfactory, some among the authorities are constantly seeking to change it. Here, it is said, the army cook book is to be revised in the direction of simplicity; in the British army a greater diversity is thought to be desirable. Major Robert J. Blackham read a paper on the subject before the meeting of the British Medical Association held recently in Sheffield. Referring to the results of Chittenden he said that these had received considerable hostile criticism, but it seemed to him that none of the critics had as yet adduced evidence in the form of carefully conducted experiments to disprove the results of his painstaking research. He was of the opinion that here was a line of study in which military physicians might do some epoch-making work. It might be difficult, but he could not think it would be impossible, to induce groups of soldiers in different parts of the empire to adopt a modified dietary under the supervision of officers of the corps, and the results of such investigations might go far to settle some very important questions.

Some feeding experiments have been undertaken in the American army, but not upon a sufficiently wide scale to make the results definitely convincing and really valuable. Investigations of this nature must be conducted among a large number of men and under varying conditions to render them of much scientific or practical worth. It cannot be denied, however, that the British army and in a lesser degree the American army lend themselves favorably to this kind of research. Both are situated in widely diverse climates and the men in most respects are eminently fitted to be the objects of such investigations.

Alluding to the feeding of the British soldiers in barracks Major Blackham noted that reforms had been introduced, excellent in so far as the diet was varied but to be deprecated in that it was too liberal, while if they accepted the results of Chittenden it was excessive. In European armies generally, including the British army, there was a too great sameness of diet. Meat and biscuit or bread constituted the staple of nitrogenous diet of troops in the field in all the armies of Europe. With the single exception of occasional issues in South Africa little or no attempt had been made to supply such cheap and excellent forms of food as cheese or oatmeal. Joly had suggested that sugar might replace a portion of the meat ration in field maneuvers or actual service, and had further advised that the emergency ration should consist entirely of carbohydrate material, as it was generally accepted that that type of food was chiefly concerned in producing muscular energy.

It is entertaining as well as instructive to read the opinions of scientific men as to the value of certain diets. Scarcely has Sir James Crichton-Browne demolished—to his own satisfaction, at least—in eloquent phrases the fads of such men as Fletcher who urges extreme mastication, and others who have advised that much less food in general should be eaten than is ordinarily the case, and little or no meat, than among others Major Blackham propounds an almost opposite view. Sir James Crichton-Browne contended that all who are able should eat generously and take plenty of meat, while the followers of Chittenden hold that very much less, indeed scarcely any, meat should be eaten and that diet in every respect should be more sparing.

The food question is largely one of mode of life and the individual. If a man works at a desk indoors for the greater part of the day he certainly does not need a large amount of food or much meat. But if he is doing manual labor in the open air, he can eat and digest easily a considerable quantity of meat, and experience does not go to show that such a diet harms him. Therefore it would appear reasonable to argue that a soldier on active duty benefits by a goodly proportion of meat in his rations. With Major Blackham's conclusions that a varied diet is the best for a soldier, as indeed it is for anyone, there can, of course, be no grounds for dispute.

LEAD POISONING.

The frequency of lead poisoning in lead workers, plumbers, painters, and glaziers is well known, and in the presence of suggestive symptoms in persons of these trades the correct diagnosis is usually made. But in addition to lead-poisoning as an "occupation disease" mild forms of plumbism occur in other individuals exposed in a greater degree than usual to the effect of lead, or perhaps suffering from an increased susceptibility to the toxic influence of that metal brought on by some unusual circumstances. These are the cases that baffle physicians by the obscure pathological picture they often present, until the history of the patient is carefully inquired into and the rôle of lead in the production of the symptoms is discovered. In a recent number of *International Clinics* (Vol. II, Eighteenth Series) James J. Walsh considers this aspect of lead poisoning in relation to several curious cases of the affection. One of his patients was a bartender who lost all power in his hands and was treated for a long time and ineffectually by the administration of salicylates, the diagnosis of some obscure form of rheumatism having been made. One point in his history was suggestive, and that was the fact that he was accustomed to drink a good deal of what he termed "soft stuff," being a total abstainer, yet compelled to drink something when "treated" by his customers. The bottles containing these beverages were closed with old-fashioned lead stoppers and the carbonic acid gas dissolved in the beverages made them much better solvents of lead than uncharged fluids. Eliminative treatment led to quick recovery of the patient and proved the correctness of the diagnosis.

Another patient, whose history is related by Walsh, was a wealthy man who developed symptoms of plumbism soon after removing to a newly-constructed country house. The only etiological factor in his case consisted in the presence of lead connections in the plumbing of the house; as the others in the household were quite free from symptoms the presence of an increased susceptibility to lead had to be assumed. The replacing of the lead pipes by those of cast iron soon led to the amelioration of the symptoms and finally to complete recovery of the patient. Still another patient was a young woman, a literary worker, who developed symptoms of lead poisoning after painting one room of her apartment. In her case, also, an abnormal susceptibility to the metal was probably present, as the amount of lead that entered her system must have been extremely small. Other similar cases of plumbism in persons occasionally or accidentally brought under the influence of lead are recounted by Walsh as well as by many other authors. Thus M. Allen Starr tells of a servant who developed lead paralysis from drinking water early in the morning without properly washing out the pipes by allowing the first portion of the water to escape, and instances of lead poisoning brought about in the course of the administration of remedies containing lead, such as plasters and ointments, have been reported.

Careful consideration of possible etiological factors ought to give the practitioner a clue to the explanation of obscure pathological pictures resembling lead poisoning. But in addition, clinical pathology has lately discovered a valuable sign of this affection, namely, the basophilic degeneration which may be observed in many red blood cells of the patient's blood. The presence of such stippling of the erythrocytes ought always to be regarded as evidence corroborative of the diagnosis of plumbism, or at least suggesting the possibility of such a diagnosis in the presence of other suspicious symptoms.

Transmission and Autoimplantation of Cancer.

Among students of malignant disease who have carefully followed the course of experimental research in the subject, with its attempts to discover parasitic excitants of this disease, to transmit it to lower animals, to cause its disappearance by the introduction of sera and ferments into the circulation, the conviction has steadily been growing that cancer appears in persons possessing some unknown predisposition to the disease, or at least that the existence of cancer brings about such predisposition to the spread of the disease. Two phenomena treated at length by Roger Williams in his volume on the "Natural History of Cancer," lend support to such a view; one is the every day evidence of the unconquerable spread of the disease in individuals once affected, the other is the less well known peculiarities of cancer in regard to transmission to other human beings and to autoinoculation in the patient. It is a striking fact that not a single authenticated instance of the transmission of the disease to another human being exists. Yet the opportunities for such an accident are certainly present about every cancer patient. Pregnancy is a common event in women suffering from uterine cancer, yet there is not a single instance on record of cancer of the penis that could be traced to transmission by intercourse; the children of cancerous women never acquire the disease, even when such organs as the placenta and the uterus are the seats of the affection; there has never occurred an instance of infection with cancer among the innumerable nurses, students, and doctors who come in close daily contact with cancer patients; finally several experiments have been performed by surgeons who have attempted to inoculate themselves with cancer removed from patients, and none of them has been successful. On the other hand, autoinoculation with cancer seems to be much more common than is usually thought. The skin of the arm kept in close contact with a breast cancer has been infected; the thorax below a pendulous breast affected by cancer has been likewise attacked; the vaginal walls often show foci of disease due to direct contact with uterine cancer, and successful transplantation of cancerous nodules has been performed by surgeons in patients suffering from inoperable cancer. It seems plain that human beings are naturally resistant to any infection with cancer by direct transmission; cancer patients, on the other hand, seem to have lost the power of opposing the invasion of the disease whether by the natural processes of local growth and of metastases or by artificial transplantation of parts of their tumors to other regions of the body. The conclusion seems to be inevitable; the appearance of cancer coincides with, or is followed by some specific changes in the organism, and the nature and cause of such changes may be determined when we have discovered the etiological factors of malignant disease.

Xanthoma.

The structure and pathogenesis of xanthoma, that curious eruption oftenest localized to the eyelids, but not infrequently seen over the whole body, has been the subject of much discussion. The pathological pictures shown by the lesions are quite constant; the nodules are made up for the most part of the so-called "xanthoma cells," consisting of a finely meshed protoplasmic network, and one or more dark-staining nuclei. The meshes, however, are not to be seen in fresh preparations not exposed to the action of alcohol, but sectioned after hardening with formalin; in their stead there appear glistening droplets of some material which has usually been interpreted as fat deposited in the cell or formed by the degeneration of the cell. This view of the contents of xanthoma cells offers no explanation for the appearance of the eruption in such diseases as diabetes and the affections of the liver, accompanied by icterus. Pincus and Pick have, therefore, reviewed the work of previous investigators of this subject, and in the *Deutsche medizinische Wochenschrift* for August 13, 1908, they report findings which are quite at variance with the usual teachings, but which give a more rational explanation of the pathogenesis of the eruption. According to them the substance contained in the meshes of the cells is not fat, but a doubly refracting material, which simulates the staining properties of fat when sudan is used for this purpose, but gives doubtful results with the osmic acid stains. Further microscopical and chemical study of the substance justifies the conclusion that it is some derivative of cholesterin. This finding is in full agreement with the data obtained by Flint, Pages, and B. Fischer, who have shown that great increase in the cholesterin content of the blood takes place in icterus and in diabetes. The chemical and histological character of xanthoma is due, then, not to fatty degeneration or infiltration of the xanthoma cells, but to the deposition within them of cholesterin or its derivatives circulating in the blood stream. This explanation of the pathogenesis of xanthoma leaves unexplained the predisposition of the eyelids to the eruption, and the fact that not every case of severe diabetes with an excess of cholesterin in the blood is accompanied by an eruption of xanthoma. The rare occurrence of xanthoma upon the surfaces of the meninges or in the internal organs is another curious phenomenon that awaits explanation. These problems, however, are of general character, and are concerned with the broad questions of cell physiology and pathology; the special nature of xanthoma, on the other hand, is made much clearer by the observations we have just noted.

Malaria in Young Children.

Malarial infection in young children, especially in infants, is difficult of diagnosis. Yet it is comparatively frequent in malarial districts, according to the statement of M. Gioseffi, in the *Rivista di Clinica Pediatrica*, No. 5, 1908. The intermittence or remittence of temperature is quite irregular, and is so far from being characteristic that it may very easily be mistaken for one of the frequent gastrointestinal temperature rises, or for fever due to other causes incident to infancy. The splenic tumor is not characteristic of malaria, it being found in hereditary syphilis, in various chronic and acute infections, rachitis, anemia, etc. Malarial infection occurs more frequently in children than in adults, owing to the lack of resistance to infections that exist in childhood. In the malarial regions of Italy the population is so poor that the children are fed mainly on vegetables lacking in nourishment, and are nursed very irregularly. In many of the cases if the child is removed from the malarial surroundings and properly nourished a cure will be obtained without specific malarial treatment. A careful examination of suspected children and blood tests are of great importance in malarial regions whenever there is a suspicion of the possibility of infection aroused by irregular fever and other symptoms.

Lumbar Puncture in the Treatment of Epilepsy.

Theoretically lumbar puncture would be indicated in epilepsy if the increased intracranial pressure, existing before a convulsion sets in, were the cause of the latter. In literature we find an occasional report of an epileptic patient treated in this way. Tissot in the *Progrès Medical*, No. 19, 1908, reports ten cases so treated and observed for a long time. His results were all negative. Though large amounts (from forty to seventy cubic centimeters at a time) were frequently withdrawn, the number of epileptic seizures remained the same, as did also the severity of each seizure. Repeatedly convulsions set in soon after the lumbar puncture so that the latter may not even be said to put off an attack. Tissot has proved that the increased intracranial pressure is not the cause of the convulsions, and that lumbar puncture is contraindicated in the treatment of epilepsy.

News of the Week.

Health of the Canal Zone—The report of Colonel Gorgas, chief sanitary officer of the Isthmian Canal Commission, of the month of July, 1908, has recently been issued. As compared with the month of June, the death rate for July, in the Canal Zone, showed a slight increase, but as compared with July, 1907, there was a large improvement. Among the whites the death rate for July, 1907, was 15.72; for July, 1908, 12.69. Among the blacks the rate was 42.58 for July, 1907, and 15.43 for July, 1908, a decrease of more than half. With 38,298 employees in July, 1907, there were 112 deaths; among 44,938 in July, 1908, 55 deaths. The difference in the sick rates for the two years was not so marked, being 28.66 per thousand in July, 1907, and 27.01 in July, 1908; but the gravity of the cases had evidently been greatly decreased. With almost the same sick rate the number of deaths was less than half. During the month no cases of plague, yellow fever, or smallpox appeared in the Zone. The health conditions are, therefore, very satisfactory.

Cholera in the Philippines.—The cholera situation in the Philippines generally has very much improved, but the Navy Department has taken precautions as regards the much talked about visit of the fleet in ordering Admiral Sperry not to permit shore liberty to any of the men, at least not until the fleet returns to Manila in November after its visit to Japan. At the request of the Government the Governor General of the Philippines has made a report to the War Department giving the number of deaths from cholera of white people in the islands since American occupation. The total number, including those among soldiers is as follows: 1902, 162 cases, 85 deaths; 1903, 10 cases, 8 deaths; 1904, 4 cases, 3 deaths; 1905, 12 cases, 7 deaths; 1906, 12 cases, 9 deaths; 1907, 11 cases,

2 deaths; 1908, 14 cases, 5 deaths. The report states that probably no other large port in the East is as free from cholera as is Manila. Fewer cases have also been reported from St. Petersburg, though it is feared that the premature discharge of patients from the hospitals may cause another spread of the infection. In China it is estimated that 30,000 natives have died of cholera in the Yang-tse Valley alone.

No Yellow Fever in Cuba or Panama.—The quarantine against Cuba which has been in effect in all ports of the United States south of Norfolk, has been removed except in regard to the Province of Santiago, the last case reported having been at Havana on September 12. It is thought that yellow fever has been practically eradicated from the island. American methods have also stamped out yellow fever and fever conditions in Panama, and when regulations can be enforced against surrounding countries by Panama, it is expected that there will be no return of it. A sanitary convention has already been signed between Panama and Ecuador, and this will have a good effect on the health of the Canal Zone.

Plague Outbreak.—The plague has made its reappearance in Ecuador with six cases and three deaths. A number of cases of illness and deaths from what is supposed to be bubonic plague have also been reported from Morocco.

Public Health Bureau.—The recommendation of the committee of the American Medical Association and of the Health Committee in favor of the consolidation of all the public health bureaus under one national bureau, was submitted to President Roosevelt on September 27 by Prof. Irving Fisher of Yale University. The President has promised to make the recommendation to Congress in his annual message. The matter was also discussed by Professor Fisher before the International Congress on Tuberculosis.

War on Opium Smoking.—While Japan has not yet notified China that she will withdraw her opposition to the restriction of the importation of opium into that country, she has signified to the other powers that she will do so. Investigation in China has revealed an illegitimate traffic in morphine pills, the use of which has been officially recognized as a cure for the habit of smoking opium.

Defective Children.—Speaking before the Eastern Public Education Association in session in Washington last week, Dr. Darlington, Commissioner of Health of New York, is reported to have said that over 70 per cent of all children examined in the New York schools show evdence of physical abnormalities, most of them remediable under proper treatment.

Death of a Centenarian.—The Rev. Alexander Mans of London, Ontario, died recently at the age of 118 years. He was born a slave, but when fifty years old escaped to Canada, and became a minister of the colored Baptist Church there. He was known as Canada's oldest man.

Ambulance Wrecked.—In a crash between an ambulance of the City Hospital of Newark, N. J., and a trolley car, Dr. George Knauer, the surgeon, and Charles Rust, the ambulance driver, were thrown out and badly bruised and cut. There was no patient in the ambulance at the time.

New Tuberculosis Sanatorium.—Undercliff, a sanatorium for the treatment of tuberculosis at Meriden, Conn., was opened formally by Governor Woodruff on September 22. The sanatorium has been built by the Anti-Tuberculosis Association which was formed last year.

Charitable Bequests.—The Newark Hospital for Women and Children receives a gift of $40,000 in the will of the late James R. Sayre, Jr., of that city.

A number of charities benefit under the will of the late Mrs. Emma A. Tillotson of New York, which was recently filed. Five thousand dollars is given to each of the following institutions: The Home for Incurables, St. Mary's Free Hospital for Children, the New York Society for the Relief of the Ruptured and Crippled, the New York Skin and Cancer Hospital, and the Woman's Hospital. St. Luke's Hospital receives, also, $10,000 for the endowment of two beds to be known as the Luther G. Tillotson and the Emma A. Tillotson beds.

The Flushing Hospital has just received a legacy amounting to $1,000 from the estate of a colored woman, Mrs. Mary A. Shaw, which has been in litigation for three years.

The will of the late Joseph Shineberger of Dillon, Mont., provides that the sum of $25,000 shall be placed in trust until it shall amount to $90,000. Of this $40,000 is then to be used for the erection of a hospital in that city, the remaining $50,000 to be set aside as a permanent endowment fund.

The Presbyterian Hospital of New York receives $10,000 from the estate of the late Henry Suydam Wilson, whose will was recently admitted to probate.

By the will of the late George A. Cotton of Philadelphia the sum of $5,000 is bequeathed to the Samaritan Hospital for the establishment of the Emma C. B. Cotton bed.

The Home for Destitute Crippled Children and a Newspaper Fresh Air Fund of Chicago each received an annuity of $500, and ultimately each institution will receive $60,000 from the estate of David E. Fiske, who died on July 15 of this year.

The Methodist Episcopal Hospital of Brooklyn receives a gift of $5,000, and the Greenwich (Conn.) General Hospital $10,000 under the will of the late Mrs. J. W. Murray of Brooklyn.

Death from Burns.—Following what is said to be an old Slavonian custom, the parents of a small child, in Clifton, N. J., who was recently severely scalded by hot coffee, treated the burns by the application of black ink. Death resulted from blood poisoning.

The National Volunteer Emergency Service held its seventh annual meeting on October 2 in New York. The Director, Major-Gen. James E. Pilcher, who presided, gave a summary of the public services performed by the association since its organization in 1900. Four well-equipped ambulances are supported by the service which are subject to the call of the poor day or night, and are under the direction of the physicians who are teachers in the school for first aid to the injured. Subscriptions to the amount of $15,000 for a hospital to be built in the city have already been received, and further funds have been promised.

Spring Water Analyzed.—The Department of Agriculture extended its work under the Pure Food Act by seizing recently 300 cases and 100 demijohns of a popular spring water for analysis. The Department charges that the water in question contains an excessive number of organisms, among them *Bacillus coli*, and therefore falls under the prohibition against adulterations. It is probable that following this initial analysis other spring waters will be examined.

The Prussian Academy of Sciences has just received a bequest of 30,000,000 marks, or about $7,300,000, from a Berlin banker who died recently.

Emergency Hospital.—A branch of the Boston City Hospital is shortly to be opened in East Boston, in the form of a relief station or emergency hospital. The building is designed to afford treatment more especially for accident cases, such as was recommended for New York in a recent report of the State Charities' Aid Association. The building is three stories high and includes treatment and operating rooms and small wards. Ambulance service is also provided for.

Dr. Luther H. Gulick, for some time Director of Physical Training in the New York public schools, has resigned from that office, the Board of Education accepting the resignation to take effect October 1. Dr. Gulick is also President of the Playground Association of America.

Dr. E. J. Senn has resigned as assistant professor of Surgery in Rush Medical College.

Public Lecture at the Academy of Medicine.—Dr. Charles A. L. Reed of Cincinnati will deliver a public lecture at the New York Academy of Medicine on the evening of Thursday, October 29, upon "The Character, Status, and Economic Value of a National Department of Public Health."

The Chicago University Hospital was opened for inspection on October 1, from 8 to 10 P. M. It is located at Ogden avenue and Lincoln and Congress streets.

The Windham County (Vt.) Medical Society held its annual meeting at Northfield, Mass., on September 23. The following officers were elected: *President*, Dr. P. P. White of Williamsville; *Vice-President*, Dr. Thomas Rice of Brattleboro; *Secretary*, Dr. H. L. Waterman of Brattleboro; *Treasurer*, Dr. F. H. O'Connor of Brattleboro; *Censors*, Dr. A. I. Miller and Dr. C. S. Pratt of Brattleboro; *Delegates to the State Medical Society*, Dr. F. L. Osgood of Townshend, Dr. A. L. Miner of Bellows Falls, and Dr. H. L. Waterman of Brattleboro.

The Kentucky Medical Association held its fifty-third annual meeting at Winchester, Ky., on September 23 to 25. The election of officers resulted as follows: *President*, Dr. I. A. Shirley of Winchester; *Vice-Presidents*, Dr. M. F. Coomb, Dr. B. F. Parris, and Dr. J. C. Carrick; *Treasurer*, Dr. W. B. McClure of Lexington; *Secretary*, A. T. McCormack of Bowling Green. *Orator in Medicine*, Dr. C. G. Stevenson of Clark County; *Orator in Surgery*, Dr. J. S. Pythian of Newport.

The Medical Association of Morgen County, Colorado, was organized recently, and Dr. J. A. Farnsworth was elected President, and Dr. A. F. Williams, Secretary.

The Medical Association of Northern Berkshire (Mass.) held its annual meeting on September 22, and elected the following officers: *President*, Dr. Harry B. Holmes of Adams; *Censors*, Drs. William Galvin and F. H. Howard of Williamstown, and Homer Bushnell, O. J. Brown and J. H. Matte of this city.

The Vermont State Medical Society has postponed its ninety-fifth annual meeting, which was scheduled for October 15 and 16, to October 22 and 23. The meeting will be held in Rutland, and the postponement was made necessary by the inability of the committee on arrangements to secure accommodation for the date first selected because of the meeting of the Vermont State Teachers' Association which is to be held at that time.

Obituary Notes.—Dr. Oscar E. Treutler of St. Louis, Mo., died at his home on September 24, after a lingering illness, the result of a street car accident some years ago, aged 51 years. Dr. Treutler was graduated from the St. Louis College of Pharmacy and from the St. Louis College of Physicians and Surgeons, and was for many years professor of chemistry, toxicology, and materia medica at the Marion Sims College of Medicine.

Dr. Walter T. Clark of Worcester, Mass., died in Portland, Me., while on his vacation, on September 24, from heart disease, aged 46 years. Dr. Clark was graduated from Harvard University in 1886, and from the Harvard Medical School in 1889. He served as city physician from 1894 to 1905, and as medical officer of the Worcester Board of Health from 1905 until his death.

Dr. Alida C. Avery, a pioneer woman physician of San José, Cal., died on September 23, after a long illness, aged 75 years. Dr. Avery was graduated from the New England Female Medical College at Boston, in 1862, and from the Boston University School of Medicine in 1863. Failing health caused her retirement from active practice some years ago.

Dr. Alonzo Good of Muncie, Ind., died on September 24, after a brief illness, aged 65 years. Dr. Good was a veteran of the Civil War, and at the time of his death was vice-president of the Delaware County (Ind.) Medical Society.

Dr. James A. McCready of Monroe, Ohio, died in Christ Hospital, Cincinnati, on September 20, in the seventy-fourth year of his age. Dr. McCready served three years as assistant surgeon in the United States Army, and had been a practising physician in Monroe for over forty-three years.

Dr. Miranda P. Wiswell died at Philadelphia on September 28, after a protracted illness, at the age of 52 years. She was a graduate of Holyoke College and of the medical school of the University of Michigan. She had formerly resided at Milford, Del., and Bethlehem, Pa.

Dr. George W. Holstein died at Bridgeport, Pa., on October 2, at the age of 87 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1843. He had not engaged in active practice for a number of years.

Correspondence.

INFANT FEEDING.

To the Editor of the Medical Record:

Sir:—In your issue of September 26 I find much of interest in relation to infant feeding. But in every instance the laboratory furnishes the information by which the physician is to be guided. Now there are several thousand doctors in this country who do not have access to laboratories, and with the greatest respect for the investigators I must say that these other doctors are doing equally as good work with the little ones as are the laboratory men. Many years ago I wrote a short paper for the Medical Record on infant feeding, giving a plan—not based on scientific experiment, but rather on practical common sense, worked out at the bedside and in the active everyday practice of country work. In using cow's milk the first essential is the care and feeding of the cow; neglect this and no laboratory work will rectify the mistake. The cow should be fed good, clean hay and grain—no corn feed nor pasture, with access to noxious and poisonous weeds and plants; good, pure drinking water, no mud hole mixtures nor questionable poison-laden liquids. Then the plan given by me nearly twenty-five years ago, as follows: Make a hole in the bottom of a pan which is to be corked. Allow the milk to stand in this pan until the cream has risen to the surface, then remove the cork and let one-half of contents run away, reinsert the cork, stir the contents until well intermixed, and add water according to age of child. I always use common salt quite freely, and

in some cases lime water and milk sugar. The reasons for doing all these things will be obvious. I have seen physicians who dip off the upper part of the milk, thus in a way doing the same thing advised in my plan. I want to repeat and emphasize the assertion that unless the cow is rightly cared for, a lot of trouble is apt to result from the use of cow's milk. E. W. Bogardus, M.D.

Reading Center, N. Y.

OUR LONDON LETTER

(From Our Special Correspondent.)

SLEEPING SICKNESS—PHARMACISTS AND COUNTER PRESCRIBING—CONFERENCE OF SANITARY INSPECTORS—SPINAL ANALGESIA—CHOLERA PRECAUTIONS—INSPECTION OF FOOD, NEW LEGISLATION—OBITUARY.

London, September 18, 1908.

The commission for the investigation of sleeping sickness which I mentioned last week is being sent by the Imperial Government under the direction of the Royal Society. Colonel Sir David Bruce is in charge, and this is his second expedition to East Africa in connection with the disease. He will have with him one, if not more, who was with him on his previous mission to Uganda. The members of the commission have been studying for several months various points in reference to the disease. Colonel Sir D. Bruce is of the opinion that nothing very definite has been arrived at as to treatment, though certain broad facts are so far established that they will form a useful basis for the local work. We may take it as certain that the disease is due to a parasite in the blood and that the chief carrier is the *Glossinar palpalis*. Investigation seems to show that it is only infective for about forty-eight hours. The habitat of the fly is restricted to a narrow strip around the shores of Lake Victoria and along large rivers. The Uganda Government has prepared a laboratory and station for the mission two miles from the lake shore in a wild, depopulated part of Chagwe province. This will be the headquarters of the commission, and as the tsetse confines itself to a few yards' depth from the shore, the work can be carried on without its unwelcome attentions. Lady Bruce, who has previously braved the dangers of such missions, will accompany her husband once more. Captain Bateman, R.A.M.C., and Captain Hamerton, R.A.M.C., are also members of the commission, which will start this day week.

The Pharmaceutical Conference opened on Tuesday at Aberdeen, when the president, Mr. Wright of Buxton, delivered an address, part of which is calculated to give pause to medical men. He complained of the present condition of the business of the chemist and attributed it to the competition of cooperative societies and dispensing doctors. He defended counter prescribing by chemists as quite in harmony with the general fitness of things, and held it was as much an offense for doctors to dispense as for chemists to prescribe. This monstrous doctrine should open the eyes of doctors to their folly in sanctioning the establishment of the Pharmaceutical Society without the guarantees they could at the time have enforced. Mr. Wright has done them a good turn in stating openly the view which so many of his fellows entertain. They seem to forget that their own business is merely that of retailers of drugs, sundries, perfumery, soaps and a host of other things. At first, when drugs were annexed, medical men were the only persons dealing in them, except wholesale. By gradual advances the druggists came to annex a considerable amount of business in medical appliances and drugs and went on to dispense. The apothecaries and other doctors were their only competitors and made no fuss about their rivals. The Society of Apothecaries, in fact, neglected to defend their licentiates and went more and more into the wholesale drug trade. At length the chemists agitated for a society of their own to control their business. When doctors mentioned that it would lead to further advances towards practise, the advocates of the movement were greatly shocked and answered: "Oh, no! that can never be; the new society would prosecute such an act and expel the delinquent." The Pharmaceutical Society was established and now what do we see? This claim made without a blush and the audience approving. It should be added that the president expressed the opinion that the society would be justified in striking off the roll a member "who had been proved to be in the habit of prescribing indiscriminately." That is a saving clause of a sort to his assertion of his right to prescribe over his counter, and you may be sure the society will do no such thing.

Mr. Wright then dealt with the subject of "patent medicines" and said the increase of their sale had been enormous and was now not far short of a turnover of three millions sterling per annum. To this I would add that this is the measure of a branch of quackery which is mostly due to the cultivation of the pharmacists, which is exceedingly injurious to medical practice, and, what is far more important, a fraud upon the public. In one sense the chemists are the greatest quacks, as they are the eager purveyors of any and every quack remedy.

The president afterward advised young men studying pharmacy to take up research work.

A number of papers embodying the results of researches in pharmacy were submitted to the conference and discussed.

Last week the conference of Sanitary Inspectors was held at Liverpool. The Lord Mayor, Dr. Caton, received the members and in his speech assured them that the citizens fully appreciated their labors.

Sir J. Crichton-Browne was president and in his address paid a tribute to the work of the Liverpool Tropical School, predicting that its researches and those of the sister school in London, if adequately supported, would lead to the control or abolition of some tropical scourges. If it seemed chimerical to talk of abolishing diseases, they must aim at that abolition—first of one disease, then another, until they had a clean bill of health. Only the other day they had had a practical abolition of Malta fever. It was traced to the milk of infected goats and such milk was put under embargo and the fever disappeared. "Could we but similarly abolish two or three diseases which on the large scale are prostrating and disabling in this country, the Chancellor of the Exchequer need have no further anxiety on the subject of old-age pensions."

The president then dwelt upon the hope of extinguishing tuberculosis and pointed out the necessity of preventing contamination of all food and some reasons for expecting final victory. He hoped the reference to the Royal Commission would be extended. Proceeding to deal with intemperance, he spoke of the importance of housing in this respect, and after some consideration of a general sort illustrated the matter by a particular some might call insignificant—the plastering of walls. Often this plaster would be found soft and porous. Then it was but a sponge to absorb and give off noxious effluvia.

Turning to disease carriers, he said that to catch a house fly and make it walk over a prepared gelatin plate and treat that in an incubator was to obtain an exact tracing of its itinerary in a heterogeneous flora of fungi and bacteria, every footstep of the fly being marked by a colony, and in these colonies pathogenic as well as harmless bacteria abounded. He further referred to human carriers of pneumonia and typhoid and the great length of time the latter might be so.

The Lord Mayor, Dr. Caton, contributed to the congress a paper, illustrated by lime light views, on sanitation in ancient Greece, where the value of open-air treatment was recognized as it is with us to-day.

Spinal analgesia seems to be making steady if slow progress. The early reports of unfavorable cases no doubt arrested for a time its adoption, but greater care has given better results and the tendency to extend its use seems growing. Mr. Barker did much toward making the plan more popular by using a liquid of higher specific gravity than the cerebrospinal fluid in order that it might by its own weight fall to the lowest part of the canal. He has recorded over 200 cases operated on in this way with constant success. Spencer and Houghton have contributed fifty other cases to the journal of the R. A. M. C., McGavin another fifty to the *Lancet*, and now to the same Mill Renton adds a further fifty. These last include twenty abdominal cases. Failure to secure sufficient analgesia only occurred three times, and failure to puncture twice. No bad after-effects in any case. Dr. Renton used Barker's nickel needles, boiled in plain water, as a trace of soda renders stovaine inactive. The injected fluid was stovaine 5 grains, glucose 5 grains, water 100 minims. Seventeen minims was used each time, and as two of these remain in the syringe the dose would be 15. As a rule he draws off from 2 to 2½ drams of cerebrospinal fluid before injecting. In some patients this fluid spurted out freely, in others it only came drop by drop. Where shock is to be feared this method has evidently a great sphere; also in cardiac or other cases, where general anesthesia is to be feared, Dr. Renton thinks in many cases the patient will choose it, while others will prefer general anesthesia. At the same time, he holds

that the utmost care is required to insure success and safety.

Lieutenant-Colonel Russell, R.A.M.C., is selected to attend the meeting of your association of military surgeons at Atlanta, October 6 to 9.

Precautions are being taken at the Port of London and other British ports against the introduction of cholera, which has established itself in so many parts of Russia. Vessels from infected ports are stopped at Gravesend for close medical inspection. At Liverpool a quarantine will be enforced. You will no doubt hear from other sources of the precautions that are being taken on the Continent in view of the steady advance of the epidemic.

Greatly increased powers have been conferred on the Local Government Board by the new Public Health Act. New regulations were issued yesterday as to the "importation, preparation, storage, and distribution of articles of food and drink." Special regard has been taken in the act to close the loopholes through which many dealers in unwholesome food formerly escaped the punishment they deserved. It is hoped to put an end to the trade of unscrupulous dealers in noxious articles of food and diet.

Another nonogenarian passed away last week besides the two I mentioned. This was Dr. Charles Ray, who died on the 10th inst., nearly 95 years of age. He qualified in 1836, practised in London until about twenty years ago, when he retired. He was a Barts' student. He took M.D. Pisa 1838.

On the 10th inst. there also died Dr. E. P. Paton, only forty-one years old, but whose carer had been unusually brilliant and sad. A Barts' student, he took the scholarship and a gold medal with other honors at the M.B. and B.S., London, passed on to the full M.D. and M.S. in 1891-94, taking on the way F.R.C.S. (1892). He held various appointments, among them an examinership at the Apothecaries' Society, demonstratorship at Barts and the Westminster Hospital. To the last he became assistant surgeon, registrar, dean, and lecturer on surgical pathology. In February last Dr. Paton was struck down by an attack of influenza, followed by paraplegia. He was placed in a ward in his hospital and received every help from his colleagues, who unhappily could do but little for one whom they esteemed; and regret was felt for the broken great career to which he seemed destined.

Fleet Surgeon R. Eustace, M.D., R.H., retired, died on the 11th, aged seventy-five. Educated at Trinity College, Dublin, he entered the Naval Medical Service in 1854 and served that year in Baltic in the Russian war, for which he held the medal; also on the admiral's flagship in the Pacific in 1855, as staff surgeon on the Gold Coast in the Ashanti war, 1873-74, for which he was awarded a second medal. In 1876 the Royal University conferred on him the M.D. (*honoris causa*) and retired in 1879.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 24, 1908.

The Home Treatment of Tuberculosis.—A. K. Stone says that almost every incipient case of tuberculosis could be benefited by a stay at a sanatorium. But even these arrested cases must return home, and so the home treatment idea comes into the consideration of every case. The true condition of the patient must be found, and his ability to labor and do things must be accurately estimated. We should not insist that the patient should leave home if he prefers to stay there. A contented mind cannot be neglected as a therapeutic measure. The patient and physician must be on the best terms possible, and the former must come to the latter constantly for advice as to the details of living. If a physician has a group of cases of about the same stage of the disease he may combine them advantageously into a class. The physician must have an intimate knowledge of the home life, and try to regulate its conditions. Details of rest and work must be regulated as far as possible. Special directions are useless except as to the most general outlines. Some arrangement for outdoor sleeping must be contrived. Many houses are now being built with this end in view. If an out-of-doors bed is not possible, we may use some one of the many forms of indoor tents. Rules for bathing and the water temperature must be regulated according to the patient's habits and his present strength. Personal cleanliness must be insisted on. The consumptive who is raising sputa should have nothing to do with the food supplies of the family. Above all, the physician must not content himself with giving general directions, but must be willing to go into bothersome details.

The Necessity of Providing Employment for Tuberculous Patients.—A. Worcester says that a man coming home from a sanatorium and pronounced cured, cannot have his old employment in many instances because of the rule of some corporations that they will not employ a man afflicted with tuberculosis. This custom is spreading. Every public meeting where the dangers of tuberculosis are explained results in pauperizing families by throwing out of employment incipient consumptives who would themselves be far better off if given suitable employment. What shall be done about it? It is our duty as physicians to prevent the spread of disease. And it is also our duty as physicians to relieve those who are afflicted by disease. This, in many instances, involves finding for them suitable employment. There is not only the economic necessity for this; there is also the therapeutic value for us to keep in mind. In some sanatoria patients are given fake employments, such as drawing and painting and basketry, simply for the therapeutic advantage. It would be far wiser to teach patients useful trades by which afterward they might earn their livings. No consideration of the tuberculosis question is at all logical or complete which does not include this matter of providing the employment for those who are thrown on our hands. If we are going to succeed in exterminating the disease something of this sort must be done. Otherwise our efforts will be wrecked on the economic blunder of forcing a large part of our population into unnecessary pauperism.

New York Medical Journal, September 26, 1908.

Some Points in the Applied Anatomy of the Tonsil.—H. A. Barnes calls particular attention to the crypts and their epithelial lining, and to the capsule. The lymphoid tissue should be studied in connection with the lymphoid tissues in general. Nothing especially new is brought out. The structural strength of the cryptic epithelium is, the author thinks, a very important factor in determining the amount of absorption that may take place through the crypt. This strength cannot be great from a mere mechanical point of view, either against bacterial invasion or absorption of toxins. Other forces must be responsible for immunity to infection. The quiescent tonsil of the adult seems to possess an epithelium which in itself is a fairly effective defense against bacterial invasion.

Injection of Alcohol for the Relief of Trigeminal Neuralgia.—Fifteen clinical histories are presented by J. A. Bodine and F. C. Keller. The method referred to consists of the injection of 2 c.c. of more or less diluted alcohol into or near one or all of the three divisions of the trigeminus at their basal foramina exits in the skull. The solution consists of cocaine, 1 grain; chloroform, 10 minims; alcohol, 3 drams, and distilled water to make one-half ounce. In following out this plan we probably do not often succeed in actually inserting the tip of the needle into the nerve sheath, but by following the simple directions laid down by Lévy and Baudouin, the point of the needle rests within a very small factional part of an inch of the nerve trunk at its exit. The alcoholic solution probably comes in contact with the nerve trunk by diffusion. There is at times a characteristic sudden, shooting pain within the area of distribution of the nerve trunk injected, and we have taken this to mean that the nerve itself has been touched by the point of the needle. Again, this characteristic manifestation is absent, and yet the injection has invariably, in every and all of our cases, given more or less relief for a longer or shorter period of time. The authors believe this method to be within the skill of the average man, though they urge preliminary practice on the cadaver. If any dangers attend the deep injection of the second and third branches, they are not known to practice, nor can they be conceived theoretically. The danger of hemorrhage is reduced to a minimum by the blunt cutting point of the needle used. Beyond a more or less extensive subcutaneous ecchymosis, we have, so far, seen no evidence of excessive hemorrhage. The danger of sepsis carried to the depth of needle penetration is an actual one. Preliminary anesthesia of the skin at the point of needle entrance with weak cocaine solution or plain water, then division of the skin by incision with the point of a bistoury, allows easy entrance of the needle point without danger of carrying the infection always resident in the depths of the skin. These injections should always precede, say the authors, resort to surgical measures.

The Leucocyte Count in Abdominal Surgery.—The paper of J. Douglass is based on an analysis of fifty personal cases. Granting the existence of a margin of error, is it sufficient to invalidate the value of the leucocyte count entirely? According to the author, no. Great variations do exist in both the total and differential counts. In regard to the total count, the leucocytes are certainly increased in suppurative and gangrenous conditions as well as those in which there is an effusion of blood into the peritoneal cavity, but it seems impossible to state that any given

number indicates pus or gangrene. And while the higher counts do, in most instances, indicate pus or gangrene, it must be borne in mind that low counts do not rule out either or both. Concerning the comparative value of the two counts, both showed in a large majority of cases an elevation almost equally relative to the pathological condition. In several in which the total count was at fault, the differential count was equally misleading. And as the differential count seems to follow the total count in such a large proportion of cases, it seems questionable whether the statement that the latter is of no value except as an indication of body resistance, is correct. Also the differential count would appear to show somewhat less variation than the total count, and seems to be of greater value than the latter; but here also it is to be repeated that in the writer's experience there is a considerable margin of error. After all, it is the combination of symptoms which must be considered in any abdominal case. The persistence of vomiting, the amount of rigidity or pain, the sudden letting up of pain with persistence of other bad symptons, indicating gangrene with perforation and relief of tension, the abdominal facies, the poisoned look of the patient, the continued or rising pulse and temperature, all these symptons indicate in the clear case the need of operation. But in the case seen early, where the diagnosis is not clear, where one feels the danger of waiting to see whether the unfavorable symptoms continue or new ones develop, the blood count is of great value. If it is confirmatory it may be an important indication for immediate operation; if negative, it is unreliable in so small a percentage of cases that unless there be present some other symptom pointing clearly to operation, one is usually justified in awaiting further developments.

Some Types of Pneumonia Associated with Inflammation of Adenoid Growths.—A series of cases is reported by E. J. Bero. Their general characteristics were as follows: (1) the temperature was high, but (2) it did not correspond to the severity of the illness nor seem to make the progress unfavorable, and (3) toward the end became intermittent, giving the impression of a series of false crises; (4) its characteristics did not seem to alter in either the presence or absence of otitis media; (5) with the exception of the latter disease, complications were not noted in either robust or debilitated patients; (6) early paracentesis in the ear cases did not seem to modify the course of the general disease; (7) the spleen was not enlarged, no plasmodia were found, and quinine did not modify the intermittent temperature; (8) the course was often protracted; (9) the patient was left inclined to relapses of similar character in instances in which the adenoid growths were not removed.

Journal of the American Medical Association, September 26, 1908.

Arterial Degeneration in the Rabbit.—R. M. Pearce has examined 62 rabbits to determine the incident of spontaneous arterial degenerations. He found spontaneous lesions in 3 to 51 supposedly normal rabbits, excluding those which had been subject to a physiologic experimentation, which might possibly have had some share in the production of the lesions. If these were included, the number would be 7, or 11 per cent. of the whole 62. It would appear, he thinks, that while spontaneous arterial degeneration may occur in the rabbit, it is not so constant a condition in all localities as the findings of Miles and Johnstone would seem to indicate. The occurrence of spontaneous lesions, moreover, does not, in his opinion, diminish the importance of the lesions due to adrenalin, but rather increases it, as an example of a lesion, occasionally occurring naturally, but which may be readily produced experimentally. It in no way vitiates the importance of the experimental lesions, but does demand a very careful control study of the rabbits in each locality in which experiments are made.

Cerebellar Tumor.—Three cases of cerebellar tumor are reported by W. Sinkler. Two patients were operated on, one of them twice; the other died suddenly, while waiting for operation. In one of the patients operated on no tumor was found at the time, but growths were found in both cerebellar hemispheres at the autopsy, thirteen days later. In the patient operated on twice the result was a brilliant surgical success, the symptoms were generally relieved, and the patient was apparently in perfect bodily health seven months after the operation, but the vision continued to fail. Sinkler says these two cases show that to save vision early operation is essential. In the case of sudden death the tumor was one that was capable of being rapidly removed, and he thinks that if the operation had not been delayed the patient might have been saved—another indication of the importance of early operating.

The Meatomastoid Operation.—W. L. Ballenger calls attention to the modification of the mastoid operation, as practised by him, to which he gives the name meatomastoid operation, as it consists (a) in the removal of the posterior wall of the bony meatus as deep as the annulus tympanicus, and (b) the complete exenteration of the mastoid cells. The remnants of the membrana tympani and the ossicles are not disturbed. The technic followed is like that recommended by Heath, but more radical in the removal of the pneumatic cells of the temporal bone and in the greater pains taken in making the bony walls of the mastoid wound smooth and applying the Ballance plastic skin flaps to its surface. The cells should be completely removed to insure proper drainage and ventilation, the walls, being rendered smooth, leave no recesses for foci infection, and the proper use and adjustment of the plastic meatal flaps is one of the most important points of technique in the surgery of chronic sclerosing mastoiditis, as the sclerosed bone is inadequately supplied with nutrient blood-vessels to support healthy granulating tissue. The details of this part of the operation are given fully. Ballenger also makes a point in regard to the dressing. If the wound is packed with gauze, the secretions saturate it, causing irritation and infection, and when it is removed the granulations are injured. If, on the contrary, the drainage dressing consists of a small wick of gauze within a rubber tube, its removal causes little disturbance, the granulations are not bathed in secretions as the drain is only in contact with the most dependant part of the wound, and they are carried out to the external absorbent dressing which also protects from external infection. Since using this plan of drainage he has had better results. The rationale of the meatomastoid operation is based on the promotion of healthy granulation tissue and epidermization of the walls of the mastoid wound, and the establishment of ample drainage, which is accomplished by diverting the secretions from the mastoid antrum and cells through the windows in the posterior walls of the meatus, into the external auditory meatus, and by passing blasts of air *viâ* the aditus ad antrum through the middle ear. With the above conditions secured in properly selected cases, the results will be as good as with the radical operation, and in one respect better, namely, the hearing will be much improved, often approaching normal. The meatomastoid operation is contraindicated in: (a) all simple cases curable by nonsurgical and minor surgical treatment through the external meatus; (b) all cases curable by proper surgical attention to the epipharynx and posterior ethmoidal and sphenoidal sinuses; (c) cholesteatoma of the tympanic cavity; (d) epidural abscess with its atrium of infection through the tegmen tympani; (e) brain abscess; (f) infection, suppuration and necrosis of the labyrinth. It is, of course, contraindicated in any case in which it fails for any reason to remove all morbid material and secure adequate drainage. It is indicated in other cases in which simpler measures have failed.

Restoration of the Conjunctival Sac.—M. Wiener describes and illustrates a method which has been successful in his hands in meeting the difficulty experienced in securing a suitable socket for an artificial eye. It applies to cases in which there is still a small amount of conjunctiva left. This is carefully dissected out to form a conjunctival covering for the lower lid, and the bulbar surface is covered with grafts taken from the thigh and applied on a previously shaped lead plate. The illustrations are necessary to supplement the description of the operation, which he claims secures a sufficiently deep lower sulcus, the lack of which has been the chief cause of previous failures. Two cases are reported.

British Medical Journal, September 19, 1908.

Oral Sepsis.—T. Wakefield calls attention to the advantages of tincture of iodine which he uses with an equal portion of tincture of aconite for disinfecting the pockets at the roots of the teeth. The iodine is, of course, a powerful disinfectant, and the fact of its being dissolved in spirit causes it to penetrate into narrow crevices which a watery solution will not do. If a drop of water is placed at the root of a fingernail, it remains where it is placed or falls off. If a drop of tincture of iodine, or of plain spirit, is placed in the same position, it at once diffuses itself all round, and also under the nail. The moisture of the mouth does not prevent this, as may be seen by moistening the fingernail with saliva and then applying a drop of tincture of iodine.

The Treatment of Cholera—R. W. Burkitt details his experience with cholera in Assam. Naturally, the general sanitary conditions with which he has had to contend have been of the worst possible description. He says that since he began treating all cases as early as possible by hypodermics of one-quarter or one-half grain of morphine, he has not lost one patient, provided he was injected early

and before very profound collapse had set in. Many cases have been injected, with the happiest results, even when in the most profound collapse—apparently moribund, in a state when vomiting and diarrhea and almost all signs of life have gone. Children do as well as adults. After cholera, in a certain number of cases, a typhoid condition ensues which needs careful nursing and dieting; in this state he has lost a few patients owing to the want of these necessaries. The hypodermic injection of morphine is the first of two essential factors in treatment, the other is water in enormous quantities every few minutes while awake from start to finish. If the patient is terribly collapsed he gives the morphine first and immediately afterward saline intravenously. It is useless to give water by the mouth then, as it will only excite vomiting and increase the collapse. He has never seen a case where the injection did not in a few minutes stop vomiting, diarrhea, colic, and cramps, and give perfect rest, and in the majority of cases sleep from five to eight hours. In most cases immediately the morphine has taken effect and before sleep supervenes the patient asks or makes signs for water and drinks plentifully, mostly without further vomiting; when the patient wakes the collapse has to a large extent gone, his pulse has returned, his sunken appearance has changed, and he asks for water constantly. He sometimes vomits once or twice eight to twelve hours after the injection; this is due to the morphine, and is quite different to the vomit of cholera.

The Lancet, September 19, 1908.

The Pathogenesis of Tabes Dorsalis.—The paper of T. A. Williams is essentially a review of recent literature on this subject. He calls special attention to the work of Nageotte, who indicated the constancy of lesions on the radicular nerve at the point where it receives its meningeal sheaths. These lesions correspond to one or other stages of the granulomatous process, varying as they do from simple roundcell infiltration to granuloma, and even breaking down with formation of cavities. They are due to primary chronic meningitis, evidenced by the lymphocytosis found by spinal puncture during life and post mortem when skilfully looked for, although the tendency of the process to resolution and fibrous tissue formation leaves only a slight thickening in the membrane, already fibrous by nature. The changes in the cord are consecutive to this. That this is so is proved by similar changes of the posterior column after disease of, or experimental section of, individual roots and by the changes occurring in the mechanical affection of the radicular nerves due to the increased intraspinal pressure caused by the growth of cerebral tumors. The noxa falls upon the root fasciculi very disparately, and this corresponds to the disparate nature of the sensory troubles, which do not preponderate so much as formerly supposed upon the fibers which subserve the sense of attitudes and of muscular movement; for it is now definitely shown that cutaneous sensations are always involved more or less, though probably later in the disease. The superficial lightning pains and the psychometric analysis of the sensibility of tabetics are an index to this. It is certain that impaired sense of attitudes is always accompanied by impairment of the deep pain sense and of perception of the vibrations of the tuning fork by the bones, and as these functions are conveyed in the same peripheral path while they are separated within the cord, clinical evidence is in entire harmony with the pathogenetic theory advanced by Nageotte. The data furnished by the optic nerve symptoms are similarly best explicable by a meningeal affection, involving in this case not a posterior root but a homologue of an intraspinal path. The tabetic symptoms referable to the sympathetics do not differ from those produced by experimental section of the spinal roots nor from those in syringomyelia which, however, alters the cell bodies in the intermedio-lateral column. The anterior roots are not unaffected, but the relative absence of serious myopathies early in the disease is accounted for by the rapid regeneration of the fibers. This is shown by the *terminaisons en croissance* exhibited by Nageotte's preparations and by the results of section experiments. The regeneration of the posterior root fibers extends only to Redlich's ring at which they lose the neurilemma sheath. Finally, evanescent lymphocytosis and reflex iridoplegia, the two most characteristic signs of tabes, are found in many cases of syphilis without other tabetic symptoms; indeed, both sometimes occur in the secondary stage, the former in as many as 40 per cent. The contention of Babinski and Nageotte is therefore accepted that a chronic syphilitic meningitis is responsible for what has been called tabes dorsalis, and that it was formerly disregarded on account of the tendency to the occurrence of resolution and fibrosis of the lesions.

A Case of Severe Vertigo and Tinnitus; Destruction of the Labyrinth; Cure.—The patient of M. Yearsley was a man of 47 years. The method which the author adopted consisted in the simple opening of the cochlea vestibule and canals with the destruction of the ampullary soft parts, and was not accompanied by the severe constitutional disturbance which has followed in some instances in which only one or more canals have been removed. In the author's opinion, the attacking of the labyrinth by the way of the radical mastoid operation is more scientific and certainly more justifiable and less dangerous than the attempt to divide the auditory nerve in the skull. The case described by the author is the ninth operation of the kind. A detailed clinical history is given and must be consulted in the original by those interested.

An Unusual Type of Leukemia Complicated by Synovitis in a Youth, the Subject of Ichthyosis.—The patient of R. Waterhouse was a young man of 20 years, and the chief points of interest in the case may be summarized as follows: (1) the presence of ichthyosis, unusual in that the flexor surfaces were implicated to a greater extent than the extensor. (2) The supervention of a condition of leukemia characterized by deposits of lymphocytic cells in the lymphatic glands, bone marrow, spleen, liver, kidney, and elsewhere, but anomalous in the profundity of the anemia, the absence of increase in the total number of leucocytes in the blood, and in the presence of free iron in the liver and spleen. (3) The occurrence of a symmetrical synovitis of the kneejoints due to a leukemic invasion of the synovial membrane. (4) The fact that the patient had only one kidney. Death came rather unexpectedly after a short period of restlessness and dyspnea. Full autopsy findings are given.

A Case of Traumatic Subdural Hematoma, Trephined Three Months After the Injury.—G. H. Hume narrates the history of a man between 50 and 60 years of age who fell off a bicycle and received a cut on the back of the left side of the head. After a short period of unconsciousness the man picked himself up and went about his affairs as usual, but felt indefinitely ill and had a constant anxiety and depression. Later, symptoms suggestive of brain pressure came on. It was thought that a tumor might be present, and trephining was decided on, it being now three months since the injury. The posterior parietal region was laid bare by a large flap reflected downward. The cicatrix of the wound was included in the upper and posterior angle of the flap and the underlying bone showed no trace of injury. Three trephine discs were then removed and the intervening piece of bone was cut out with a guarded Gigli saw, so as to expose the upper Rolandic area. The exposed dura mater bulged and looked bluish, and when it was incised a quantity of porterlike fluid gushed out to the estimated amount of five or six ounces. When the exposed dura mater was fully laid open a large cavity extending downward and forward and loosely occupied with blood clot came into view. Many portions of the clot were adherent to the under surface of the dura mater (parietal arachnoid); none of the clot adhered to the visceral arachnoid. These adherent portions were scraped away with the sharp spoon and while this was being done it was noticed that the surface of the depressed hemisphere was slowly rising. In no long time it had risen to the normal level. A gauze drain was placed in the subdural space to prevent reaccumulation of fluid, and the operation was finished with the suture of the dura mater and the readjustment of the scalp flap. The bone was not replaced. Recovery of function was immediate though gradual. His mentality became normal as did his power of speech and the use of the arm and leg which had been affected on the right side of the body.

Berliner klinische Wochenschrift, September 14, 1908.

Antitrypsin in the Blood.—Von Borgmann and Meyer have examined 120 patients for the presence of antitryptic properties in the blood. In over 90 per cent. of cancer patients the antitryptic power of the blood serum was markedly increased, but on the other hand over 20 per cent. of noncancerous patients showed the same phenomenon. The reaction, therefore, is not specific for cancer, but may serve as a corroborative evidence in diagnosis; the absence of the reaction should be considered strong evidence against the presence of cancer, being absent in a little over 5 per cent. of the cases only. The test is especially valuable in suspected malignant disease of the internal organs where operation is to be recommended if the diagnosis of cancer is well supported. The absence of the reaction should act as a strong reason for not recommending such an operation. The nature of the reaction has not been satisfactorily explained either in normal or in pathological cases. Its frequent presence in malignant disease may, perhaps, be traced to the proteolytic ferments which have been found in tumors and which are probably absorbed by the blood.

Trauma in Inflammations of Joints.—König says that

trauma is quite frequently the starting point in acute suppurative gonorrheal or chronic tubercular joint disease. The trauma need not be of penetrating nature, nor is it usually very severe in character. The inflammatory phenomena may begin immediately after the occurrence of injury or after some time has elapsed. In case of tuberculosis the infection is caused either by the free bacilli in the blood or by the bacilli included in small caseating masses that reach the blood-vessels from some tuberculous center. The synovial form of tuberculosis is frequently a consequence of trauma to the joint; if the neighboring bones have been injured the primary foci of disease may develop in them. Suppurative affection of the bones may appear many weeks after the causative injury had occurred, time being taken by the formation of the abscess within the bone, and the breaking through into the joint. But pain, discomfort, interference with function and swelling are usually present in more or less marked degree from the time of injury to the appearance of manifest joint symptoms.

Münchener medizinische Wochenschrift, September 15, 1908.

A New Bone Lesion in Childhood.—Kohler has observed three cases of a hitherto undescribed affection in children which was characterized by pains in the dorsum of the foot and slight limping. The feet were also painful on pressure. No points of interest could be obtained from the family or past history of the patients. Röntgenological examination showed marked changes in the navicular bones. They were only one-half of the normal size; the contour was greatly changed; the lime content was much increased as shown by the intensity of the shadows; the compact and the spongy portions were badly differentiated from each other. In one case the patella showed similar appearances. The condition lasted from two to three years and was followed by complete recovery, both as far as the symptoms were concerned as well as the anatomical structure of the affected bones, as far as could be judged by repeated *x*-ray examinations. Tuberculosis, syphilis, osteomyelitis, rachitis, could all be excluded. The special localization of the disease, the symptoms, and the course are quite different from the described affections of bone, and the condition must be considered to be a new disease until further light is thrown upon it.

Trephining in Choked Disks.—Hippel says that choked disk is only a symptom of disease, but as it threatens the patient with rapidly appearing blindness it must be considered by itself. The use of mercury and iodine in this condition is usually fruitless. Recently, palliative operations have been performed, over 220 cases being reported in literature. In one hundred patients the choked disk disappeared after the operation, but vision was improved in only sixty-one cases. The prognosis of the operation is good if it is performed in the early stage of disease, that is, when the vision just begins to be affected. In case syphilis is diagnosed specific treatment must be persisted in, but it has been shown that gummata of the brain are very slowly affected by such treatment; often, therefore, decompression must be performed in order to save the eyesight of the patient while he is treated. In other cases lumbar puncture may effectively remove the intracranial pressure. The operation of decompression is quite dangerous in itself and the patient or relatives must be acquainted with this fact. Often in addition to the improvement in eyesight the severe headache is improved and vomiting becomes rare. The future may bring better procedures for dealing with symptomatic choked disk, but at present the decompressing operation is fully justified.

Deutsche medizinische Wochenschrift, September 17, 1908.

Treatment of Hysteria.—Meyer says that in local hysterical conditions the treatment of the underlying general disease is of greatest importance. The disturbance being of a psychic nature psychotherapy offers most chance of success. At the same time such conditions as anemia, chlorosis, infectious diseases, etc., coexisting with hysteria must be treated in the usual fashion, for they may cause the continuation of the functional disease. The psychic condition in hysteria is very similar to that of the child, for effects are more dominant than the voice of reason, and the treatment of hysteria is properly called the education of the patient. His confidence must first be obtained by careful attention to the usual long story of his ills and the avoidance of all scoffing at his complaints. A complete physical examination should always be performed. Then the treatment followed by the patient in the past should be inquired into so that some ineffective method may not be repeated and the patient thus shaken in his confidence in the doctor. The patient must be impressed with the fact that the affection which to him seems to be of extremely urgent and dangerous nature is only functional in character and that organically his body is quite sound. At the same time care must be taken not to lead the patient to suspect that his complaints are not seriously considered; the word hysteria is best not mentioned before the patient while relatives may be acquainted with the nature of the disease, only if they may be supposed to understand it properly. Medicinal and hygienic treatment must be combined with psychotherapy, both because there are usually indications for such measures, and because the psychical treatment alone may not sufficiently impress the patient. Treatment is best carried out in a sanatorium or at least away from the usual family circle of the patient, where the physician cannot very easily obtain much influence over the mind of the patient. While the use of hypnotism may be justified in experienced hands, this method must be avoided in routine cases and in general practice, for it is quite true that a healthy man may be brought to the verge of hysteria by improper use of hypnotism as often as a hysterical person may be improved by the measure.

Immune Bodies in Tuberculosis.—Spengler says that the immune bodies of tuberculosis are produced and stored by the red blood cells. The bloodserum contains only small quantities such as are needed by the body at any given moment, in answer to the stimulation of the toxins produced by the infecting agents. The transfer of immune bodies from the corpuscles to the serum is accompanied by marked hemolysis. The white cells and the blood platelets also serve as store houses for immune bodies, but they do not act as independent producers of these substances. The principal immune bodies in tuberculosis are lysins and antitoxins and can be prepared as chemically pure substances. They are not proteins. The healthy human being is immune, for his blood contains great quantities of immune bodies that often exceed in amount those found in artificially immunized persons. Disposition to disease results from the diminution of immune bodies which follows disease of the blood or injury to blood-building organs. The immune bodies of tuberculosis may be used in therapeutics in combination with antitoxins against pus organisms, etc.

French and Italian Journals.

The Principal Causes of Death from Diphtheria After the Use of Antitoxin.—Louis Martin has tabulated the causes of mortality in 853 cases of diphtheria treated by serotherapy in the Hôpital Pasteur since 1900. He finds 83 deaths in all, out of which 28, that is about one-third, died within twenty-four hours of entrance, that is before the good effects of the antitoxin had had time to show themselves. This was especially the case in children under two years in whom the diagnosis is generally very difficult. In these children the larynx is often affected and bronchopneumonia is apt to occur. These deaths might be prevented if all cases were injected as soon as any membrane is seen, without waiting for a bacteriological diagnosis. Cases in these young children often come from bad hygienic surroundings which are contaminated, and all young children exposed to diphtheria should undergo preventive injections. Death in the older patients generally results from complications that indicate renal, hepatic, and suprarenal insufficiency. These accidents are generally attributed to nervous lesions caused by the disease, but the author believes them due to a secondary intoxication that develops after the action of the first doses of antitoxin. Such patients should receive a second inoculation as soon as they show renewed symptoms of intoxication.—*Revue Française de Médecine et de Chirurgie*, No. 11, 1908.

Necrotic or Ulceroperforative Angina in Scarlatina.—Felix Langlais describes a form of severe angina in scarlatina that consists of ulceration of the pillars, palate, uvula, etc., ending in perforation, and generally fatal. This form is very contagious and should be carefully isolated from its inception. The ulceration appears at the time of the exanthem as a white patch which does not consist of exudation but leaves a raw surface when a portion is removed with forceps. It extends in depth but not in extent after it has formed. The necrosis may go on to the bone of the palatal vault, and in some cases there is ulceration of the gums and necrosis of the jaw at the site of the incisor teeth, which drop out. The lips and tongue may also participate in the ulcerative process. There is present a very marked infection, with high fever, pain in the throat, inability to swallow or take nourishment, much albumin in the urine, dry skin, and diarrhea. The breath has an infected odor, and a sanious discharge runs from the mouth. The submaxillary glands are much swollen. Death results soon from intoxication and failure to take nourishment.—*Journal de Médecine de Paris*, June 12, 1908.

Book Reviews.

Medical Greek. A Collection of Papers on Medical Onomatology and a Grammatical Guide to Learn Modern Greek. By Achilles Rose. New York: Peri Hellados Publishing Office, 1908.

The several chapters of this little book have for the most part been published in various journals at different times during the past fifteen years, many of them being now out of print and inaccessible. The author has therefore done a service to those interested in the modern form of Greek and in the purification of medical nomenclature in bringing these papers together and placing them within reach of the inquirer. The various articles are not all of equal merit, and some, indeed, might well have been omitted, especially the one entitled "New York Academitis." In that chapter Dr. Rose prints his correspondence with the officers of the academy in reference to his offer to read a paper on "Medical Language" at one of the meetings. The authorities declined the offer for reasons which seemed to them sufficient. The matter had better have been allowed to rest there, for the author only risks prejudicing the cause for which he so strenuously and untiringly labors, by making an issue of the refusal and printing the correspondence. Many of the other chapters are most interesting and valuable, and should be read by all who are concerned in preserving, or rather restoring, the purity of our medical language, now disfigured with so many barbarisms and uncouth terms. The collection includes, in addition to the papers by Dr. Rose, several articles by German lexicographers and writers on the language of medicine, among them a brief epitome of modern Greek.

Die Cystoskopie und Urethroskopie beim Weibe, von Dr. Richard Knorr, Berlin. Berlin und Wein: Urban und Schwarzenberg, 1908.

This book is permeated with that simplicity and directness that stamps the author's personal teachings. His characteristic terseness does not militate against thoroughness and elegance. Like his personal lessons, the book gives far more than the title promises. The object is accomplished in the main by a desire to teach, and secondly by the elimination of historical digressions, questions of priority, of obsolete instruments and of impractical devices and methods. Knorr, with charming modesty, effaces himself throughout, and leaves the conviction that his purpose is to aid, as far as a book can, in the acquisition of cystoscopy and urethroscopy. In this sense the work is invaluable. It also presents very great advantages to those experienced in the arts he teaches. Knorr's conciseness renders a critical review practically impossible. An appreciation of the value of his work can be obtained only by reading it. Its adaptation to the uses of the general practitioner, the gynecologist, the surgeon, makes it far more than a mere reference book. An idea of the practical value of the work may be had by excerpting at haphazard from any of its pages: "Pain during cystoscopy is avoided by firmly maintaining the instrument immobile; by relieving excessive pressure of the bladder contents; by shutting off the current when the lamp grows warm; by renewing the medium when prolonged examination allows it to attain an uncomfortable temperature." He emphasizes that the changes in the bladder due to pregnancy are perceptible as early as the third or fourth week. He illustrates the technique required in the second or third month of pregnancy if cystoscopy should then become necessary. The book (290 pages) is well illustrated. The only exception that can be taken to it, is in the pages explanatory of the lithographic plates; they are primarily too brief, and should front the pictures for easier reference.

The Heart and Sudden Death. By Theodore Fisher, M.D., F.R.C.P. London: The Scientific Press, 1908.

The data from which this little book was compiled were furnished by 2,500 autopsies performed in various London hospitals. There is nothing in it which is especially new, but the author ventures the hope that his observations may be of interest not only to the practitioner but to medical students also, by bringing to mind certain facts not always clearly dealt with in textbooks of medicine.

The Correction of Featural Imperfections. By Charles C. Miller, M.D. Second Edition, Enlarged. Chicago: Privately published, 1908.

Dr. Miller seems essentially modest in his claims as to what cosmetic surgery can do, and he evidences the desire that the subject may be taken out of the hands of quacks and become a well-recognized specialty in the regular school. However, his book is all too brief for this worthy purpose, and needs to be enlarged and dignified by further details than the author has given of his work. For instance, in the correction of "hump" nose "the line of incision lies along the free margin of the nasal bone." This will be of little help to any surgeon who wishes to attempt the operation. The proof-reading is little short of atrocious, and mars what is otherwise an earnest endeavor.

The Principles and Practice of Hydrotherapy. A Guide to the Application of Water in Disease. For Students and Practitioners of Medicine. By Simon Baruch, M.D., Professor of Hydrotherapy in Columbia University (College of Physicians and Surgeons), New York; Medical Director of the Hydriatic Department of the Riverside Association; Consulting Physician to the J. Hood Wright Memorial (Formerly Manhattan General) Hospital; to the Montefiore Hospital for Chronic Invalids; Member of the New York Academy of Medicine; Formerly Gynecologist to the Northwestern Dispensary; Physician for Eye, Ear and Throat to the Northwestern Dispensary of New York City; Physician and Surgeon to the New York Juvenile Asylum, and Chief of the Medical Staff of the Montefiore Home for Chronic Invalids. Third Edition. Revised and Enlarged. With Numerous Illustrations. New York: William Wood & Co., 1908.

Being written by a general practitioner of large experience, this work furnishes the same information on the action of water in disease and in health as do therapeutic works on drugs. Herein it differs totally from other works on hydrotherapy and therefore it has become indispensable to every practitioner who would utilize the most potent remedial measures at his command. The author's method of presenting the subject is especially adapted for the doctor at the bedside. He insists with what would seem persistent reiteration enforced by clinical data upon the real value of water as an important therapeutic auxiliary in the majority of acute and chronic diseases. After making due allowance for the author's seeming overzeal in his propaganda for this neglected remedial agent, the statement of a reviewer of the German translation does not appear overdrawn to the unprejudiced reader. Professor Brieger wrote in the *Berliner Klinische Wochenschrift:* "Here he stands as the true friend at the bedside of the sick and suffering—a friend from whom one may draw counsel on all difficult questions of practice, with the assurance that only that which has been proven, sedulously examined, and critically sifted will be received for the benefit of the sick." The author draws attention to the necessity of careful scanning of the brief histories offered to illustrate the changes of technique demanded by changing phases of disease, and he dwells upon the difference here existing between water and the simpler drug treatment. He appears to know how to put himself in the place of the practitioner in search of therapeutic help in mild as well as desperate cases in which the addition of water may add to the comfort and safety of the patient. His chapter on insanity is a compilation of clinical reports from asylum directors furnished as evidence of the practical results of the author's teaching. Prof. Baruch's continued insistence upon the Brand bath in typhoid fever would seem to be warranted by the recent testimony of eminent clinical teachers, although it can hardly be questioned that this method has lost much of the repute it formerly enjoyed. The author does not indulge in that laudatory advice which too often characterizes works on this subject and with which his earlier writings were sometimes tinged. An additional discussion of observation in private and hospital practice appears to have placed the writer in a calm and judicial attitude which is in evidence in every part of the book. The numerous citations from recognized clinical authorities who are not hydrotherapeutists, testify to the author's desire to hold aloof from misleading praise of his favorite remedy. The book is really a cyclopedia of the uses of water in practical medicine, the possession of which is absolutely indispensable to every physician in active practice. In the historical epitome the American reviewer is proud to discover evidence that his country is not only abreast, but in the advance line of practical hydrotherapy. To this fact is undoubtedly due the compliment of an English, German and prospective French and Italian publication.

Uric Acid as a Factor in the Causation of Disease. By Alexander Haig, M.A., M.D. (Oxon.), F.R.C.P. Seventh edition, with 75 illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

In this edition of Haig's well known treatise much new evidence is adduced from clinical and experimental sources regarding uric acid in the blood and its relation to capillary circulation, blood pressure, and blood quality. There are some new contributions to the pathology and treatment of diabetes and chorea, and attention is given to recent studies in the amount of food (albumin) required. Diet notes used by Haig in his treatment of the uric acid diathesis are added as an appendix.

Society Reports.

SIXTH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Held in Washington, D. C., September 21 to October 12, 1908.

(Special Report to the MEDICAL RECORD.)

(Continued from page 604.)

CLOSING GENERAL SESSION.

Saturday, October 3.

HON. GEORGE B. CORTELYOU, SECRETARY OF THE TREASURY, PRESIDING OFFICER, IN THE CHAIR.

President's Address.—President THEODORE ROOSEVELT gave the parting word to the delegates of the Sixth Triennial International Congress on Tuberculosis in the National Museum. His unexpected presence called forth an ovation that lasted for several minutes, the foreign delegates joining in with great heartiness, all of them rising to their feet in compliment to the American executive. The President said that he could not deny himself the privilege of saying a word of greeting. It was difficult for one to realize the extraordinary changes in certain lines of social endeavor during the last two or three generations, and in no other manifestation of human activity had the changes been so far-reaching as in the ability to grapple with disease. It was not so very long, measuring time by history, since the attitude of man toward a disease, such as that of consumption, was one of helpless acquiescence in what he considered to be the mandates of a supernatural power. It was but a short time since even the most gifted members of the medical profession knew as little as the layman of the real cause of diseases like tuberculosis, and of the remedies to be invoked to overcome them. It was an affair of decades when they went back to cover the period in which progress had been made. He then called attention to the work that the United States government was now doing in Panama. "The Isthmus of Panama, which was a by-word for fatal diseases, has become well-nigh a sanatorium; it has become so because of the investigations of certain medical men, which enabled them to find out the real cause of certain diseases, especially yellow fever and malarial fever, and to take measures to overcome them." He said that these unexpected results had followed patient, laborious, dangerous, and extraordinarily skillful work that had enabled the cause of disease to be found and the diseases themselves to be combated with extraordinary success. That success had had its martyrs, for doctors had laid down their lives to secure the results of which he had spoken, showing exactly the same heroism as ever was shown by the soldier on the field of battle. Mr. Roosevelt spoke of the sleeping sickness, a disease which in one region killed 200,000 out of 300,000 inhabitants, a rate of slaughter infinitely surpassing that of any modern war. The chance to control that disease lay in the work of just such men as, of indeed some of the men who, were assembled there. They had come there, however, to combat not a scourge confined to the tropics, but what was on the whole, the most terrible scourge of the people throughout the world. But a few years ago hardly an intelligent effort was made or could be made to war against this peculiarly deadly enemy of the human race. The chance successfully to conduct that war arose when the greatest experts in the medical world turned their trained intelligence to the task. It remained for them to find out just what could be done. The task then would be for the representative of the government to give all possible effect to this conclusion of the scientific men. Now, more and more, the wisest men of affairs realized that the great chance for advancement of the human race in material things lay in the close interrelationship of the man of practical affairs and the man of science, so that the former could give all possible effect to the discoveries of the most unforeseen and unexpected character now made by the man of science. He felt that no gathering could take place fraught with greater hope for the welfare of the people at large than this. He thanked his hearers for what they had done and were doing. In behalf of the nation he greeted them and he hoped they would understand how much their coming here had been appreciated.

Intertransmissibility of Human and Bovine Tuberculosis.—This was a subject of much dispute and many delegates vigorously opposed Koch's statement in disbelief of the unity of the human and bovine tubercle bacillus and his declaration that, up to date, in no case of pulmonary tuberculosis had it been demonstrated that the infection was due to bovine tubercle bacilli. Before the passing of the resolution on this subject, Dr. Koch said: "Gentlemen, you may pass your resolutions, but posterity will decide."

Resolutions.—The following resolutions were passed by the Congress:

Resolved, That the attention of States and central Governments be called to the importance of proper laws for the obligatory notification by medical attendants to the proper health authorities of all cases of tuberculosis coming to their notice, and for the registration of such cases in order to enable the health authorities to put in operation adequate measures for the prevention of the disease.

That the utmost efforts should be continued in the struggle against tuberculosis to prevent the conveyance from man to man of tuberculosis infection as the most important source of the disease.

That preventive measures he continued against bovine tuberculosis and that the possibility of the propagation of this to man be recognized.

That we urge upon the public and upon all Governments the establishment of hospitals for the treatment of advanced cases of tuberculosis; the establishment of sanatoria for curable cases and the establishment of dispensaries and day and night camps for ambulant cases of tuberculosis which cannot enter hospitals and sanatoria.

That this congress indorses such well considered legislation for the regulation of factories and workshops, the abolition of premature and injurious labor of women and children, and the securing of sanitary dwellings as will increase the resisting power of the community to tuberculosis and other diseases.

That instruction in personal and school hygiene should be given in all schools for the professional training of teachers.

That whenever possible such instruction in elementary hygiene should be entrusted to properly qualified medical instructors.

That colleges and universities should be urged to establish courses in hygiene and sanitation, and also to include these subjects among their entrance requirements, in order to stimulate useful elementary instruction in the lower schools.

That this congress indorses and recommends the establishment of playgrounds as an important means of preventing tuberculosis through their influence upon health and resistance to disease.

The HON. B. F. MACFARLAND, Health Commissioner of the District of Columbia, praised the work of the Congress and pointed to the results as of lasting benefit. He said that out of their deliberations and their wholesome differences of opinion would come instruction for all in the great purpose of preventing disease, preserving the health of the nation, and making the future efficiency of the nations secure.

Closing Features of the Congress.—The foreign delegates delivered their messages of farewell. The felicitations were delivered as follows: Dr. Fermin Rodriguez, Argentina; Dr. Hermann von Schrotter, Austria; Professor Denys, Belgium; Dr. Frederick Montizambert, Canada; Dr. Jee, China; Dr. Juan J. Ulloa, Costa Rica; Dr. Diego Tamayo, Cuba; Dr. Bernard Bang, Denmark; Dr. J. B. Piot Bey, Egypt; Dr. Thomas J. Stafford, Eng-

land; Professor Louis Landouzy, France; Dr. Von Leube, Germany; Mr. R. Bengoechea, Guatemala; Dr. G. Soto, Japan; Dr. Detre, Hungary; Dr. Antonio Stella, Italy; Dr. E. Liceaga, Mexico; Dr. N. Th. Tendelo, Holland; Dr. F. C. Harbitz, Norway; Dr. Martin J. Echeverria, Panama; Dr. S. Trimescu, Roumania; Dr. A. A. Vladimiroff, Russia; Paul G. Wooley, Siam; Dr. Camilo Calleja, Spain; Hon. Conrad Cedercrantz, Sweden; Dr. O. Amrein, Switzerland; Dr. Luis Melean Lafinur, Uruguay.

Place of Meeting of Next Congress.—The next meeting will be held in Rome, Italy, in 1911, on the occasion of the fiftieth anniversary of the occupation of the city by the Italian Government. This was at the invitation of Dr. Antonio Stella, who supplemented his invitation with a greeting from King Emmanuel, communicated through Baron Mayor des Planches, Italian Ambassador to the United States.

SECTION ON PATHOLOGY AND BACTERIOLOGY.

Third Day—Wednesday, September 30.

Relations of Air to the Contagion of Tuberculosis; Sterilization of the Air.—Dr. Samuel Bernheim of Paris concluded from the whole of his work that there exists a close relation between the microbes of the air and tuberculosis. The more the atmosphere is full of bacteria the greater the number of tuberculous people. The name of "disease of darkness" had been given to tuberculosis because microbes in general, and particularly the bacilli of Koch, may be kept for a very long period under shelter of light. Under the influence of the normal habits microbes are cast in the air, men breathe them, the lungs keep them, thus producing infection and contagion. The absence or scarcity of cases of tuberculosis in certain climates (higher altitude or the sea) were proofs of the close relationship between the microbes of the air and tuberculosis. The disease is an exceptional one in those climates where the least proportion of bacteria exists. At a certain altitude no seed may be found in the air. For similar reasons a great number of tuberculous people have been observed in the great centers where the air is saturated with bacteria, in overcrowded districts, in places where meetings are held, in hospitals, in prisons, in schools, in barracks, in great shops, mills, and workrooms. Although not denying the possibility of infection by the alimentary tract, Dr. Bernheim maintained that the frequency of such infections could not be compared to that by respiration. He said the best method to get rid of tuberculosis of aerial origin was to look after the salubrity of towns, the hygiene of houses and solar light must be allowed to penetrate in great abundance. Certain artificial measures could be used to lessen the danger; by means of certain apparatus, such as the tub of Dr. Goupil, or Mr. Silbermann's double current chimney, all microbes of the apartments could be destroyed at once and the air rendered rapidly salubrious. He especially advocated the use of these chimneys in apartments, medical and surgical rooms, amphitheatres, and crowded halls.

Sources of Tuberculous Infection.—Dr. W. H. Park of New York said that in the transmission of the disease from man to man sputum is by far the most important factor, while feces was also worthy of consideration. Milk was practically the only means by which bovine tuberculosis is conveyed to man. The relative importance of the two types of bacilli and the exact conditions under which they were transmitted was still a matter for investigation. Expectoration does not convey the infection to the air until it becomes dry and powdered, but droplets sprayed into the air by sneezing and coughing do infect the air immediately. He believed that patients becoming infected from living in houses previously inhabited by tuberculous patients are few, compared with those contracting the disease by living immediately with the tuberculous patients; that the greatest single source of contagion is the living tuberculous subject in the house. Great difficulty, he said, had been experienced in tracing tuberculosis to infected cattle. As to the bovine and human type of bacillus, the former predominated in tuberculous diseases of the joints and glands, which caused only about 5 per cent. of the deaths, while the latter predominated in diseases of the lungs and meninges, causing about 95 per cent. of the deaths.

Dr. McWharter of Riverton, Ala., said that the milk might be infected by the bacilli floating in the air, but it was not logical to say that such an infection was of animal origin any more than it would be to say that the infection of water in such a way was of mineral origin. He thought that feces was a great factor in the transmission of the disease.

Transcutaneous Inoculation of Tuberculosis.—Drs. J. Courmont and A. Lesieur of Lyons presented this paper, in which, from a large number of experiments, the following conclusions were drawn. In the case of the guinea pig, calf, and rabbit, the skin, although apparently intact, readily allowed the tubercle bacillus to pass through under certain conditions, the principal of which are—The bacillus must be sufficiently virulent; it must not be enclosed in sputum, in fecal matter or in tuberculous lesions; but even under these conditions the experiment might be successful, especially with sputum containing bacilli. If inoculation was positive the skin reacts in one of three ways: It showed no trace whatever of the passage of the bacilli; it presented merely a little induration or scab; or warty tubercles, very small and discrete, were observed. In the case of the guinea pig and the calf the neighboring glands became tuberculous even in the absence of any cutaneous lesion. In the rabbit the lymphatic system escaped. General tuberculosis developed most frequently in the rabbit and in the guinea pig if the bacilli were sufficiently virulent; but in any event, it was much slower than after subcutaneous inoculations. In the rabbit the local as well as the general lesions showed marked tendency to cicatrization. In the guinea pig, when inoculated on the inner aspect of the thigh, the inguinal glands were more severely involved than the crural glands; they become enormous and very frequently suppurated. The glandular lesions from subcutaneous tuberculosis did not coincide accurately with the lesions observed in the transcutaneous form. It was observed that the skin itself, although apparently intact, was far from offering an impassable barrier to the tubercle bacillus. Hence, this portal of entry must not be neglected. Many tuberculous infections might result from a transcutaneous inoculation. Absence of a cutaneous lesion was no argument against this mode of invasion as the bacilli might pass through the skin without leaving any trace.

Contribution to the Question of Percutaneous Infection.—Dr. Isadora Spitzstein of Budapest contributed this paper, presenting the results of a series of experiments in the laboratory of the Königen Louise Sanatorium. The report was made upon the experiments conducted with nine rabbits. The skin of the abdomen of these rabbits was first carefully shaven; 48 to 72 hours afterwards portions of a well-tested, virulent pure culture of the human tubercle bacillus were rubbed into this area; the procedure was carried out with such gentleness that even the slightest traumatic injury of the skin was avoided. One of the animals died after 2½ months, but without development of tuberculosis: the other 8 animals lived; 4 were killed after 3 months and 4 after four months. Neither local nor regional changes could be demonstrated in any of them, nor could tuberculosis be demonstrated in any of the internal organs. Neither did the kidneys or lungs, which in rabbits are predisposed to the disease, show any changes. The conclusions were drawn that if percutaneous infection is at all possible it is certainly the most unfavorable mode of infection for the tubercle bacillus; in the case of the rabbit particularly so, as it is decidedly refractory to the disease.

Flies as Agents of the Dissemination of Koch's Bacillus.—Dr. Ch. Andre of Lyons reported the results of his investigations on this subject. He said flies were active agents in the dissemination of Koch's bacillus, because they were constantly going back and forth between contagious sputa and feces, and food stuffs, especially meat, fruit, milk, etc., which they polluted by contact with their feet and with their excretions. The experimental researches of the author showed that flies caught in the open air did not contain any acid-fast bacilli that could be mistaken for the bacillus of Koch; that flies that had been fed on sputum evacuated considerable quantities of bacilli in their excretions; the bacilli appeared six hours after ingestion of the sputum and some might be found as long as five days later. These flies therefore had plenty of time to carry the bacilli a great distance. Food polluted by flies that had fed on sputa produced tuberculosis in the guinea pig. Flies readily absorbed bacilli contained in dry dust. Flies caught at random in a hospital ward produced tuberculosis in a guinea pig. The practical conclusions were that the sputa and feces of tuberculous subjects should be disinfected; flies should be destroyed as completely as possible; foodstuffs should be protected by means of covers made of wire gauze.

The Possibilities of Infection from Table Utensils at Sanatoria.—Dr. J. Woods Price of Saranac Lake, New York, presented this paper. Forks, spoons, teacups, and milk glasses in constant use by advanced tuberculous patients were examined. First, 30 forks and 25 each of spoons, tumblers, and teacups were chosen immediately after ordinary good washing, but not sterilization; they were cleansed with sterile 5 per cent. sodium bicarbonate solution by means of sterile cotton swabs, and the washings distributed among 56 guinea pigs by subcutaneous injection. All pigs were killed in 41 days and found to be free of tuberculous infection. Several months later 5 articles of each sort, immediately after use and before washing of any kind, were cleansed as described above and the washings injected subcutaneously into guinea pigs. These animals also were killed in 41 days after inoculation and all were found to be tuberculous, except those inoculated with the washings from the milk glasses. Later, the first experiment was repeated with the use of 6 articles of each kind, and the washings were distributed among 12 guinea pigs, with the same result. Smears made on slides from the glands and spleens of pigs used in the first and third experiments and examined microscopically for tubercule bacilli were found to be negative in every instance. He concluded that, while the sterilization of tableware used by consumptives was not to be discouraged, the danger of infection from that source did not seem to be great.

Opportunities for Infection.— Dr. S. Matejin of Budapest performed a series of animal experiments in the laboratory of the Koeningen Elizabeth Sanatorium, to determine to what degree tuberculosis infection could be conveyed through the various factors in the everyday life of a tuberculosis sanatorium. Thirteen guinea pigs and eight rabbits were employed for the experiment. Some of them received subcutaneous inoculation of a suspension in sterile water of ordinary house flies; the flies were first washed off, then dried and rubbed into a fine powder, then suspended in sterile water, which was finally centrifugated. Others were inoculated with the maceration fluid of parts of letters which had been moistened by the saliva of individuals who sought admission to the sanatorium. Still others were treated with wash water from the door knobs of institutions; door knobs used considerably by patients of the institution were washed with cotton pads, moistened with sterile water, the water being then squeezed from them. The last few animals were treated with the wash water from pieces of money handled by patients in the institution. Of the 21 animals only one developed tuberculosis; this was a guinea pig treated with the maceration fluid from one of the letters of an individual seeking admission. It would seem, therefore, that the sum total of light and air, as well as the many provisions to prevent the conveyance of the germ of infection in the conduction of a sanatorium (the careful collection of the sputum, the careful cleansing, the covered state of the cuspidors), in reality attained their purpose.

In the afternoon of this day there was a joint session of the section on bacteriology and pathology and that on tuberculosis in animals.

The Relations of Human and Bovine Tuberculosis.—Dr. Robert Koch of Germany confined himself to the practical side of this question. The results of his experiments, which he had undertaken in connection with Schutz and which he had communicated to the British Congress in 1901, were: 1. The bacilli of bovine tuberculosis were different from those of human tuberculosis. 2. Human beings might be infected by bovine tubercle bacilli, but serious disease from this cause occurred very rarely. 3. Preventive measures against tuberculosis should therefore be directed primarily against the propagation of the human tubercle bacilli. He had not expected his views to be accepted as final, but had asked scientists to repeat the experiments. This had been done. The animals used for experimentation had to be entirely free from spontaneous tuberculosis. Since the earliest stages of tuberculous infection could not be recognized with certainty, this source of error could be eliminated only by experimentation on long series of animals, for experiments on too small a number of animals carried no weight. Single exceptions in long series of experiments usually depended upon experimental error and should be valued accordingly or the whole series repeated. The inoculation of animals should be made subcutaneously with weighed quantities of a culture of tubercle bacilli. The best results had been obtained with doses of ten milligrams. He had never held that the human and bovine tubercle bacilli were two distinct species, but only stated that they differed from one another in certain characteristics, which were of the greatest importance in combating tuberculosis. Some had attempted to refute him by showing that the bacilli of the human type might be transformed into the bacillus of the bovine type and *vice versa* by passage through animals or by cultivation in artificial media. In this connection he repeated that he was interested only in the practical significance of the difference between the two types of bacilli. All competent investigators agreed that the tubercle bacilli of human origin and those of cattle differed. Dr. Koch pointed out these differences and said that to his knowledge the bacilli of the human type had never been demonstrated in cattle, but the bacilli of the bovine type could occur in man. They had been found in the cervical lymph glands and in the alimentary tract. With few exceptions, however, these bacilli were but slightly virulent for man and remained localized. He thought the few cases in which bovine tubercle bacilli had been said to have produced tuberculosis in man were not above suspicion. Of all human beings who died of tuberculosis eleven-twelfths died of pulmonary tuberculosis. One would have expected investigators to have searched for the bovine tubercle bacilli in these pulmonary cases instead of in the cases dying of other forms of tuberculosis. Up to date in no case of pulmonary tuberculosis had the tubercle bacillus of the bovine type been demonstrated. If further investigation should establish that pulmonary tuberculosis was produced by the tubercle bacillus of the human type exclusively, then the question would have been decided in favor of the view which he had upheld, and we must direct our regulations for combating tuberculosis primarily against the tubercle bacilli of the human type.

Relation of Human and Animal Tuberculosis.—Professor Theobald Smith of Boston said that the difference between the bovine and human type of tubercle bacillus could

readily be determined by any skilled bacteriologist, and that it had been found that, roughly speaking, perhaps half of certain kinds of tuberculosis in children, such as those of the glands of the neck and the abdomen, were due to infection from milk. Prof. Smith discussed the doctrine which assumed the possibility of a transformation of the bovine into the human type of the bacillus, and reviewed the various experiments which had been made in Europe and in this country. He agreed with some of the investigators that these bacilli could be modified to a certain extent, but that this modification did not mean a change of type, and that any transformation from one type into the other had still to be demonstrated. He gave illustrations to show that tuberculosis in man might be very prevalent where tuberculosis in cattle did not exist. He held that any regular or wholesale conversion of bovine into human bacilli in the human body was contraindicated by most of the evidence presented.

Dr. G. Simms Woodhead of Cambridge, England, said that in discussing this question he was somewhat hampered by the rules of the English Tuberculosis Commission, which forbade him giving the results of experiments unofficially. On one farm they confined the herd on which experiments with bovine tuberculous were being made; on a second farm at a distance those cattle that were being experimented on with the human bacilli were confined; and on a third the laboratory work was carried on. They had taken the greatest care to have the animals which were being experimented on with bovine tuberculosis free from that disease in the start, and to this end cattle had been brought from the Isle of Jersey where tuberculosis among the cattle was unknown. The same was true with regard to the animals experimented on with the human form of the disease. Thus the objections raised by Dr. Koch had been attended to. They found that the bacilli from a large number of cases of alimentary tuberculosis were virulent enough to produce tuberculosis in cattle, or the bacilli had become so modified after they were ingested into the cattle. In feeding the sputum they took it from sources where everything given the patients, food, dishes, etc., were sterilized. In the German Imperial Commission and in the Royal Commission in England they had found that 20 per cent. of the cases of tuberculosis occurred in children under five years of age, and one-third of these were apparently due to the bovine type of bacillus, isolated from human beings. He believed that the bacillus underwent slow modification in virulence or in morphological characteristics. Many of his opponents followed along the line of Prof. Arloing, who said that it was difficult to establish any distinct difference between the two kinds of germs, but in general the bovine was more virulent. In developing in the human system a variation of type was produced. There seemed to be no ground upon which to base the variation of type. It might be that man presented a lesser receptivity to the bovine type of the disease. A great difference could be detected between human bacilli from different sources. He thought the percentages arrived at by the British Commission open to criticism, and further study and experiment were needed to prove whether bovine tuberculosis could infect human beings.

Variations of Tubercle Bacillus.—Professor F. Arloing of Lyons, France, expressed himself as a stanch adherent of the doctrine of the unity of the tubercle bacillus. In former experiments he had shown that there were great differences in virulence in the lesions of all forms of tuberculosis. The range of virulence extended from a virulence comparable to that of the most active bovine bacilli to an almost complete disappearance of the power to produce tuberculosis. He presented the varieties of bovine and human bacilli which succeeded in producing by special methods of culture which lowered or increased the virulence, or modified the character of the virulence to the point of making it like that of the avian bacillus. He showed that the virulence of the avian bacillus could be modified like that of the bacillus of mammals, either by spontaneous or experimental influences. From the medical standpoint, the variations explain the differences observed in the gravity and course of tuberculosis; they showed the desirability of possessing prognostic aids as well as experimental methods of diagnosis, and they threw an interesting light on the significance of the clinical means which were employed to detect the disease. From the standpoint of hygiene they demonstrated the necessity of taking precautions against the tuberculous virus, whatever might be its origin.

Relations of Human and Bovine Tuberculosis and Tubercle Bacilli.—Dr. Johannes Fibiger and Professor C. O. Yensen of Copenhagen, Denmark, gave the results of comprising studies on the virulence of the bacilli, their morphology, and biology. The virulence of bacilli upon cattle was tested from twenty-nine cases of tuberculosis in man and upon rabbits from twenty-two cultures, eighteen isolated from man, four from cattle. Morphological studies of bacilli were made from fifteen cultures from man and thirteen from cattle. The characters of growth of twenty-nine cultures from man and from cattle were compared. The chemical reactions of bacilli from thirty-two cultures in glycerin bouillon were tested. The growth of bacilli from thirty-six cultures on media free from albumin were studied. Summing up the results, the authors could not admit a sharp separation between the ordinary two well-known types, though it was true that the majority of cultures isolated from cattle possess the qualities described as peculiar to "typus bovinus," and the majority of cultures isolated from human sputum correspond to the "typus humanus." There were some cultures, however, that must be considered as transition forms, having some of the characteristics of the bovine and others of the human type.

Human and Bovine. Tuberculosis Treatment by Different Kinds of Tuberculin.—Dr. Nathan Raw of Mill Road Infirmary, Liverpool, read this paper, the special objects of which were (1) to attempt to classify more easily the various tuberculous lesions of the human body, and to investigate the origin of infection, and (2) to consider the effects of treatment by different varieties of tuberculin, prepared from various sources. Up to the present time it had been the almost universal practice to classify all tuberculosis as of one common origin, to adopt the doctrine of "the unity of tubercle." Robert Koch, in his last authoritative lecture in 1901, said that "human and bovine tuberculosis were distinct and separate diseases, and that bovine tuberculosis, if conveyed to man, could not set up generalized tuberculosis in the human body." Prolonged and careful experimental research had demonstrated beyond doubt that the contention of Koch was right when he affirmed that human and bovine tuberculosis were not identical, but it had been demonstrated that he was in error when he said that bovine tuberculosis could not be communicated to the human. During the last fifteen years the speaker had had the opportunity of observing 5,000 cases of tuberculosis, and of this number, over 3,000 had died in the hospital. He said that he had no reason to modify his views set forth in 1903, viz., "That human and bovine bacilli were divisible into two distinct types of a common species, (1) typus humanus and (2) typus bovinus." The human body was susceptible to both forms of tubercle. The results of his investigations showed (1) tubercle bacilli of the typus humanus produced (*a*) pulmonary tuberculosis; (*b*) ulceration of the intestines; (*c*) tuberculous laryngitis. (2) Tubercle bacilli of the typus bovinus produced (*a*) tuberculous peritonitis; (*b*) tuberculosis of lymphatic glands; (*c*) acute miliary tuberculosis; (*d*) tuberculous joints; (*e*) tuberculous meningitis; (*f*) lupus. The differentiation of the clinical manifestations of tubercle had a most important bearing on the treatment. He believed that tuberculin was a necessity to a thorough eradication of the disease from the blood, and to the production of an artificial immunity.

Koch's Tuberculin R., or the new tuberculin, had proved of little value in the treatment of pulmonary tuberculosis, although it was of the greatest value in treating all infections of a bovine origin. In the treatment of the human infections, such as pulmonary tuberculosis, a tuberculin prepared from bovine sources was necessary. It was his firm opinion that pulmonary tuberculosis was the direct result of inhaling air containing tubercle bacilli, or in some cases of absorbing them through the alimentary tract; he was also convinced that when tuberculosis was eradicated from dairy cows it would be a rare event to see a case of surgical tuberculosis in the human subject.

Studies of Tubercle Bacilli from the Tissues of Special Forms of Primary Cervical Adenitis in Man, with Particular Reference to Intermediate and Atypical Varieties of Bacilli.—Dr. Charles W. Duval of Montreal based his paper on the study of atypical forms of the tubercle bacillus isolated directly from the tissues of four cases of primary cervical adenitis. The clinical picture in each case was the same, and the autopsies showed primary lesions in the cervical region and acute general miliary tuberculosis. Pure cultures of the tubercle bacillus were recovered directly from the cervical pus at the time of surgical intervention. Of the four culture studies, one corresponded to the bovine tpe and another to the human type. The two other cultures were intermediate or atypical forms. One was perhaps a modified bovine strain, the other might have been an avian type modified by a sojourn in man. The cultures had been carefully studied and compared with well known avian, bovine, and human types for a period of over two years. The work treated of the morphology, cultural peculiarities, histopathological lesions, and animal experiments on rabbits, guinea-pigs, rats, pigeons, and chickens. The Theobald Smith glycerin bouillon reaction was critically studied.

The Intertransmissibility of Tuberculosis.—Dr. Charles F. Dawson of the Delaware College Experiment Station, Newark, presented this paper, in which he said that if Koch's idea in regard to the intertransmissibility of human and bovine tuberculosis were correct, sanitary measures restricting the sale and movement of tuberculous animals and their products were unnecessary and were harmful to the cattle industry. More important still was the probable removal of apprehension concerning diseased animals and their products upon the public health. It was generally admitted that bovine tuberculosis was becoming more prevalent, and in proportion as it prevailed did it become a menace to public health. Statistics did not give a true idea of the extent of the prevalence of bovine tuberculosis. It was generally only the herds in which the disease was supposed to exist that were tested. In non-suspected herds it was found that as high as 26.4 per cent. of the cattle were infected in the State of Massachusetts. Experiment station showed that in suspected herds the percentage affected was 35.6, while in non-suspected herds only 9 per cent. showed infection. Tuberculosis in swine was becoming more prevalent and was found in swine fed on dairy refuse, in those which fed after dairy cattle in the field and in those which had access to the manure pile. A tuberculous cow would infect her calf if she had tuberculosis of the udder, or if she were passing tuberculous bacilli in her feces. Tubercule bacilli remained alive in milk and butter for several months. Numerous investigators had shown that the various types of tubercle bacilli might be changed in their morphology and pathogenesis by a sojourn in the bodies of different animals. Non-virulent races were made more virulent, and virulent races were made less virulent by the above treatment. It was at least plausible that the bovine tubercle bacillus should be considered pathogenic for man. Numerous cases had been cited where persons had been accidentally inoculated with the bovine bacilli and developed in some cases fatal tuberculosis, showing that the bovine bacilli were capable of producing the disease when inoculated into man.

Dr. M. P. Ravenel of Madison, Wis., said that a correct solution of this problem was important, because even if the number of deaths from bovine tuberculosis was as small as was estimated, it was not a negligible quantity. All agreed that the human type of the tubercle bacillus had not been found in cattle. It would be interesting to know how the types became differentiated. He assumed that cattle had greater resistance and were only susceptible to types having greater virulence. Only a highly virulent type was retained, the bovine system filtering out the weaker bacilli. This was the best explanation he could think of, and as a corrolary it followed that the filtration was not absolutely exact. Some animals retained more virulent types, others less virulent ones, and so on down to the feebly virulent human type. Like Professor Woodhead, he thought that changes of type could take place; he had inoculated bacilli of the bovine type and afterward found them like human bacilli. In the sputum of cows he had found bacilli very much resembling the human bacilli. It was well known that bacilli could pass through the intestinal walls without leaving any trace of their passage. They could do this in from two and one-half to four hours in sufficient quantities to cause the disease. In some feeding experiments with monkeys it had been shown that animals that had no intestinal disease showed large involvement of the lungs. This had been repeated many times, and the evidence was strong that the bacilli had penetrated to the lungs through the intestine, the lymphatic and the thoracic duct. It had been shown that most cases occurred in children, and this pointed to the intestinal tract as the portal of entry. In children fed on milk known to contain tubercle bacilli a striking number had died of tuberculosis. In his opinion, it behooved us to take every precaution to prevent the contamination of the milk, as he did not consider the number of cases of tuberculosis due to the bovine type of bacillus to be insignificant.

SECTION ON CLINICAL STUDY AND THERAPEUTICS.

Second Day—Tuesday, September 29.

Comparative Importance of Treatment in Sanatoria near at Hand, and an Entire Change of Climate.—Dr. F. I. Knight of Boston in this paper said that while the earlier treatment of tuberculosis had aimed at the relief of the symptoms, that the modern treatment was directed toward increasing the bodily resistance of the individual affected so that he might make a better fight. The sanatorium simply supplied the surroundings in which to develop the most efficient hygiene, mental, and moral attitudes, while supplying a proper climate. Climate had to be considered in every method of treatment, since even the patient at home had the climate in which he had always lived. Therefore, it was not possible to compare abstractly sanatorium treatment and climatic treatment. But if there was to be a choice between sanatorium treatment near home and a life without medical restraint under radically changed climatic conditions, the choice would be for the former. As a rule, sanatoria gave better regulation of the patient than any home constraint, and aimed to supply a humidity, atmospheric pressure, sunshine, and wind velocity adapted to give the maximum stimulation to each patient. Sometimes it was necessary to provide a radical change in meteorological conditions in order to change the factors of metabolism, but the relative value of the climatic factor would be determined only by a careful comparison of the statistics of observations made under similar conditions in different parts of the world.

Dr. C. T. Williams of London read a paper on the same subject. He said that as a rule the sanatoria, by controlling the amount of brain work and bodily exercise, caused at least a temporary improvement in nearly every case. Further, they taught that obedience to orders was the only road to improvement, and they educated the patients in hygiene. These effects were most marked in Eng-

land in the laboring classes. He looked forward to the education of the people until wholesome dwellings would be demanded by all classes. It required a long time to infuse a love of fresh air into the men and women who had been brought up without it, but the children were more hopeful pupils. At home open-air treatment was possible, but it was difficult to attain, for the fresh air necessary for the tuberculous girl was always complained of as making worse the rheumatism in the mother and the ague in the father. Climatic treatment in and of itself without hygiene was known to be the cause of recovery, especially in the instances of patients living at the high altitudes of the Andes and the Alps. One of the most remarkable and undeniable cases demonstrating the effect of climate was that of Gilbert, of a man both of whose parents had died of tuberculosis. The man himself had unmistakable signs before his first visit to the Isthmus of Panama. There he became distinctly worse and went to Quito, at an elevation of over 9,000 feet, with practical recovery in the course of six months. Seven times he had gone from lowlands to the mountains, each time becoming apparently entirely free from signs of tuberculosis. Before his last ascent there had been evidences of cavities in the lungs, marked emaciation, and a severe diarrhea, along with other symptoms that seemed to make recovery impossible, and yet he again had regained health and active vigor. But with the return of health he descended once more to the plains, and died. Hence Dr. Williams considered it proven that altitude would arrest the disease, especially in its early stages and in children, and augment the motility of the chest. Later cases he considered more favorable for local sanatorium treatment.

Dr. C. E. Edson of Denver, continuing the discussion, said that the essential aids in the cure of pulmonary tuberculosis were outdoor life for as nearly twenty-four hours in the day as practicable, sufficient food, and proper rest. That climate was most favorable which permitted or induced an outdoor life. A change of climate would be of advantage to a patient if thereby he was attracted to lead a life in the open air with ease, safety, and economy of vital expenditure. The accompanying change of scene might be expected to act advantageously in an individual way. In making any proposed change of climate, the accommodations in the new region and the possibilities for medical care should be considered. If appropriate care could be had in the better climate as well as at home, the change should be advised, but if the financial, social, or domestic circumstances of the patient were such that he could not in the new climate secure proper and sufficient food, accommodation, care, and attention, or if his mental attitude was such as to make separation from home inadvisable, change of climate should not be encouraged. It needed more than climate to cure.

Diagnosis and Treatment of Early Cases of Tuberculosis.—Dr. Lawrence F. Flick of Philadelphia held, in this paper, that tuberculosis was primarily a lymphatic disease, to be diagnosed by reaction and enlargement of the glands. Immunity might follow lymphatic tuberculosis, or the bacilli might be filtered out in the lungs—the only portion of the body through which the entire mass of the body passed in each cycle, and before it went to the rest of the body after receiving the lymph stream. He said that the apices of the lungs, along their posterior borders, were primarily affected, though the signs seemed to develop more frequently at the right apex. At that stage the diagnosis was not easily made. When the patient developed cough, night sweats, and fever, the case was already well advanced. Any ill health or loss of strength should suggest tuberculosis in persons who had been exposed to contagion. The subjective symptoms of early tuberculosis of the lungs might be cough, hypersecretion of mucus, loss of appetite, malaise, and hypersensitiveness of the nervous system. The objective symptoms were rise of temperature, disturbance of pulse rate, and dilated pupils. The physical signs were slight bronchovesicular breathing over the affected area, a pleuritic rub on expiration, increase in tactile fremitus and vocal resonance, slight bronchophony, and impaired resonance. The physical signs should first be looked for over the back in a circumscribed area. Tuberculosis was still early, both in time and in progress, so long as it was limited to one lobe of one lung, or even a whole lung, provided there was not much tissue destruction. The symptoms in the more advanced stage usually were malaise, gastric disturbance, some sense of shortness of breath, a sense of physical incapacity, cough, expectoration, chilliness or a sense of heat, and loss of appetite. The physical signs were those of bronchial breathing, prolonged expiratory murmur, pleuritic rub, increase in tactile fremitus and vocal resonance, feeble bronchophony, and impairment of resonance. When the infiltration was dense or there was secondary infection, the symptoms all became more marked and dullness on percussion appeared. Later cavity signs appeared. Absence of tubercle bacilli from the sputum should not weigh too heavily against the diagnosis. The treatment of early tuberculosis was the simple life, proper food, fresh air, and medication to restore the body to its physiological functions. Recovery did not mean sterility in relation to the tubercle bacillus, but an arrest in the process of destruction and a restoration to physiological health. In the more advanced stages, with a deficit in the physiological capacity of the organism, more heroic treatment was necessary, in the form of bed and complete rest, followed by gradually increased exercise. The diet should be suitable to the patient, perhaps one solid meal of beefsteak, fresh vegetables, and fresh fruit, and then milk and raw eggs with fruit and nuts between times. It was very important that the patient should have sufficient fresh air. If he could not live outdoors, he should be in a room with cross ventilation. Drafts could do him no harm if he was properly clad. He considered drugs useful. Iodine used by inunction was his choice. Elimination of poisons and microorganisms should be encouraged. The disease could be treated at home in any climate successfully. The home treatment prepared the patient for after life. When proper discipline could not be attained at home, the patient should be sent to a sanatorium in the climate in which he was accustomed to live. After sanatorium treatment had restored the patient to physical health, a course of home treatment should be instituted to teach him to live at home and keep well.

Dr. Lopez of Mexico said that he considered the high altitudes known to the Mexicans, with the even range of temperature all the year round, the best to produce physiological changes and greater efficiency of the blood.

Dr. Pottenger of Los Angeles said that he considered the object of treatment was to produce immunity against the tubercle bacillus. No one climate was necessary for the patients, and 95 per cent. of the patients must get well at home or not at all. The keynote to the treatment was intelligent guidance by a physician, and that was necessary everywhere, for rich and poor, in health resorts and at home. In the early diagnosis he thought that we had very much to learn, for even now infection might be present for years before an open outbreak of the conditions was recognized as tuberculosis.

Dr. Woodcock of Leeds said that one great objection to sanatoria was that while they put the man in good physical condition, they so changed his ideals that afterward he could not live in quiet at home.

X-Ray Examinations in Pulmonary Tuberculosis.—Dr. T. H. Williams of Boston emphasized the points made in his paper of the previous day that the diagnosis of tuberculosis was one of the most serious that had to be made by the practitioner. He might err by failing to make the diagnosis, thus exposing his nearest friends to his disease, or by thinking the condition present when it was not, thus unduly alarming the patient and putting him

to undue rearrangement of his affairs. The *x*-ray in aiding in this diagnosis was of great value, and was most useful in the conditions where it was most needed, in the early cases. If on examination there was found a shortened excursion of the diaphragm, a displacement of the heart toward the affected side, and an increase in density at one apex, and if these changes persisted on a second examination, some two weeks later, the diagnosis of tuberculosis was very probable. On the other hand, if two examinations were both normal, it was better not to make the diagnosis of tuberculosis except on the grounds of the strongest evidence. In later cases the *x*-rays determined calcified scars and central areas of consolidation that could not be determined otherwise. While the *x*-ray examinations were not infallible, they added to our knowledge of the conditions in the thorax and gave fuller, more accurate, or earlier information than the older method.

Dr. Henry Hulst of Grand Rapids read a paper on the same subject. He thought the value of the *x*-ray examination was dependent on the quality of the transformer used to make the rays visible, whether fluorescent screen or photographic plate, and the sensitiveness of the eye of the interpreter. He thought Williams' sign of limitation of the excursion of the diaphragm was not always present in tuberculosis, and when present was not always a sign of tuberculosis. He considered the value of the *x*-ray examination dependent on its positiveness and the completeness of its evidence. And for this the plate was better than the fluoroscopic examination. He got the best results from soft tubes and short exposures taken while the patient held his breath.

Dr. Edward Rist of Paris followed with a paper on the same subject. He considered that as yet the *x*-ray examination was not on a par with percussion and auscultation, principally because the radioscopic work was relegated to a man who devoted his time to *x*-ray work and was not versed in the possible conditions in the lung that called for interpretation. Yet fluoroscopic examinations were always a help in the interpretation of the facts obtained by percussion and auscultation. The post mortem examination and the fluoroscopic examination both regularly showed that the lesions in the lungs were more extensive than had been anticipated after percussion and auscultation. Moreover, tubercle bacilli were found repeatedly in the sputum of persons who were not suspected until the time of the fluoroscopic examination. He thought that rapid photographs taken with a short exposure gave the best results.

Dr. Minor of Asheville said that eight years of experience had led him to the belief that the *x*-rays should always be used in diagnosis, although he did not consider that they would aid in establishing a very early diagnosis. In technique he always started with a tube so soft that the fluorescent screen was dark, and then by means of a series spark gap increased the penetration until he could just see through the tissues, the work being done in a dark room efficient for the developing of photographic plates.

Dr. Leube of Würtzburg said the value of the *x*-rays was greatest in the doubtful cases to relieve the patient's mind if the examination was negative. He did not consider, however, that a negative finding should satisfy the physician, as even then there was still a possibility of the existence of tuberculosis.

Dr. Ritz of Paris thought that the extent of the lesion and the stage of development could be told better by the fluoroscope than by auscultation and percussion.

The Value of Hemoptysis as a Symptom of Early Tuberculosis.—Dr. J. M. Anders of Philadelphia read this paper. He said that the forms of hemoptysis met with in other diseases than tuberculosis usually permitted a clear discrimination. The hemoptysis occurred in the early cases of both the acute and the chronic forms. In acute tuberculous pneumonia, hemoptysis might be the first symptom to arouse suspicion of the true nature of the process. Initial hemoptysis in acute tuberculous bronchopneumonia was comparatively rare. This form might supervene, however, during the course of chronic pulmonary tuberculosis, when it was not uncommonly ushered in by blood spitting. In fibroid phthisis the symptom was rare, but when it did occur the hemorrhage was often copious. In the largest and most important group, chronic ulcerative phthisis, hemoptysis rarely occurred in cases so slight as to defy detection either by a physical or an *x*-ray examination. The importance of inquiring particularly into the previous history for various forms of perversion of the general health could not be too strongly emphasized. Cases of hemoptysis in which all clinical and laboratory findings were negative were still to be regarded as tuberculous until disproven by the tuberculin test, or otherwise. In 3,500 cases, approximately 10 per cent. manifested hemoptysis at the very commencement of the disease.

High Altitude Treatment of Phthisis, with Special Regard to Febrile Conditions.—Dr. O. Amerin of Arosa, Switzerland, showed that in the high altitude of his town tuberculous patients had marked improvement in their fever in all stages of the disease. The tendency to hemorrhage was no contraindication to the high altitude, except when there was increased blood pressure or a pulse rate exceeding 120. Cases of surgical tuberculosis were also improved by the high altitude.

Diet in Tuberculosis.—Professor Irving Fisher of Yale University, in this paper pointed out that the diet employed in sanatoria was unscientific and extremely variable. With important exceptions the diet was the same in sanatoria as in neighboring boarding houses. The variation in the number of calories was from 2,100, sufficient if no work was done, to 5,500, an excessive amount under any circumstances, which must strain the body economy and do harm even in health. It was concluded that 3,000 calories, of which 10 per cent. should be in the form of protein, were amply sufficient. Protein excess was injurious on account of the intestinal putrefaction. There was a strong tendency now against an excessive meat and protein diet.

Dr. H. M. King of the Loomis Sanatorium, Liberty, N. Y., gave a summary of the diet at that institution. He said they no longer considered milk and eggs a specific cure for tuberculosis, but the patient needed a mixed diet with distinct mastication of his food. He thought overfeeding harmful. They had recently introduced a trained dietitian and her assistant in place of the regular cook and had reduced the quantity fed from 3,900 calories to 3,100 with about 130 grams protein, 110 grams fat, and the balance carbohydrate. They used oleomargarine in place of cooking butter, and, after separating the milk, used the cream for cereals, coffee, etc., and the separated milk for drinking. This new régime had diminished the digestive disturbances very greatly and given gains in weight for most of the patients, though a few had lost. The cases under treatment were in all stages, half of them being advanced. All the patients were on carefully prescribed exercise or labor of some kind.

The Opsonic Index in Certain Tuberculous Infections.—Dr. T. W. Hastings of New York City read this paper. He considered the variations found with tuberculous individuals and with normal sera and in patients under and not under tuberculin therapy. He noted the inconstant occurrence of a low index in tuberculous infections; in ten pulmonary cases the index was below 0.6, regardless of the condition. The indices therefore did not correspond to the clinical condition and were not to be used as guides to inoculation. To establish a pathological variation, the safe plan was to estimate indices two or three times a week for two weeks.

The Opsonic Index in the Diagnosis of Pulmonary

Tuberculosis.—Dr. G. P. Sanborn of Boston presented a detailed study in the variation in the index in a case of pulmonary tuberculosis, under conditions of rest, moderate activity, hard work, and after inoculations with tuberculin (B. E.). The duration covered a period of two months, determinations being made according to Wright's methods, from one to three times a day during most of this period. The aim was to gain data on which to base specific treatment, from the study of the degree of autoinoculation that the patient was subject to from his own activities. The study showed that rest and light work might be compatible with a repeatedly normal index; that hard work might produce an elevation in the opsonic power, and that the effect of exercise and of tuberculin on the index evidently corresponded, suggesting similarity of stimuli. The application to diagnosis depended on the change following exercise, which should be varied to suit the case. The determination of the opsonic index gave less discomfort and greater accuracy than the old tuberculin test, avoided the conjunctivitis of the Calmette test, and gave greater accuracy of localization than was possible with either, or with the von Pirquet reaction.

The Accuracy of the Tuberculo-Opsonic Index and Its Value as a Control to Tuberculin Treatment in Pulmonary Tuberculosis.—Drs. H. M. T. Kinghorn, D. C. Twichell, N. M. Carter, and Mr. F. W. O. Werry of Saranac Lake presented this communication. An attempt was made to determine the mean error of a single observation as obtained from series of observations by three all equally accurate observers. This error was determined to be plus or minus 14. They endeavored to get a general view of the effect of the doses of tuberculin on the opsonic indices of the patients. They followed the slow progressive method of dosage according to Trudeau, the drug being given at intervals of three or four days, and at longer intervals when large doses were reached. They did not control the doses by the opsonic index according to Wright's method, but critically examined the effects of the doses on the index. They found that the index was raised by the injection of tuberculin; that in the majority of the tests negative phases occurred, followed by positive phases; that when they gave the drug at intervals of three or four days, or when doses of one-quarter the usual strength were given, when the index was still low, the index was rarely depressed still farther, but a positive phase at once set in. That in only 19 per cent. of the cases had the positive phase not ceased before the next injection was given. They thought that while it was quite impracticable to use the test each day on each patient on account of the time required, yet the test had showed itself of value in regard to spacing the doses. They thought the aim of the tuberculin treatment was to produce tuberculin immunization rather than merely to keep the index high, and that there was greater advantage in getting the patient able to stand large doses than in keeping the index high by small doses.

The Tuberculo-Opsonic Index in Diagnosis and Treatment.—Dr. Mary C. Lincoln of Chicago said in this paper that she had found variations of 0.3 to 0.4 in slides that should yield the same count, and therefore no rise or fall of less than 0.4 should be considered a change in the index. Moreover, the index did not follow the dilution of the serum. In comparative tests of the index, von Pirquet's skin test, and Calmette's conjunctival test, there was an agreement in 80 of the series of 200 cases, and the two latter agreed in contrast to all three in 605. The more advanced the disease the less was the reaction as a rule.

Dr. J. von Szaboky of Budapest-Gleichenberg presented a paper on the same subject, which was read in abstract.

The Application of the Cutaneous and Conjunctival Tuberculin Reactions in the Diagnosis of Tuberculous Infections.—Professor A. Calmette of Lille read this paper. He said that 92 per cent. of tuberculous patients gave positive reactions to the conjunctival test. Of clinically suspicious cases, 57 per cent. were positive, and of apparently healthy people, 17 per cent. were positive with the same test. Of 55 cases with positive conjunctival reactions not suspected of tuberculosis, which came to autopsy, macroscopic tuberculous lesions were detected in 49. In over 6,000 cases tested, the only complications noted were: In 3 phlyctenular keratitis, in 20 conjunctivitis, and in 72 a reaction prolonged beyond three weeks. In no instance did graver disturbances occur. Early reactions were observed most frequently in suspected tuberculosis, and late and slight reaction in well-developed cases. Cachectic and hypertoxic infections reacted very feebly in conjunctival, cutaneous, and subcutaneous tests. The eye test almost always revealed active foci, but was negative in the case of simple carriers and in patients with healed lesions, who often reacted to the skin test. Repeated instillation seemed to produce immunity in about 5 days, which disappeared in about 25 days. For children under one year the cutaneous test was to be preferred as the more convenient and inoffensive. In adults the number of positive results following the skin test was so great that it could not be used for early diagnosis, so that the eye test was to be preferred both in children over one year and in adults.

Observations on the Cutaneous Tuberculin Reaction in 200 Children Examined Post Mortem.—Dr. C. von Pirquet of Vienna gave the results of his experience with the cutaneous reaction to tuberculin. Koch's old tuberculin was used. The conjunctival reaction of Calmette was not satisfactory in young children on account of the difficulty in making equable tests in struggling children. Of 200 cases, some suspected and some not, 68 were positive and 66 of these showed macroscopical tuberculous lesions at autopsy, and one of the other two had a pleuropericardial adhesion. Therefore, every positive reaction showed the presence of active tuberculosis. The absence of reaction occurred in all cases without tuberculosis and in several cases with tuberculosis, particularly in older children, when the test was made only a few days before death, in some cases where the tuberculosis was complicated by measles, and in some other cases. In measles existing at the same time as tuberculosis, the cutaneous reaction was negative during the first week, but in the later weeks of measles the test might be positive. The skin reaction allowed of quantitative estimation. A marked reaction indicated great danger to life if the patient was under six months of age. In the older children the reaction did not indicate such a serious outlook.

Conclusions from 1087 Conjunctival Tuberculin Tests by a Uniform Method.—Dr. E. R. Baldwin of Saranac Lake had collected reports from 40 clinicians to whom the same tuberculin had been sent with eyedropper and directions to follow a uniform method of testing and recording results. All the tests were made inside of a period of three months. Of the tuberculous cases, 70 per cent. reacted positively. Severe reactions occurred in more than 2 per cent. of the cases. He concluded that the conjunctival test performed with weak solutions by a single instillation had some value in confirming the presence of tuberculosis in the early stages. Repetition of the test might be misleading. The test was unreliable for prognosis. Used with proper precautions, danger to the eye was slight and need not preclude the test when other methods were inapplicable, as when fever was present.

The Ophthalmoreaction to Tuberculin.—Dr. Fernand Arloing of Lyons said that in the use of the ophthalmic reaction, if the first reaction was negative, there might be a positive reaction to the second or third instillation. A previous ocular reaction was frequently revived by the cutaneous or subcutaneous injection of medicinal doses of tuberculin, but this did not contraindicate the employment of the two procedures in the same person. A previous use of tuberculin had a very variable effect

on a subsequent ocular test. As the result of animal experimentation he concluded that the ocular reaction to tuberculin occurred in individuals impregnated and sensitized by a toxin of any kind. The test had not proved itself superior to the serum agglutination which had the advantage over the ocular reaction of being absolutely harmless, more constant, and more delicate; that the ophthalmoreaction was an indication rather of the degree of intoxication to the organism, while the serum reaction revealed the forces available for defense against infection.

The Application of the Differential Cutaneous Reaction in the Diagnosis, Pathology, and Therapy of Tuberculosis.—Dr. L. Detre of Budapest described his differential cutaneous reaction. It was a modification of von Pirquet's reaction, consisting of the application to the skin of three different substances at the same time—concentrated old tuberculin, filtrate of a culture of human tubercle bacilli, and filtrate of a culture of bovine tubercle bacilli. The cutaneous reaction was an indicator of the sensitiveness of the organism. The cases could be divided into those which were positive to the human and negative to the bovine toxin, and *vice versa*, and the author distinguished a dominant papule and a concomitant papule. The difference between the two was sometimes very slight. Investigations showed that the cutaneous picture remained the same qualitatively after repeated examinations; that a human case always remained a human case; that when both toxins were injected subcutaneously the subjects showed a greater tolerance for a toxin which corresponded to the concomitant papule, while they were exceedingly sensitive to the dominant filtrate. He showed that more than 90 per cent. of the cases of pulmonary tuberculosis exhibited a preponderance of the human reaction, whereas in the visceral and surgical cases in adults the bovine reaction might be demonstrated in one-third to one-half of the cases. By means of the systematic employment of the differential cutaneous reaction, it was possible to immunize a patient with greater ease and certainty than without it. The technique was simpler, the results objective and more certain, and more easily perceived than the results of the opsonin method.

Third Day—Wednesday, September 30.

The Treatment of Tuberculosis by Tuberculins, and More Especially by Beraneck's Tuberculin.—Professor E. Beraneck of Neuchatel, Switzerland, showed that it was possible to confer upon inoculated animals marked resistance to experimental and natural tuberculosis. The difficulties encountered in these attempts at vaccination were due to the biochemical character of Koch's bacillus. Although the tubercle bacillus might act as a vaccine, it could not be used in its natural state in the treatment of a patient with tuberculosis. Here it was necessary to use the toxins either excreted from the body or constituting the substance of the bacillus, and that the immunizing properties of the tuberculin toxins did justify the utilization of these toxins in a specific treatment of tuberculosis.

The Filtered Bouillon of the Bacillus of Human Tuberculosis as an Agent in the Specific Treatment of Human Tuberculosis.—Professor G. Denys of the University of Louvain, Belgium, described his product as the liquid obtained by filtering through a porcelain filter a culture of the bacillus of human tuberculosis, fully developed in bouillon. This product was used without further treatment by heat or chemicals, and was equivalent to the diphtheria and tetanus toxins from which the antisera were derived. Subcutaneous dosage in tuberculous patients produced reactions analogous to those of other tuberculins: Cutaneous inflammation at the site of the puncture, general rise of temperature, nervousness, malaise, weakness, loss of appetite, etc., and specific phenomena in the return of general symptoms or the appearance of new ones. Great variation, from 0.0001 to 0.000001 gram and less, in the dose was necessary to produce these effects. The writer was convinced of the possibility of curing tuberculosis by this means by causing large doses, 0.1, 0.5, or even 1.0 gram, to be tolerated without appreciable injury to health. The writer was convinced of the necessity of avoiding all strong or moderate reactions in immunizing the patient, and of tolerating only exceptionally, light reactions. In general, he began with doses of 0.00000005 grams for afebrile patients, and 0.0000000005 for even slightly feverish ones. He never injected during or just after a reaction, but waited one or more days, and never increased the dose if there was any reaction whatever. In general, the adaptability to the injections and improvement went hand in hand. By this treatment he attained almost certain cure in close tuberculosis of the lungs; the more complete results were with the less advanced lesions. He also found a large proportion of cures by this bouillon filtrate in pleurisy, laryngitis, enteritis, peritonitis, adenitis, osteitis, arthritis, cystitis, etc., and got failures in the rapidly advancing cases, probably from lack of time to immunize the patient. These results were attained without sanatorium help, but other forms of treatment were not excluded.

Human and Bovine Tuberculosis, with Special Reference to Treatment by Different Kinds of Tuberculin.—Dr. Nathan Raw of Liverpool read this paper. He thought that the two types of tubercle bacillus recognized as human and bovine were distinctly different strains, and that both might cause lesions in the human body. He did not think that all of the tubercle bacilli obtained from man were of the human type, but that one-tenth of the human lesions were due to the bovine type of bacilli. The human type injected into cattle might produce lesions of great or little virulence. He considered that the human body had become tolerant of the bovine type from the consumption of contaminated milk and meat for generations. He thought that the bovine type affected the so-called surgical portions, whereas the human type affected the lungs most often. The lungs might become infected either from the inhalation of the germs directly or by secondary infection from the cervical or abdominal lymph glands, or from the blood stream, as in acute miliary tuberculosis. Of these the aerial infection was the most common. That the bovine infection in the lungs gave a more active process; that the surgical lesions due to bovine infection came in most cases from milk infection in infancy, and might lie dormant for years. He considered treatment by tuberculin very valuable, but that the two types should still be distinguished. That the pulmonary tuberculosis should be treated by the bovine tuberculin, and the surgical tuberculosis by the human tuberculin, giving each the stimulation of the opposite but allied type of bacillus from that which was the cause of the lesion. That to attain cures the lesions should be small; that in general tuberculosis little effect could be expected, and in the young response was better than in the older patients; that concurrent diseases, such as nephritis, seemed to interfere with the treatment by tuberculin. Glands of the neck gave many cures, but if suppuration had set in the tuberculin had no effect. Lupus gave very satisfactory results apart from all other treatment; that joints did well in sinus cases, but anchylosed joints did not as a rule show any improvement. Peritonitis was cured in all the cases. In meningitis some benefit was seen, but most of the cases came to treatment late. He had never seen bad effects from the treatment.

Dr. Pottenger said that he had been using bovine and human sera for three years, and considered those used different, giving different degrees of reaction. He said that one would increase the toxicity of the patient, and the other relieve it, and that one would give local reaction when the other did not; that at times after using one type for a while the other gave better results. The acute processes did better with bovine and the chronic with human tuberculin. He believed tuberculin of one type when injected stimulated antitoxins of the allied type.

Dr. Phillip of Edinburgh said that he had found only good to come from the use of tuberculin in routine treatment, but that the results were limited anatomically and physiologically. Anatomically in such conditions as pulmonary tuberculosis, where, after the process had progressed to a certain point, the adhesions to the uncollapsible chest wall prevented further scar formation; and physiologically, limited by the inability of the body to cope with extensive and generalized lesions. He now used Beraneck's serum because he had found it less toxic and not less efficient than others.

Dr. Denys said that he used human bacilli exclusively because he believed the typus humanus was the cause of the lesions. He did not believe that mixed infections warranted the use of antistreptococcus sera with the tuberculin because he had tried the killed bouillon cultures with no effect.

Dr. Beraneck also did not believe in the efficacy of the antistreptococcic sera in the cases of mixed infection.

Antibacterial or Antitoxic Immunization in Tuberculin Treatment.—Dr. E. L. Trudeau of Saranac Lake read this paper. He said that there were in the tuberculin treatment two theories as to the method of action of the tuberculin: The vaccination theory, which claimed to bring about by injections a specific immunity to the tubercle bacilli, and the toxin theory, which aimed merely to produce by steady slow progression in dosage, the greatest degree of tolerance or immunization to the poison of the bacillus. Under the first concept, the specific immunization to the bacillus, were Koch's later attempts at producing an immunizing tuberculin, both local and focal reactions being looked upon as useful in the production of the specific immunity to the bacillus; also the work of Wright and his vaccine treatment, guided by the reading of the opsonic index. Under the toxin immunization theory, of which Denys and Sahli were the most brilliant exponents, the main feature of the treatment was to produce by progression in dosage the highest tolerance possible to the tubercle bacillus, considering reactions and all constitutional disturbances, as not only not desirable, but to be avoided. Certainly the violent reactions were not helpful, and the mild reactions were still of doubtful value, for as good results followed the absence of even the focal reactions. Dr. Trudeau believed in an immunity that was principally at least antitoxic as produced by treatment; and tuberculin toleration was its essential feature and best guide to dosage. On this plan, treatment tends to raise the degree of tolerance to tuberculin to the highest point attainable, by an almost imperceptible and long-continued progression in dosage; to avoid general and focal reaction, and regard them merely as evidence of intolerance; to follow no rule as to rate of increase or maximum dose to be reached, but to be guided merely by the tolerance of each patient, as shown by the general condition, whether the highest individual dose be a small fraction of a milligram or a cubic centimeter, or more. This antitoxic theory did not explain all the good results attained in the localized lesion, and so was not entirely satisfactory, but was preferred by the writer.

In reply to a question, Dr. Trudeau said that he used now Denys's filtrate, which had the advantage of not being boiled, and gave a less violent reaction. He did not believe in the theory of opposed vaccines of Dr. Raw, as all the fame that had been gained by tuberculin treatment had been in the attempt to treat the condition by an homologous bacillus.

Temporary Hypertension as a Cause of Certain Hemoptysis in the Tuberculous, and the Hypotensive Medication in Such Cases.—Dr. M. Gaultier of Paris read this paper. He believed that in a certain per cent. of the cases of pulmonary hemoptysis the direct cause of the bleeding was hypertension. This he had controlled in a number of cases by using an aqueous extract of mistletoe (viscum album), which seemed to have a prompt but lasting effect in reducing general blood pressure by action on the central nervous system, thus controlling the hemorrhage in every case. He gave .05 grams at a dose and .30 grams in the course of a day, one dose being given every two hours hypodermically, and at night morphine for sleep.

Untoward Effect Following the Use of Maragliano's Serum.—Dr. H. R. M. Landis of Philadelphia presented this communication. He found that 17 per cent. of the cases treated showed marked hypersusceptibility to the serum, shown in the suffusion of the face, cardiac oppression, rapid pulse, muscle tremors, etc., coming on promptly after the injection of the serum. He had had no fatalities. That this hypersusceptibility seemed to persist in some cases through the rest of life, and might be transmitted to the offspring. These cases differed from the anaphylactic phenomena seen in the guinea pig in having no definite time for its occurrence. All the cases had been advanced or moderately advanced disease, and were confined to bed. Ambulant cases did not seem to develop anaphylaxis; four of six cases had the serum disease.

The Maragliano Serum Treatment at the Phipps Institute.—Dr. Lawrence F. Flick discussed the introduction into America of this mode of treatment, following a paper read by Maragliano, in which he announced that it was possible to produce a specific therapy for tuberculosis and that it was possible to immunize the animal organism against tuberculosis. The Phipps Institute sent men to Maragliano's laboratory to study his methods and the methods of other men in Europe. It imported some of Maragliano's serum for use in the institute and had the serum made by the man who studied with Maragliano. The consensus of opinion of twenty members of the staff who used the serum was that it had no specific value. The cows used for making the serum were tested for tuberculosis and found free from it. They were guarded against infection and immunized by injections recommended by Maragliano. The serum given by them seemed to be as satisfactory as the imported serum. Later one of the cows died of general tuberculosis and was found very extensively diseased. The other cow was then killed, and she was found to be slightly tuberculous. This brought up the questions: Can an animal give an immunizing serum and itself not be immune? Does the withdrawal of the serum from an animal deprive it of its protection against the tubercle bacillus? The questions were not answered.

SECTION ON SURGERY AND ORTHOPEDICS.

Second Day—Tuesday, September 29.

Retroperitoneal Tuberculous Glands and Their Relations to Spinal Symptoms (Tabes Mesenterica).—Dr. Charles F. Painter of Boston read this paper. He said there were many intraabdominal and intrathoracic pathological conditions which often confused the diagnosis of tuberculosis of the spine. Any pathological enlargement of the organs of the abdomen, perinephritic abscess, aneurysm, etc., might cause more or less impairment of the movements of the spinal column and give rise to confusion in diagnosis. But among the most common of these causes of confusion were accumulations of tuberculous glands in the mesentery or behind the peritoneum. He wished to lay special emphasis upon that class of cases which fell short of tabes mesenterica and which caused spinal symptoms. A study of the anatomy of these glands would show their close relationship to the spinal column. The glands lay so close to the spine that they might erode the bone and point to the spine as the seat of the lesion. A large majority of the glandular enlargements in this region were apparently tuberculous. The finding of caseation and calcification was sufficient to establish a diagnosis of tuberculosis, and it was not necessary to demonstrate the presence of the tubercle bacillus. There was an abundance of evidence in the litera-

ture to show that the tubercle bacillus could gain access to these glands through the alimentary tract without producing any detectable lesions in the mucous membrane of the intestine while passing through it. The symptoms were pain and stiffness in the spine, and difficulty in getting to an erect position. In some cases the pain was slight or absent. The advent of the disease was slow. In some cases there might be swelling of the lower abdomen and thigh. This did not indicate disease of the psoas muscle, and did not give rise to flexion of the thigh. An examination of the spine would show rigidity, and possibly some kyphosis, but the latter was not sufficiently angular to indicate spinal disease. As the patient improved the kyphosis would diminish and finally disappear, which was not the case in spinal disease. Palpation of the abdomen might or might not show enlarged glands. The treatment was hygienic, operative, mechanical, and largely constitutional. In the main, the prognosis was good.

Dr. Wisner R. Townsend of New York said he appreciated the importance of these conditions which simulated spinal disease, and he thought the Boston school of orthopedics deserved a great deal of credit for bringing forward more information on these subjects. It seemed to him that the most important thing they had done in the last few years in regard to spinal lesions was in having made it possible more clearly to differentiate the symptoms. It was unfortunate in this class of cases that an early diagnosis often could not be made. But it was a very good thing to call attention to the fact that these conditions did exist, and that they were not as uncommon as had generally been supposed. A great many escaped observation entirely, being treated as lumbago, etc., whereas in reality they were the beginning symptoms of a more serious condition.

Dr. Charles N. Dowd of New York asked what experience the writer had had in the removal of the mesenteric glands in these mild cases. He had had experience in the well marked cases of tabes mesenterica, and had been very much surprised to find how easy it was to remove large masses of these nodes and to get a good healing. He had not had any experience, however, in operating on the class of cases referred to in the paper. Surgery surely offered a very promising field of treatment for this condition, and he wished to know whether the writer of the paper had operated upon any of the cases.

Dr. Painter, in closing, said that a good deal of work had been done on the aggravated form of these mesenteric enlargements, but he had not operated in any of the cases of the milder type. He had been unable to persuade surgeons as to the advisability of making laparotomies in these cases. On the other hand, he had seen some very serious cases, which the surgeons had considered hopeless, and in which spontaneous recovery had taken place. Therefore, the determination of what cases should be subjected to surgical treatment was still an open question.

The Surgical Aspects of Tuberculosis of the Lungs and Pleura.—Dr. Samuel Robinson of Boston read this paper. Surgery could claim little credit for the progress in the cure and prevention of tuberculosis. Not only was the history of intrathoracic surgery characterized by slower progress than the surgery of any other region in the body, but of lesions within the chest those of a tuberculous nature had been especially unyielding to surgical interference, and had given little encouragement to operators to invade this region. The literature supplied us with rather a discouraging story of tuberculous cavities drained by thoracotomy, in which the patient's general condition was at least temporarily relieved, although the course of the disease was seldom arrested. There were a few reported cases of partial or complete pneumonectomy in which the patient's life had been abbreviated either by the shock of the operation, by the existence of pneumothorax after the closure of the chest, or by collapse of the lung of the unoperated side due to injury of the mediastinum. In those few cases in which the operation could be regarded as successful, a fatal outcome had been the result, owing to the increase and spread of the disease from the remaining lobes of the opened side and to the transmission of the infectious material across to the opposite lung. The twentieth century had already witnessed an advance in the technique of intrathoracic surgery by the introduction of the negative pressure method of avoiding the dangers of pneumothorax, and also by the perfecting of the positive pressure method of obviating these dangers. The investigations of Sauerbruch, Brauer, Matas, Smythe, Greene, Janeway, Mayer, Tuffier, Seidel, and himself had proved that an exploratory thoracotomy was attended under the new methods with no greater danger than an exploratory laparotomy. Those investigators would also agree that the partial or complete removal of one or two lobes of either lung was an operation which could be regarded as attended with little danger to the patient. The latter conclusion was based largely on animal experimentation, but it was a well-known fact that the human thorax was less prone to infection and less susceptible to the dangers of pneumothorax than that of most aniamls which had been used in animal experimentation. The human mediastinum being a comparatively unyielding structure, the conditions of the unopened side of the thorax were not as unfavorable as was the case especially in the dog. Fifteen operations had been done upon the chest of rabbits without the use of any apparatus, and of the last ten operated upon eight were still living. Granted, however, this newly justified procedure of thoracotomy for exploration of partial pneumonectomy, the writer asked what could be said as to the prospects of successful surgical attack on pulmonary tuberculosis? An insufficient number of cases had been operated on since the perfecting of the new apparatus methods from which to draw any conclusions. It was to be regretted, however, that the cases most suited to operative interference were also the ones commonly recognized as promising for hygienic results, that is, those cases of isolated foci confined to one or two lobes of one lung. With the help of the *x*-ray such cases were early recognized, even before physical signs were diagnostic, but the internist would hesitate to turn such a case immediately over to the surgeon for lobe excision until he had resorted to general treatment. Having failed in the latter, the case would then be a far less suitable subject for the total excision of the diseased area, owing to the extension of the infection, to the involvement of other lobes, and even to the direct transmission of infectious material to the opposite lung. In other words, it could no longer be justly stated that tuberculosis of the lung and pleura was out of reach of the surgeon, but the question remained an open one as to whether drainage or excision of tuberculous foci in the thoracic cavity could ever result in the removal of the infection. It was at least to be hoped that the disease might be more successfully attacked by vaccine therapy and hygiene if the larger cavities of infectious material had meanwhile been excised or drained by the surgeon.

Dr. Emil G. Beck of Chicago spoke of some experiments which Dr. Opie of the Rockefeller Institute, New York, had been carrying on. Dr. Opie had infected the pleuræ of dogs with tuberculosis, and after they had developed the symptoms of tuberculous pleurisy, the pleural cavities were injected with white blood corpuscles obtained from the pleural cavity of a healthy dog after the injection of an irritant. Dogs that had been treated in this way and killed after a certain period of time showed that the pleural cavity had nearly healed, while the animals which were not treated in this manner died with the general symptoms of tuberculosis. As stated by the author of the paper, at least seventy-five per cent. of all empyemas were the result of tuberculosis of the pleura and lung, and he believed that Dr. Opie's method, if further experiments had the same results, would be one way of attacking tuberculosis of the lung. Dr. Beck also mentioned his method of treating empyema and tuberculous pleurisy by the injection of a

bismuth paste, the details of which would be given in a paper to be read by him later in the week.

Dr. Russell Bellamy of Wilmington, N. C., said the chasm between the normal and abnormal was sometimes wide, but he believed that the work done by Dr. Robinson in these ten rabbits was a tremendous step forward. Even if he was not successful to the extent of being able to attack the abnormal, his paper would be heard or read by someone who would be able to bridge this chasm, and soon surgeons would be able to approach tuberculosis of the lung as the reader of the paper had suggested.

Dr. H. Berlin of Chattanooga, Tenn., said we had been able to do something with negative pressure, and if we could get a positive pressure apparatus that was successful he thought we would be able to do much more. Lung abscesses could be opened by this method, but what could we expect in a general tuberculosis of the lung? We might be able to remove one or even two lobes of a lung, as had already been done in animals, but in what way would it benefit the patient to have this done?

Dr. Robinson said that although operations had been done without apparatus, it was impossible to say the patient would not collapse on opening the pleural cavity. The rabbit experiments had been very gratifying. In the thirty operations on dogs the operations consisted in removal of a greater or less portion of the lung, and out of the thirty operations there were twenty-one recoveries. The deaths were largely in cases where an attempt had been made to remove the entire right lung. In these operations it was absolutely necessary to have the apparatus going. If it broke, the animal went to pieces at once. By pulling the lung into the opening in the chest wall, the symptoms of collapse could be arrested. A great deal of the surgery of the chest in the last fifty years had consisted in this procedure. In his experiments with rabbits he had first begun by pulling the lung out through a small opening, but the lung tore at once, because of its delicate structure. Then a wide and long intercostal incision was made, a ligature was put around the lung root, and it was then amputated. After two operations, one day the apparatus did not work very well, and the animal seemed to do just as well. After that the apparatus was discarded. The animals were etherized, and the chest opened widely. There was no sign of dyspnea during an operation lasting an hour and a half. In the first few he was not familiar with etherizing the rabbits and he lost some of them on that account, but of the last ten operated on, eight were still alive. The question was, "Which do the human tissues most resemble, those of the rabbit or those of the dog?" He was convinced that the disastrous results in dogs was due to the mobility of the mediastinum, which was not the case with the rabbit. In the rabbit the heart seemed to occupy a greater portion of the mediastinum than was the case in the dog.

Tuberculosis of Cervical Lymph Nodes. Report of 275 Cases Treated by Radical Extirpation.—Dr. Charles N. Dowd of New York read this paper and illustrated it with numerous lantern slides. The disease was a serious one, probably with a mortality rate little below 50 per cent. when untreated. It was particularly adapted to radical treatment, and was the only form of tuberculous infection which could be eradicated without removing a single important structure. The important structures in the neck were in the soft parts, easily pushed aside, and the infection almost invariably appeared first in one group of glands. It was a form of tuberculosis not suited for medicinal treatment, and reports from sanatoriums showed that such cases did not improve under medicinal treatment. During the last fourteen years he had treated 275 cases by radical extirpation, and the cases had been carefully followed from year to year. There had been only one death in the entire series, and that was due to a secondary hemorrhage from the jugular vein. The percentage of cures was apparently about 80 per cent., with another 10 per cent. or more of improvements. Secondary operation was necessary in 16.7 per cent. of cases. Operation was usually a scar-saving procedure. By making a transverse incision the folds of skin in the neck would often almost hide the scar. The existence of hard nodules after operation was often puzzling, but it had been shown that these did not indicate tuberculosis.

Dr. E. M. Sala of Rock Island, Ill., said he had had very good results in these cases with the *x*-ray treatment. There was no question in his mind but that the *x*-ray would make these nodules disappear in a reasonable length of time. His custom had been to give them about ten minutes' exposure with a good strong light at a distance of five or six inches from the tube. He had had no severe burns at this distance. Surgery was the proper course of procedure, but where for any reason that could not be resorted to, good results could also be had from the use of the *x*-ray.

Dr. Charles H. Mayo of Rochester, Minn., said children under eight seldom required operation. The focus of infection should be eradicated, if possible, that is, the enlarged tonsils, adenoid conditions in the throat, and nasal troubles. If after such treatment there still remained for a long period enlargement of the glands of the neck, then the operation would be indicated. Later in life the bulk of these cases should be treated, not only by the removal of the local focus, if that could be done, but the removal of the glandular system as well. Treatment by the *x*-ray did leatherize the tissues, producing a great deal of sclerotic tissue. It was best to recognize only three groups of glands, a deep group on each side, and a submaxillary and submental group. If tuberculosis attacked one gland the whole group must be removed. The lymphatic system was very closely connected with the blood, and it was no farther to the lungs through the lymphatics than it was through the air passages. Recurrence took place because the entire group of glands had not been removed.

Dr. Emil G. Beck of Chicago spoke of the use of bismuth paste in the treatment of sinuses in connection with tuberculous glands of the neck. Only three cases had come under his observation which could be treated by this method, and two of those had been reported by two physicians from Mississippi who had injected the bismuth paste into sinuses which were left after operation. He had himself treated only one case, and in that case he had used it to prevent a sinus. This patient was so diseased with tuberculosis and had so many sinuses in his body that operation was not advised, but one of the glands was suppurating and ready to open. It was opened with a very small incision, the bismuth paste injected, and it healed without a sinus. Of course, it might have healed up spontaneously anyway. Where any tuberculous tissue had been left within the tract of the sinus, or where these sinuses had become infected by a remaining tuberculosis, it had been proven that all the microorganisms would disappear from the secretion in three or four days following the injection of the bismuth paste.

Dr. Dowd in closing said he had found one class of cases particularly in which the *x*-ray treatment was valuable. That was the class in which the infection was very virulent. The tissue resistance was very low. Such a patient perhaps would have the sternocleidomastoid muscle involved. The glands might be removed as thoroughly as possible, but a few weeks after operation there would be a diffuse swelling in the area of the operation. These cases were particularly unfavorable for further surgical work. Nothing would remove the tuberculosis short of the most radical possible procedure, taking out the muscle or as much as might be involved, and taking out the nerves that might be involved. That might be done for cancer, but he did not believe it wise to do it in tuberculosis. These cases did very well under *x*-ray treatment. There was also a large number of cases which would do well under *x*-ray treatment which were not of this type. But a good many

cases would also do well under any form of treatment, or under no treatment at all, and it was that fact which made it difficult to have a suitable comprehension of the subject. It was safe to say that at least half the cases would get well if we did not do anything for them. But there was a great difference between this number and the 85 or 90 per cent. who would get well if operated on as much as needed. As to operations on children under eight years of age, he believed that depended on the environment. In the tenements of New York, for instance, one would see frightful cases under eight years, and he was sure many of these cases needed operation. However, he agreed perfectly with Dr. Mayo that there were many others who would get well without operation.

Third Day—Wednesday, September 30.

Two Clinical Cases Suggesting the Surgical Possibilities in Tuberculous Meningitis.—Dr. H. P. Stites of Paducah, Ky., reported two cases of tuberculous meningitis in which he had trephined the skull and established drainage, followed by recovery. The first case was that of a child 10 years of age. A medium-sized button was removed from the skull in the temporoparietal region just above the lateral sinus of the left side. The location of the opening was suggested by the marked symptoms on the right side of the body. The membranes bulged into the wound, and a free incision was made. A quantity of serofibrinous fluid escaped, in which tubercle bacilli were later demonstrated. The child regained consciousness immediately after recovering from the ether. On the eighth day after the operation the wound was allowed to close, and alarming symptoms appeared, but they were immediately removed on re-establishing drainage. The patient recovered entirely, and was now well. The second case was that of a man 29 years of age. Here, also, tubercle bacilli were found in the discharge. Recovery as in the other case. The author believed that surgical interference would save life in many cases.

Tuberculosis of the Breast.—Dr. William Rodman of Philadelphia read this paper. This disease had been considered very rare. A study of 1,500 cases of disease of the mammary gland in St. Bartholomew's Hospital, London, had shown 1.5 per cent. of that number to be tuberculous. It occurred most commonly between the ages of 25 and 35. The pathological forms were: the discrete and confluent forms, intramammary abscesses, and acute miliary tuberculosis. Tuberculosis was rarely associated with carcinoma, the author having been able to find but five cases in the literature, and one case of his own. The discrete form was very difficult to recognize; the confluent form very easy. It was apt to be confounded with actinomycosis, syphilis, and carcinoma. The prognosis would depend largely upon whether the disease was primary or secondary; in the former good, in the latter bad. Surgical treatment consisted in curetting and excision or amputation of the breast. It remained to be shown whether anything short of amputation of the breast was a safe remedy. At the same time, that was a serious remedy, and would often be objected to by young unmarried females. In such cases it was better to perform plastic resection, and then amputation later if necessary. He believed that vaccine therapy and Bier's hyperemic method should be used only as valuable adjuncts to surgical treatment.

Dr. Carl Wirth of St. Paul, Minn., asked if the milk from any of these tuberculous glands had been examined. He had had a case where an infant had developed marasmus, and it was later found that the breast it had been nursing was tuberculous.

Mr. Arbuthnot Lane of London agreed with the author that complete removal was the most effective treatment. He wished to call attention to the fact that all these patients which he had seen suffered from autointoxication and constipation, as was the case in other forms of tuberculosis. The autointoxication had very materially lowered the resistance of the individual, and an important element in treatment was thorough gastrointestinal drainage. The practice of the older practitioners in always ordering a purge when a case was first seen was a good one.

Dr. Rodman, in answer to Dr. Wirth, said no examination of the milk had been made.

The Treatment of Tuberculous Hip Disease by Weight Bearing and Fixation by the Lorenz Hip Spica.—Dr. H. Augustus Wilson of Philadelphia read this paper. He said that weight bearing was conducive to the benefits afforded by outdoor life. Constitutional activity prevented circulatory stasis, while confinement and inactivity favored atrophy from disuse. Weight bearing without fixation, under the most favorable circumstances, might result in recovery, but with ankylosis in deformed postures. Weight bearing with the Lorenz short hip spica facilitated the employment of outdoor life, and shortened the time of treatment. In suitable cases this treatment showed a full return of function. There was rapid recovery from abscess formation in some cases, and in others slow but permanent recovery. Beck's bismuth injection should be used where there were sinuses. Sound ankylosis would be produced in cases previously confined to bed or where there was atrophy from disuse by using crutches. The muscular development of an atrophied leg often demanded frequent changes of casts, thereby indicating the benefits obtained. Weight bearing with fixation aided in securing the beneficial influences of Bier's hyperemia. Constitutional treatment and diet were important. Pathological dislocations might occur with improper position of fixation. The most favorable posture was that of twenty degrees of flexion, twenty degrees of abduction, and five degrees of external rotation. This method of treatment did not appear applicable to debilitated patients without the temporary aid of crutches. Sixty cases had been treated in this manner by the author in the last six years. The average duration of treatment was ten months.

Vaccine Therapy in Joint Tuberculosis.—Dr. Edward H. Ochsner of Chicago read this paper. Vaccine therapy in joint tuberculosis should never be employed unless controlled by careful reading of the opsonic index, and should always be associated with other recognized methods of treatment, such as fresh air, suitable food, immobilization of the joint, prevention of secondary infection, etc. If thus employed we could obtain a very considerable percentage of perfect anatomic and functional cures, because the vaccine treatment secured a healing with a minimum amount of connective tissue formation.

The Treatment of Hip-Joint Disease.—Professor Calot of Berck sur Mer, France, presented this paper, which was read by the Secretary of the Section, Dr. John T. Bottomley of Boston. To prevent erosion and destruction of the articular bone surfaces he recommended the early injection of a mixture consisting of creosote 3 parts, iodoform 7 parts, ether 25 parts, and olive oil 50 parts. A horizontal line should be drawn, passing by the spines of the pubes, and the femoral artery should be located. Then a long needle should be inserted at a point 2 cm. outside the artery and 3 cm. below the horizontal line. At 4 or 5 cm. deep the point of the needle came in contact with the anterior surface of the neck of the femur. The thigh should be put in slight flexion, abduction and outward rotation. The injections should be repeated every three to five days, nine or ten in number, and cover a space of some two months. Four to 10 c.c. of the liquid should be injected, according to age. All this time the patient must be in bed, either with extension or in a bivalve plaster cast.

Dr. De Forest Willard of Philadelphia thought the results obtained by Dr. Wilson, if carefully analyzed, were about the same as from other methods of treatment. If we could get these cases early, there was no question but that all of us could obtain good results. Fresh air and outdoor life were very important. The ambulatory treat-

ment should not be used in the acute stage. Vaccine therapy and the Bier treatment were good, but no one thing would cure tuberculosis. The same applied to injections. We could do more in conquering tuberculosis by building up the resistance of the individual than by attempting to destroy tubercle bacilli.

Dr. Russell Bellamy of Wilmington, N. C., believed climate was the most important factor in dealing with these cases. Seven-eighths of all the patients in the Hospital for Deformities in New York were from the slums of New York. He had seen splendid results from the use of the plaster spica.

Dr. Emil G. Beck of Chicago said he would hesitate to use a needle where it was possible to inject material into a vein, because death would follow in two minutes. He had proved this in experiments on guinea-pigs. He advocated the injection of the bismuth paste after opening the abscesses.

Dr. Eugene Caravia of New York advocated the use of Cuguillère's serum, which consisted of allylum sulphide 1 gram, tincture of myrrh 1 gram, and Hayem's glycerinated serum 100 grams. One hypodermic injection of from 2 to 5 c.c. was given every week. Dr. Caravia had used the serum in two cases of adenitis of the neck, one small subcutaneous tumor of the breast, one white swelling of the knee, and one periostitis of the tibia. No other treatment was used. From three to twelve injections were needed to effect a cure, which was permanent.

Dr. A. T. Cabot of Boston wished to call attention to one point in the handling of surgical tuberculous cases. Patients suffering from pulmonary tuberculosis were required to exercise care in the disposal of their sputum, but practically no attention was paid in hospitals or elsewhere to the disposal of surgical dressings from tuberculous cases. Such dressings should be immediately treated with boiling water, or some suitable antiseptic, or burned.

Dr. Tienstall Taylor of Baltimore said weight bearing should not be used in acute cases, and should be confined to hospital and sanatorium treatment, as it was sure to be meddled with if tried at home. The bivalve spica was best, because it would permit massage. Climatic treatment was very important. Vaccine therapy was also very useful. Braces and the prolonged use of traction had been very much overdone. On the other hand, he did not agree with Lorenz that early ankylosis in these cases was desirable.

Dr. Wilson, in closing, said the museums were full of specimens showing joint destruction from tuberculosis. A movable and functionating joint was always preferable when such function was not apt to be destructive to the surrounding tissues and to the health of the patient. But where there was great destruction the question came up as to whether it was better to have mobility or ankylosis. He was unable to answer the question.

Dr. Ochsner, in closing, said he wished it understood that vaccine therapy was not a cure-all; but it was a very valuable adjunct to the ordinary modes of treatment. He wished to lay special stress upon his observation, that by the proper application of vaccine therapy he had been able to reduce the quantity of connective tissue in the healing of tuberculosis. He was sure that vaccine treatment would reduce the mortality somewhat. He was sure that within the last two years he had had several cases of joint tuberculosis which came with great sinus formations and secondary infection and which would have died had they come five years earlier, before the use of the vaccines. He firmly believed that morbidity would also be reduced by vaccine therapy in conjunction with other measures.

Outdoor Treatment of Surgical Tuberculosis.—Dr. De Forest Willard of Philadelphia read this paper. Outdoor life, night and day, was as essential in the treatment of tuberculosis of bones and joints as in medical cases. Early diagnosis, with treatment by sunshine, fresh air, rest, and proper mechanical and surgical procedures would prevent and cure without deformity a large majority of cases of joint diseases—25,000 doses of pure air in 24 hours were infinitely better than 3 doses of nauseous drugs that disturbed digestion. Tubercle bacilli would die in sunshine, but thrive in darkness, vitiated air, and filth. Their growth was inhibited by cold. Cold increased the appetite, nutrition, and circulation, and encouraged exercise and sleep—color, weight, strength, and hemoglobin increased. A change from the seashore to the mountains was desirable; but 90 per cent. of joint cases were poor. Separate hospitals and sanatoria for surgical tuberculous cases were needed. They should be constructed so that the bed could be thrown, by window sashes, either indoors or outdoors, thus giving a warm room for surgical dressings and needed care. Joint cases required level ground for crutches. Tents were hot in summer and cold in winter. Porches roomy for beds, connected with private rooms or with hospital wards, open in summer, glass enclosed in winter, were far better. Children with hereditary tendencies should attend forest schools.

Dr. John M. T. Finney of Baltimore said the Johns Hopkins Hospital had been a pioneer in this country in advocating the outdoor treatment of surgical tuberculosis. In the early days of the hospital Dr. Halsted had insisted in keeping these cases out of doors. The results had been most satisfactory. Early diagnosis was very important, as many of these cases were treated at first for rheumatism.

Dr. R. W. Corwin of Pueblo, Colorado, believed that all cases of tuberculosis, surgical or otherwise, should be treated in the open air and not in the hospitals of the large cities. There were only two reasons why hospitals for tuberculosis had not been taken to the country, and these were ignorance on the part of municipal authorities and because doctors were too lazy to go out into the country.

Dr. Carl Wirth of St. Paul, Minn., asked if secondary infection of the lungs had been observed. Out of something like 4,000 cases of tuberculosis he had never seen a secondary infection of the lungs.

Dr. L. H. Montgomery of Chicago said it was universally conceded that the open-air treatment of any form of tuberculosis was desirable, whether surgical or otherwise.

Dr. Willard, in closing, said that in his experience lung tuberculosis occasionally occurred after tuberculosis of the joints, but rarely. The majority of his fatal cases were due to tuberculous meningitis, and not from secondary lung tuberculosis.

Fourth Day—Thursday, October 1.

Tuberculous Arthritis of the Hip Joint.—Dr. Stephen H. Weeks of Portland, Maine, read this paper. After reviewing the symptoms and diagnosis, he said the treatment was divided into local and constitutional. Local treatment was more important than constitutional treatment. The local treatment was divided into mechanical and operative—mechanical treatment was used in the majority of cases. The great principle of local treatment was rest to the affected joint, and this might be secured by traction and fixation, one or both, according to the indications. In considering the constitutional treatment, he said if there was one point that had been emphasized by the newer ideas on the treatment of tuberculosis, it was that everything must be done to strengthen the defences of the system against the encroachments of the tubercle bacilli. This applied equally well whether one was dealing with pulmonary tuberculosis or with tuberculosis of the joints. The salient idea was to increase the vital resistance by fresh air, sunlight, and proper nutrition. Remarkable results had been achieved in recent years in cases of tuberculosis of the various joints by an outdoor life, particularly at the seaside, and without resort to operative measures. As to vaccine therapy, all that we could say at the present time was that it might prove a valuable adjunct to other treatment.

Dr. Willy Meyer of New York said there could be no

doubt that in the last twenty-five years the pendulum had swung toward conservatism in the treatment of these cases. In the beginning of antisepsis thirty years ago almost every surgeon attacked the hip joint by means of resection. So far it had been impossible successfully to apply the Bier treatment to the hip joint. The hip joint was supplied by the internal iliac vessels, and the iliac vein could not be compressed. He had made attempts to compress the inferior vena cava. This was difficult and painful, and yet he believed this was the only solution of the problem. It might be possible to construct cups, but they would have to fit very snugly about the hip. Many links were necessary to complete the chain in the treatment of tuberculosis—and tuberculin, hyperemia, and hygienic and dietetic treatment were very important links in this chain.

Dr. John Lindahl of Denver, Colorado, said there was an important anatomic fact in connection with joint disease, and that was that the joint was supplied by the same nerve that supplied the surrounding muscles. This accounted for the spasms of the muscles in these cases. These spasms were particularly injurious at night. To control these spasms he had been in the habit of using a firm bandage applied to the thigh and hip. He had also used a canvas casing which could be buckled on. He had never been able to apply a plaster-of-Paris dressing that would control the spasms for more than three or four days, because there was always a tendency for it to become loose on account of the absorption of the fat.

Dr. Weeks, in closing, said he wished to emphasize the fact that hip joint disease was primarily a local inflammation and should be treated as such. If the disease was recognized early and treated properly, in the vast majority of instances operative interference would not be necessary.

Tuberculosis of the Bladder.—Dr. Wilhelm Karo of Berlin read this paper. Tuberculosis of the bladder was almost always a descending process, of hematogenous origin, as a rule the result of renal or genital tuberculosis. Pathologically a distinction had to be made between genuine bladder tuberculosis and tuberculous cystitis. The seat of the morbid changes in the bladder usually depended on the mode of infection. Thus in a case of right-sided renal tuberculosis the lesion was near the right ureter. The chief symptoms of bladder tuberculosis were difficult micturition, hematuria, and pyuria. The diagnosis must be confirmed by finding the tubercle bacilli, either directly in the preparation or by animal inoculation. In every case of urogenital tuberculosis the primary seat of the tuberculous infection must be determined as soon as possible by cystoscopy or catheterization of the ureters. The cystoscopic picture was not in itself absolutely characteristic of tuberculosis. Nodules were also found in nontuberculous disease. The surest prophylactic measure to prevent tuberculosis of the bladder was early extirpation of the diseased kidney before involvement of the bladder had taken place. Hence, the prognosis of bladder disease depended on whether the case was operable or not. In the great majority of cases spontaneous recovery of the bladder followed removal of the primarily diseased kidney. If the bladder did not clear up it was often because the other kidney was also involved. The most suitable treatment of cases of this kind was a systematic tuberculin-cure, supplemented by local treatment of the bladder with a weak bichloride solution. Direct surgical treatment of a tuberculous bladder was of no avail and was therefore not to be attempted.

Tuberculosis of the Bladder.—Dr. Bransford Lewis of St. Louis, Mo., also read a paper by this title. He said the points he wished to emphasize were the greater confidence and hopefulness with which such cases were now contemplated, by reason of the more scientific and exact methods of diagnosis at hand, giving early recognition and treatment of the tuberculous bladder; and the relatively greater actual success derived from these sources, as well as from the more serviceable modern methods employed. The clinical evidences were of great importance, because they attracted the attention of the physician first consulted. Persistent and apparently inexplicable frequency of urination and microscopic blood in the urine extending over a long period should arouse a suspicion of tuberculosis. Other important symptoms were pain and excessive tenderness on instrumentation. Free use of local anesthetics should be made in all examinations. Marked diminution in the bladder capacity was a characteristic sign. The crucial test was the finding of tubercle bacilli in the urine. The urine should be obtained in such a way that there would be no way of contaminating it with smegma bacilli, as it was extremely difficult to differentiate between them and tubercle bacilli. Guinea-pig inoculation should be used in case of failure to find tubercle bacilli in the ordinary way. The cystoscopic picture was not always typical. Intolerance to silver nitrate was a valuable sign. The treatment was palliative and curative; the latter was hygienic, systemic, local and operative. So much good could often be accomplished by local or operative measures that it was doubtful if these cases should be given up for the purpose of going away for good air and hygienic influences. Iodoform emulsion was soothing and often healing. Bichloride was irritating. Creosote and guaiacol in full doses were beneficial. Tuberculin was used the same as in disease of other parts of the body. In using the air cystoscope he thought he had observed some benefit from dilating the bladder with air. Removal of the diseased kidney was often followed by prompt improvement or recovery of the bladder trouble.

Dr. Guy L. Hunner of Baltimore said there were few diseases that caused so much suffering and that resisted treatment so much as bladder tuberculosis. It had been his practice to suspect tuberculosis in every case that complained of bladder symptoms, until it was proved otherwise. It was easy to rule out the common causes of cystitis. Any case of cystitis that failed to react to the ordinary methods of treatment should come under suspicion. The presence of disease of one or both kidneys was another thing that would make one suspect tuberculosis, because an ascending infection of the kidney from an ordinary cystitis was very rare. The cystoscope was very important. There was a class of cases where both kidneys were involved and where it was advisable to begin treatment at the bladder end, instead of trying to remove either of the kidneys. In some of these cases a vesico-vaginal fistula gave great comfort, especially in connection with the tub bath treatment. Two illustrative cases were mentioned. He agreed with Guyon and Casper as to the efficacy of bichloride in these cases. His experience had been that dilatation of the bladder with air broke open the ulcers, and only aggravated matters. Bichloride probably acted by setting up a cystitis which would improve the circulation. Against that was the fact that silver nitrate caused as much irritation and at the same time made these cases worse.

Dr. Willy Meyer of New York said there could be no question but what in probably more than 95 per cent. of cases tuberculosis of the bladder was a descending process, but he was firmly convinced that primary tuberculosis of the prostate, which so often followed a primary invasion of the gonococcus, did exist and was to be considered as a cause of tuberculosis of the bladder. Every means at our disposal should be exhausted in attempting to arrive at a correct diagnosis—careful history, careful examination of the twenty-four hour urine, inoculation of guinea-pigs, *x*-ray, cystoscopy, and the various tests of the functional activity of the kidney. The *x*-ray should be used before cystoscopy, in order to exclude stone. Personally, he favored the indigo-carmine test, though none of these tests was reliable alone. The finding of ulcers on the same side as the pain in the kidney was a pretty sure sign as to which side the disease was on. It stood to reason that if early diagnosis could be made, the proper treatment was to

remove the more diseased kidney as early as possible. It was not necessary to remove the ureter.

Dr. E. M. Sala of Rock Island, Ill., reported a case that he had operated on six or seven years ago, in which one kidney had been removed, followed by complete recovery from the bladder trouble. The ureter had been left in. The patient had remained well to date.

Dr. Louis E. Schmidt of Chicago reported two cases that had consulted him on account of hematuria. In each case nephrectomy was advised. The first patient, a medical student, refused operation and went under vaccine treatment. That was a year and a half ago, and he returned three or four weeks ago, with a history that two and a half months previously he had had a nephrectomy. Cystoscopy showed that his entire bladder was now tuberculous. The second patient consented and had a nephrectomy a year and a half ago, and when seen a few weeks ago was entirely free from symptoms. These cases were cited to show the value of early diagnosis and nephrectomy. In the treatment of the bladder after nephrectomy and also where the kidneys were so badly diseased that nephrectomy was not advisable, he believed that more attention should be paid to the hygienic and climatic treatment than to the local treatment.

Dr. William E. Lower of Cleveland, Ohio, said that if it was true that tuberculosis of the bladder was practically always secondary—and he believed it was—then no treatment of the bladder would be of any avail until the primary focus of the disease had been first treated. In his experience, tuberculosis of the kidney was much more frequent in women than in men, the proportion being about three to one. He had tried all manner of treatment of the tuberculous bladder following nephrectomy, but had obtained the best results with the method of Rovsing, the injection of a 5 per cent. solution of carbolic acid into the bladder, about once a week, and allowing it to remain in the bladder from twenty to thirty minutes. He had noticed that the ulcers were not around the ureteral opening, but in the back and most sacculated portion of the bladder.

Dr. Korsell of Chicago reported a case of tuberculosis of the bladder which was not accompanied by tuberculosis of the kidney. After several weeks in bed and local treatment with iodoform emulsion, together with constitutional treatment, the patient made a rapid recovery. The origin of the infection was probably a tuberculous peritonitis, the bacilli reaching the bladder through the urine. Examination of the urine every day for a week gave negative results.

Dr. Karo, in closing, said the evidence offered by Dr. Korsell was not sufficient to disprove kidney tuberculosis. In the case of tuberculosis of the kidney the diseased portion of the kidney might become walled off and the case recover without interference. In his opinion, it was absolutely useless to treat a tuberculous bladder so long as one or both kidneys were affected. A little experience would enable one to differentiate between the smegma bacillus and the tubercle bacillus. The smegma bacillus was shorter and thicker and differently grouped on the slide. Hygienic measures were good where they could be carried out, but they were not applicable in the poorer classes. Where one kidney was tuberculous and the other healthy, nephrectomy was the operative procedure of choice. If both kidneys were affected, usually one was more so than the other, and after having found out by the phloridzin test, by determining the freezing point of the blood, and by every other means at his disposal which of the affected kidneys was in the worse condition, he would not hesitate to make a nephrectomy on the more diseased side. He preferred to leave the ureter to take care of itself. He had not had good results from suturing the ureter in the wound.

Dr. Lewis, in closing, said he believed it would be a source of danger for one to rely with confidence on his ability to differentiate between the smegma and the tubercle bacillus in a given specimen. It was true that there were differences, but he would rather place his reliance on the exclusion of the smegma bacilli from the specimen than on the differences in size, shape and grouping. He believed that the ureter should be left in, thus avoiding the additional risk, and it could be removed later if this should be found necessary.

Tuberculosis of the Female Generative Organs.—Dr. I. S. Stone of Washington, D. C., read this paper. In the vast majority of cases disease of these organs was secondary, although it might be impossible to find the seat or point of entrance of the infectious process. Repeated experiments and observations had failed to establish a definite method by which tuberculosis selected any organ such as the uterine adnexa for the implantation of the morbid process. The writer had found numerous instances of mixed infection, but he did not think a previous infection invited the implantation of tuberculous disease. Proof of the direct entrance of tubercle bacilli through the vagina into the uterus and thence to the tubes and peritoneum had not been obtained. Some gynecologists were inclined to believe that many of the erosions of the cervix in virgins, attended with leucorrhœa, were due to tuberculosis. The diagnosis with tuberculin had rarely been tried. The median incision was advised, through which the peritoneum, mesentery, and perhaps other abdominal contents might be examined and treated. This was important, because with the vaginal incision tuberculosis of the intestine or peritoneum might be overlooked. The curative results of hysterectomy, salpingectomy, and oöphorectomy were nearly always satisfactory when there was but little extension of the morbid process to other organs.

Tuberculosis of the Peritoneum.—Dr. F. B. Lund of Boston read this paper. After detailing the pathology and the symptoms and physical signs, he said the chief interest to the surgeon lay in the treatment. The progress of the surgical treatment of tuberculous peritonitis from its accidental discovery, through its empirical stages, to its present scientific position, was one of the most interesting bits of present day surgical history. In 1862 Sir Spencer Wells opened a case of tuberculous peritonitis by mistake, sewed it up again, and his patient recovered and remained well. Since then the operation of opening the abdomen for this condition had been practised. König, however, first formally advised the operation in 1884. J. B. Murphy in 1904 observed and was one of the first to appreciate that in many of these cases in women the Fallopian tube was thickened and ulcerated, and that the end of the tube was open and discharging its contents into the abdominal cavity. Murphy also called attention to the fact that if the focus of supply to the peritoneum was a mesenteric gland or an appendical tuberculosis, its removal was indicated, as was the removal of a tuberculous tube. Therefore, the rational modern treatment was to discover and remove the source of infection.

Dr. Guy L. Hunner of Baltimore said it was really remarkable how certain cases of very marked tuberculous disease of the pelvic organs and peritoneum, where the patients were in extremely bad condition, would still recover after suitable operative interference. He mentioned three cases to illustrate this point.

Dr. Emil G. Beck of Chicago said that after the removal of the source of the infection the peritoneum would as a rule take care of itself, but if the tuberculosis of the peritoneum were very far advanced it would not take care of itself, and in those cases before closing the abdomen he advocated the injection into the peritoneal cavity of about two drams of bismuth paste. It was harmless.

Dr. Lund, in closing, said he thought the danger of attempting any local treatment of the peritoneum lay in the fact that one would be trying to produce adhesions, and the results of the treatment could not be localized at the point where it was desired. The greatest step in advance was made when Dr. Murphy directed attention to the primary focus of the disease.

SECTION ON TUBERCULOSIS IN CHILDREN.

Third Day—Wednesday, September 30.

Children of the Tuberculous.—Dr. THEODORE B. SACHS, of Chicago, read this paper. He said that examinations had been made of three hundred and twenty-two children of the laboring class, with surroundings favorable to the transmission of the disease. There were found to be 20 per cent. of the children under five years of age; 28 per cent. between five and ten years; 25 per cent. between ten and fifteen, and 14 per cent. between fifteen and twenty years of age. There was a high rate of mortality from non-tuberculous disease in the first year of life. The rate of mortality from tuberculosis increased with age. Twenty-nine per cent. of all children showed positive evidences of the disease; 28 per cent. of tuberculosis in children were born before the parent became tuberculous; 31 per cent. of tuberculosis in children were born after the parent became tuberculous. The difference was ascribed to the closer contact with infection in the more crowded surroundings, into which the family drifted, with an abridgment of the working capacity of the parent. With the advance in age, from infancy to adult life, there was a gradual development of stamina of the physical type, with growing frequency of the tuberculin reactions. He made a study of the range of temperature of apparently healthy children and children of the tuberculous, in the same surroundings. Phthisis of the adult in many cases was the final result of infection which occurred in childhood.

The Occurrence of Pulmonary Tuberculosis in the Children of Tuberculous Parents.—Drs. JAMES ALEX. MILLER and J. OGDEN WOODRUFF of New York presented this report, which was based upon the examination of 150 children of tuberculous parents. Of these 150 cases, 76 (51 per cent.) were found to be positively tuberculous; 43 (29 per cent.) were found to be non-tuberculous, and 31 (20 per cent.) were found to be doubtful. The main factors in arriving at a diagnosis were (1) malnutrition; (2) pulmonary symptoms and physical signs; (3) enlarged cervical nodes; (4) hypertrophied tonsils and adenoids; (5) tuberculin tests; (6) sputum examinations. Of all these the most valuable and consistent appeared to be the pulmonary symptoms and signs and the tuberculin tests. The physical signs in children under ten years of age were not those of the typical apical lesions usually found in adults, but were often signs of a persistent localized bronchitis, usually in the lower anterior chest. The ophthalmic, the cutaneous, and the hypodermic tuberculin tests were all employed, and the results of the local tests were corroborated in all cases in which the hypodermic test was also given. The cutaneous test was fully as reliable, if not more so, than the ophthalmic test. Enlarged cervical nodes and hypertrophied tonsils and adenoids did not seem to be a determining factor in the diagnosis of tuberculosis. Malnutrition was sometimes the only appreciable evidence of tuberculosis in children. The examination of the sputum was of little value. The results of his examinations and investigations lead to the conclusion that pulmonary tuberculosis was very frequent in the children of tuberculous parents.

A Clinical Study of the Transmission and Progress of Tuberculosis in Children Through Family Associations.—Drs. CLEVELAND FLOYD and HENRY I. BOWDITCH of Boston presented this paper, which consisted of a study of one thousand children that had been under observation for a number of months at the Boston Consumptive Hospital. The patients ranged in age from a few months to fifteen years, and the majority had been exposed to phthisis for a varying length of time by the presence of open cases in the home. Charts were presented which showed the following: There were under observation 475 boys and 525 girls, a total of 1,000 cases. There were 35 cases one year and under; 249 cases between the ages of one and five; 716 cases between the ages of five and fifteen, a total of 1,000 cases. With regard to the family history, there were 500 living phthisical parents; 179 parents had died of phthisis; while in 321 there was no history of phthisis obtainable, a total of 1,000 cases. Of the children of the living phthisical parents (500) and those of the parents who had died of phthisis (179) there was pulmonary consolidation in 36 per cent. In all of these 1,000 cases signs and symptoms were present in 66 per cent. With regard to the examination the tonsils were found to be affected in 493 cases; there were adenoids in 145 cases; there was a mitral stenosis in 2; there was a mitral regurgitation in 10; the apices were involved in 262; the middle and lower lobes were involved in 100.

Human Contagion as a Factor in Infantile Tuberculosis.—Dr. JULES COMBY of Paris offered this communication, in which it was stated that tuberculosis was not hereditary, and that the transmission of Koch's bacillus from the mother to the fetus by way of the placenta was exceptional, nor was the soil inherited any more than the seed. There was no doubt that tuberculous parents transmitted tuberculosis to their children, but they did so through contagion. Family contagion explained almost all cases of infantile tuberculosis. Transmission through the milk or flesh of tuberculous cows played a very insignificant part in the transmission of the disease to the human species. The infant could be fully protected against this danger by a proper selection of cows and the sterilization of the milk. Their clinical observations and investigations had shown that tuberculous children were found only in families in which there were tuberculous members, regardless of the kind of milk consumed. On the other hand, they constantly found at autopsies tuberculosis of the peribronchial glands, which therefore represented the aerial port of entry of the bacillus of Koch. Among 1,432 autopsies on children from the hospitals of Paris during the course of fourteen years, Dr. Comby found 529 tuberculous subjects, or about 37 per cent.; among 216 infants from zero to three months, four were found to be tuberculous, or less than 2 per cent.; of 1,008 infants from zero to two years, 252 were found to be tuberculous, or about 25 per cent. After the second year, the proportion of tuberculous cadavers attained 45, 50, 60 and 65 per cent. All this he believed to be fully explained by human contagion. Prophylaxis should occupy itself with the phthisical human beings and not with cows.

The Public Schools in the Prevention of Tuberculosis.—Dr. JOHN S. LANKFORD of San Antonio, Texas, presented this paper.

Obstructive Abnormalities of the Oro-Naso-Pharynx, a Powerful Predisposing Factor to Tuberculosis in School Children.—Dr. JOHN J. CRONIN of New York read this paper. He said that the high percentage of deformities of the nose, throat and pharyngeal spaces found among children from tuberculous homes indicated that whatever might be the reason of the abnormal development of embryonal lymphoid tissue, the presence of the enlarged tissues in vital cavities predisposed the child thus affected to a lessened resistance against the constant exposure to tuberculosis.

Placental Transmission of Tuberculosis.—Dr. ALDRED SCOTT WARTHIN, Professor of Pathology, University of Michigan, read this paper (with lantern slide demonstration). He called attention to the present status of congenital tuberculosis, and said that this condition was ordinarily regarded as extremely rare. He gave a brief analysis of the reported cases. The current teachings regarding "non-inheritance" of tuberculosis was responsible for the increasing laxity regarding marriage and pregnancy in the case of tuberculous women. Congenital tuberculosis was the result of placental transmission. In the pregnant tuberculous woman, even in the early stage of infection, chances favored the entrance of the bacilli into the blood-stream and thence to the placental sinuses. Here the bacilli might drop out of the circulation upon either the decidual endothelium or the chorionic syncytium. The

chorionic syncytium possessed no especial resistance to the tubercle bacillus. On the contrary, it appeared that it was easily injured by the bacilli gaining entrance to the placental sinuses. It was no more immune to the action of the tubercle bacillus than was the vascular endothelium in any part of the body. The lodgment upon the syncytium of active bacilli was followed by degeneration and necrosis of the syncytium at the point of lodgment. This was followed by the formation of an agglutination-thrombus upon the damaged syncytium. This thrombus later became organized into a tubercle, the epithelioid cells and giant-cells coming from the stroma of the villus. Secondary caseation might then occur. The tubercle bacillus might also pass through a syncytium apparently showing no damage. Tuberculosis of the placenta manifested itself in five forms: (1) Decidual; (2) intervillous; (3) intravillous; (4) intravascular chorionic; (5) chorio-amniotic. The most common forms were the decidual and intervillous lesions. In the case of the former no tubercles were ever formed, the decidual lesion consisting of a localized area of necrosis and thrombosis without the formation of epithelioid or giant-cells. The primary event in this lesion was the necrosis of the endothelium of the decidual sinus at the point of lodgment of the tubercle bacillus. In the intervillous lesions the syncytial necrosis was the primary event. The lesions of endothelium or syncytium lead to the formation of hyaline or or agglutination thrombi, which later might become transformed into epitheloid tubercles. The same process took place in the lesions arising in the chorionic vessels. Since tubercle bacilli might pass the placenta without causing local lesions the absence of the latter did not signify that the fetus had escaped infection. In the case of placental lesions the chances were infinitely greater that bacilli might gain entrance into the fetal circulation. In the fetal blood stream they might be present in great numbers without exciting local lesions. The occurrence of "local" infection of the new-born was very probable. In conclusion he said that the occurrence of pregnancy in a tuberculous woman favored the entrance of tubercle bacilli into the blood stream and then into the placental sinuses. The placenta was not a perfect filter for micro-organisms. It had no especial immunity against the tubercle bacillus. Congenital tuberculosis as the result of placental transmission was a definite factor in the etiology of tuberculosis and could not be dismissed with its mere recognition as a very rare possibility. While, of course, relatively rare, it was more common than supposed, and must be borne in mind as a definite possibility in all cases in which the question of marriage and pregnancy of tuberculous women came up for consideration.

Fourth Day—Thursday, October 1.

The Value and Reliability of Calmette's Ophthalmic Reaction to Tuberculin for the Diagnosis and Differentiation of Tuberculous Lesions from Other Diseases in Infants and Young Children.—Dr. E. Mather Sill of New York read this paper. He believed the method to be a great aid in the diagnosis of tuberculosis in children, in the early as well as the late stages. There were very few cases reported of injury to the eye or conjunctiva, and he said they should not forget the fact that this test had been used in many thousands of cases all over the world.

Experiments in the Ophthalmic Inoculation of Tuberculin.—Dr. Henry K. L. Shaw of Albany, N. Y., read this paper, which was based upon the results of two series of the tests in children under twelve months of age. He first called attention to the fact that the subcutaneous method would never become popular, because it required hospital care and good nursing. In the first series of cases there were 47 infants, 14 of them under five months of age, and he obtained no reaction from the use of the human tuberculin except in one case. In this patient he got a slight reaction; it was a case of an old empyema with a discharging sinus. In the second series there were 34 cases, 16 under three months. In this series he used bovine tuberculin and obtained no reaction. Even with a strong solution of tuberculin he obtained no irritation. There were no bad effects in either series.

Some Clinical Observations on the von Pirquet Reaction in Children.—Dr. Henry Heiman of New York said that 104 children were vaccinated according to the v. Pirquet method at the Mt. Sinai Hospital. Twenty-six children showed a positive reaction and 78 a negative one. The 26 children that gave a positive reaction suffered from tuberculous adenitis, tuberculous meningitis, tuberculous peritonitis, solitary tubercle of the brain, pulmonary tuberculosis (probable), pleurisy with effusion, bronchopneumonia, glioma of the retina and multiple dactylitis, amaurotic family idiocy, rickets, intestinal intoxication, and sarcoma of the kidney. In the cases of tuberculous meningitis, 80 per cent. gave a negative reaction, and this was probably due to the fact that the vaccination was performed during the terminal stage of the disease, when antibodies and bacteriolysins were absent.

The Comparative Value of Recent Tests for Tuberculosis.—Dr. Henry Dwight Chapin of New York read this paper, which was based upon 70 cases in which the conjunctival test was employed. The ages of those tested varied from six months to thirteen years. A uniform preparation of tuberculin was used, *i.e.*, a .5 per cent. solution in alcohol of Koch's old tuberculin. The observations were undertaken with several objects in view: (1) To determine the specificity of the test; (2) to learn if the activity or extent of the lesion bore any relation to the degree of reaction; (3) was it of value in prognosis? (4) was the conjunctival reaction free from danger? With regard to the specificity of the test, all the cases were clearly tuberculous, the majority of them being afflicted with bone diseases, others having pulmonary tuberculosis and supurating glands, tuberculous meningitis and tuberculous peritonitis. The conjunctival test was positive in all cases that were proven to be tuberculous. With regard to the degree of reaction, he called attention to the fact that in the young child crying interfered with the reaction, the tears washing the tuberculin away. Various degrees of reaction were recognized. Some cases responded quickly and were mild cases, while others responded slowly and were severe cases. Some reactions were latent, not appearing for hours or even days after the tuberculin was applied. All these things he considered to be significant. With regard to the dangers of the conjunctival reaction, it had been claimed by some that lesions of the eye that were not tuberculous were aggravated by this test. In their experience the ordinary conjunctivitis did not contraindicate the test. They had seen no injurious effects in the 125 cases in which the test was employed. The worse case they ever had was a very mild conjunctivitis which lasted a few weeks. A careful examination of the eye was always made before they employed the test. The conclusions they arrived at regarding the opsonic index were as follows: (1) The opsonic index varied with the severity of the disease; (2) the technique for obtaining the index was so difficult and varied so widely that it was of little practical value in diagnosis; (3) the index when obtained by a careful technique was of value as showing the resistance of the patients.

The von Pirquet Method as an Aid to the Diagnosis of Tuberculosis in Infancy and Childhood.—Dr. Louis Fisher of New York said the von Pirquet method had proved an aid in strengthening the suspicion of latent tuberculosis. The ocular reactions of Calmette had been attended by severe ocular complications, both in this country and abroad. No such danger had been recorded with the von Pirquet method. The reaction, if positive, would be visible in very young infants in about from five to seven days. In older children it would sometimes remain several weeks. The reaction was positive in

tuberculous meningitis, tuberculous coitis, as well as in pulmonary tuberculosis, and in tuberculous osteomyelitis.

Serum Disease and the Cutireaction.—Drs. L. Detre and N. Berend of Budapest presented this communication.

Frequency of Tuberculosis in Childhood.—Dr. Clemens von Pirquet of Vienna read this paper. He said that as the result of over 1400 examinations with the cutaneous tuberculin test at the Escherich clinic, a table had been prepared which showed the increase of infection with tuberculosis from year to year. These results had been compared with the statistics made with the post-mortems of children. He discussed the significance of the different kinds of reactions which appeared in early and later childhood. Dr. von Pirquet proposed international statistics to be prepared in the following manner: That children of all ages, for instance, kindergarten and school children, be tried with the cutaneous test on the first day; on the following day all should be inspected. Those who showed a reaction should be noted as belonging to the class of "early reactions," which practically meant having had the infection in the latter years. A week later those children who showed no reaction on the first trial should be again tried. A great percentage of older children would now react, and they belonged to the class of "secondary reaction," which generally meant having had the infection in previous years. Those children who had not reacted on the above occasions belonged to the third class, which could be considered as those practically free of tuberculosis. In order to have a certainty regarding the third class, one could inject the non-reacting children on the following day with 1. mg. of tuberculin, according to the proposal of F. Hamburger, and inspect those children the next day as to the local subcutaneous reaction. This trial, of course, would only be possible in hospitals, whereas in schools one must be contented with the cutaneous trials, which which could be made without any inconvenience to the children. In this way one could take note in the different towns of the percentages of infection and the ages at which such infections occurred, and consequently could form conclusions as to hygiene.

An Expeditious Method for the Detection of Tuberculosis Among School Children.—Dr. Harland Shoemaker of Philadelphia, advocated the use of the torsion balance at stated intervals, by means of which one could determine the loss of weight in any child, a method which was easy of application and which was of greater clinical importance than the physical signs. The use of this instrument would indicate those who were healthy and those who were sick. It was applicable to large bodies of individuals, whether in schools, in shops, stores or elsewhere. He called attention to the fact that there was estimated to have been in the public schools in Philadelphia in 1906, 159,217 children: of this number only eight were reported as being evidently tuberculous. The vital statistics for the same year showed the deaths under one year, 118; between the ages of one and two years, 76; between two and five years, 94; between five and ten years, 65; between ten and fifteen years, 65; between fifteen and twenty years, 337. There were 355 boys and 400 girls. The estimated population of Philadelphia was 1,500,395.

The Diagnostic Value of Lumbar Puncture in Acute Tuberculous Meningitis in Children.—Dr. Frederic E. Sondern of New York said that the bacteriological examination of the cerebrospinal fluid rendered the best service in diagnosis though the cytology was also important, particularly in the absence of microorganisms. The practical information obtained from the pressure, appearance, density, amount of albumin and other chemical data, the amount of sediment, the tendency to coagulation, the toxicity, the freezing point, and the transmission of some administered drugs to the cerebrospinal fluid, was often of decided value, but always secondary to the above. The examination should be as complete as circumstances and the available amount of the specimen permitted. The chief diagnostic and differential features were: In tuberculous meningitis the pressure of the cerebrospinal fluid was increased; the appearance was usually transparent and colorless, occasionally slightly opalescent; the density was not much increased; the albumin between ¾ and 2 per mille by weight; the coagulum was slight and frail; the sediment was slight; cytology, average number of lymphocytes, 86 per cent.; bacteriology, tubercle bacilli present in 88 per cent. of the cases. If tubercle bacilli were present, a relative polynuclear increase might indicate mixed infection. In the absence of bacilli, if lymphocytes predominated, the search should be repeated, and a possible meningism of typhoid, pneumonia, etc., should be kept in mind. Purulent specimens usually offered no difficulty in the diagnosis. The relative polynuclear cell increased and almost invariable presence of intracellular diplococci distinguished cases of cerebrospinal meningitis.

Overcoming the Predisposition to Tuberculosis and the Dangers from Infection During Childhood.—Dr. S. Adolphus Knopf of New York said that the object of his paper was to call attention to the methods which might be employed to overcome predispositions to tuberculosis and to prevent children from becoming infected. How could the predisposition be overcome? One should begin with the child *in utero*. The mother-to-be should have the best of hygienic surroundings, the best of food, and should live in a well-ventilated room. After birth the child should be taken into the open air: it should be gradually taken there and become accustomed to breathing fresh and pure air. The fear of night air was a nightmare. There was no such thing as catching cold from fresh, cold, pure air. As the child grew up it should be taught how to breathe and have a chance to breathe. If there were any obstructions to breathing they should be removed. It was a very important matter that the child should be taught to breathe properly.

First Aid in Better Lung Development for Children and Olfactory Nerve Influence on Respiration.—Mrs. Emily Noble of New York said that the lungs had a plentiful supply of nerves, originating in both the cranial and sympathetic systems, and some of them controlled respiration which in the human being had a double function, the interchange of gases between the blood and the inspired air and also, when respiration was normal, the rhythmic vibration of all the organs of the body. All muscles controlling the respiratory tract were designed for use. Muscular activity could only find volition through expenditure of nervous energy, from some nervous center. The olfactory bulb was an important nerve center. Although the action, chemical and physiological, of many functions of the different nerve centers was somewhat obscured, the action of the olfactory nerve influenced in controlling and aiding the respiratory muscles could not be disproved, although very few physiologists of the Western Hemisphere were familiar with the nervous mechanism that controlled respiration. One of the best aids for the prevention of tuberculosis was the spread of knowledge. People must be taught how to take hand in "first aid," and be educated in the simple laws of health. It was in the interest of millions of defective breathing children in homes and public schools that they respectfully submitted an outline of their crusade work. The object of this crusade was to establish centers in all large cities, where parents and teachers might obtain free scientific instruction and practical suggestions for the prevention of nasal and pulmonary troubles in children. The crusade was self supporting.

The Value of Children's Gardens in Congested Districts.—Mrs. Henry Parsons of New York told of the values of (1) an attractive open-air space near the home; (2) gentle activities; (3) watching of living green things

and insect life in keeping the little sufferers' minds off their pain; (4) a beautiful picture left in the mind to be thought of in the dismal hours of pain at home. Such gardens located throughout the city would accommodate thousands of such children for six to eight months in the year, year after year, in comparison with the few that could be sent to the seashore, mountain, or sanatoria for short stays. The possibility of teaching hygiene, within the children's comprehension, by simple experiments with plants in their own plots which would lead them to see why fresh air, cleanliness, and sunshine were absolutely necessary to life and vigor and which would lead them to demand such surroundings in their own homes.

The Hygienic and Climatic Prophylaxis of Tuberculosis in Childhood.—Dr. Frederick L. Wachenheim of New York believed that good general nutrition was one of the best safeguards against tuberculosis in children, and to secure this one often had to combat disturbances of digestion or neurotic anorexia. To stimulate the appetite and digestion nothing was so useful as exercise, preferably out of doors. Over-exercise, however, was harmful, and might even predispose to tuberculosis. In the achievement of hardening one was practically limited to the application of cold; cold fresh air ranked first among their hardening measures, and cold bathing second; both were to be employed guardedly, especially in infancy, with gradually increasing strenuousness as the child grew older, excess in this direction also being harmful. Cold bathing should not be attempted in infancy; in later childhood sea-bathing was of special tonic value.

(To Be Continued.)

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Diseases of Infancy and Childhood; Their Dietetic, Hygienic, and Medical Treatment. By Louis Fischer, M.D. 8vo, 980 pages, illustrated; cloth. F. A. Davis Company, Philadelphia.

Semi-Annual Report of Schimmel & Co. 12mo, 196 pages; paper. Fritsche Brothers, New York.

Compendium der Verbandlehre. By Dr. Eduard Sonnenburg and Dr. Richard Muhsam. 8vo, 96 pages, illustrated; cloth; 3 marks. August Hirschwald, Berlin.

Pain. By Dr. Rudolph Schmidt. 8vo, 326 pages, illustrated; cloth. J. B. Lippincott Co., Philadelphia.

Essentials of Dietetics in Health and Disease. By Amy Elizabeth Pope and Mary L. Carpenter. 12mo, 249 pages, illustrated; cloth. G. P. Putnam's Sons, New York.

Points of Practice in Maladies of the Heart. By James Sawyer, Knt., M.D. (Lond.), F.R.C.P., F.R.S. (Ed.), F.S.A. 12mo, 96 pages; cloth. Cornish Brothers, Ltd., Birmingham.

Pharmaceutical Preparations. By A. Emil Hiss, Ph.G., and Albert E. Ebert, Ph.M., Ph.D. 8vo, 576 pages; cloth; $3.00. G. P. Engelhard & Company, Chicago.

Pulmonary Tuberculosis. By Sherman G. Bonney, A.M., M.D. 8vo, 778 pages, illustrated; cloth; $7.00 net; half morocco, $8.50 net. W. B. Saunders Company, Philadelphia.

Transactions of the American Society of Sanitary and Moral Prophylaxis. Vol. 2, 8vo, 246 pages; paper.

The Air and Ventilation of Subways. By George A. Soper, Ph.D. 8vo, 244 pages, illustrated; cloth; $2.50 net. John Wiley & Sons, New York.

Die Verletzung der Arteria Meningea Media. Von Dr. Custodis. 8vo, 200 pages, illustrated; cloth; 3 marks. August Hirschwald, Berlin.

Yearbook of the Department of Agriculture (1907). 8vo, 798 pages, illustrated; cloth. Government Printing Office, Washington.

Cancer. By P. Menetrier. 8vo, 662 pages, illustrated, paper; 12 francs. J. B. Bailliere et Fils, Paris.

Manual of Midwifery. By Thomas Watts Eden, M.D., C.M. (Edin.), F.R.C.P. (Lond.), F.R.C.S. Ed. 8vo, 556 pages, illustrated; cloth; $3.50 net. W. T. Keener & Co., Chicago.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

New Jersey State Board of Medical Examiners.

June 8, 1908.

(Answer ten questions, but no more, in each of the papers.)

ANATOMY.

1. Give a general description of the vertebral column.
2. Differentiate between thoracic and lumbar vertebræ.
3. Describe the hyoid bone. Name muscles attached to it.
4. Locate and describe the maxillary sinus (antrum).
5. Give origin, branches, and parts supplied by the inferior maxillary nerve.
6. Ulnar artery: Give origin, branches, and parts supplied by it.
7. Describe the spinal cord.
8. Locate and describe the inguinal or spermatic canal; state its boundaries and contents.
9. Give location, shape, size, weight, and structural formation of the pancreas.
10. Outline by word or drawing the location of the kidney.
11. Name the arteries supplying the uterus and give their origin.
12. Radius; name articulations. What muscles are attached to the radius?
13. Give origin, insertion, nerve and blood supply, and action of any one of the following muscles: pectoralis major, gluteus medius, pronator radii teres.
14. What artery supplies the dura mater?
15. In fracture of the surgical neck of the humerus, which muscles (*a*) elevate upper fragment under the coraco-acromial ligament, (*b*) draw the lower fragment inward, and (*c*) throw the humerus obliquely outward from the side?

PHYSIOLOGY.

1. Define physiology.
2. Describe a typical nerve cell.
3. What is reflex action; a superficial reflex; a deep reflex? Give one example of each.
4. What nerves control the heart? What does each do?
5. What nerves control the gastro-intestinal physiology?
6. What is metabolism?
7. What is urea, and where is it developed?
8. Give daily amount, reaction, and specific gravity of urine.
9. Name in order of importance the organs in which heat is developed, and those by which it is thrown off.
10. Give normal range of temperature in childhood and adult life.
11. Name four factors that directly affect the pulse, and give the normal pulse rate.
12. Name four factors that affect weight.
13. What is coordination, and upon what does it depend?
14. Describe the action of accommodation, and state why it fails in old age.
15. What are the four chief functions of the nasal cavity, and what disturbances follow its obstruction?

CHEMISTRY.

1. What is the general nature of urinary sediments, and how are they recognized?
2. Describe a process by which arsenic may be detected in organic matter.
3. State the general qualities of bile and mention its chief constituents.
4. State the general chemical properties of alkaloids.
5. On what chemical hypothesis are lithium compounds administered to gouty patients?
6. What is ozone, and how does it differ from common oxygen? Under what circumstances is ozone found?
7. Give composition, properties, mode of manufacture of, and tests for carbolic acid.
8. Give the average composition of human urine and state by what conditions the composition is influenced.
9. Illustrate by formulæ the difference between ferrous and ferric salts.
10. State the best temporary antidote to poisoning by mercury.
11. Enumerate the metals, salts of which are frequently employed in pharmacy.
12. State the laws of constant and reciprocal proportions.
13. Explain the meaning of terms "reaction" and "reagent."
14. Give Marsh's test.

15. What is the general chemical character of volatile oils?

MATERIA MEDICA AND THERAPEUTICS.

1. Name the paths by which medicines enter the circulation.
2. State (*a*) principle, (*b*) taste, (*c*) medical uses, and (*d*) adult dose of podophyllin.
3. (*a*) Define cardiac depressants; give (*b*) three examples; (*c*) adult dose, and (*d*) specific indications for use.
4. (*a*) Describe at least two movements of massage, (*b*) their application in practice, and (*c*) benefits to be derived.
5. Mention (*a*) three diuretics, (*b*) therapeutic employment, and (*c*) adult dose of each.
6. Specify (*a*) three official preparations of digitalis, (*b*) their physiological action, and (*c*) maximum dose of each.
7. Enumerate therapeutic use, dose, and effect of (*a*) acetanilid, (*b*) heroin, (*c*) terebene.
8. Give (*a*) Source of opium, (*b*) its effect on the nervous system, circulation, respiration, and pupils.
9. Differentiate the effects on the arterial system of (*a*) strychnine, (*b*) nitroglycerin, and (*c*) aconite.
10. (*a*) Explain action of emmenagogues. (*b*) Give two examples and dose of each.
11. (*a*) What class of acids are employed to acidify alkaline urine? (*b*) Specify and give adult dose of each.
12. (*a*) Outline a dietary for interstitial nephritis, and (*b*) diabetes mellitus.
13. (*a*) Prescribe in proper form for acute diarrhea in a child 4 years of age, and (*b*) explain action of each ingredient.
14. Write (*a*) indications and (*b*) the contraindications for KBr; give adult dose.
15. Normal NaCl solution (*a*) preparation, (*b*) methods of administration, (*c*) effects.

HISTOLOGY, BACTERIOLOGY, PATHOLOGY.

(Answer only ten questions; not less than three on each branch.)

Pathology.

1. What is the difference between hypertrophy and enlargement?
2. What are the modes of spread of pyogenetic microorganisms? Describe each mode.
3. Describe the repair of a simple fracture of bone.
4. What pathological conditions are productive of icterus?
5. Describe the macroscopic and microscopic appearance of carcinoma of the breast.

Histology.

6. How many kinds of marrow are there? Name them. Where does each occur? How do they differ?
7. Describe non-striated muscular tissue and name its principal localities.
8. Describe the gross arrangement of the suprarenal capsule. Name and describe the three layers of the cortical portion.
9. Describe the structure of the tympanic cavity and the mastoid cells.
10. Describe the general structure of the air passages.

Bacteriology.

11. Why does the air in summer contain more bacteria than in winter?
12. Define disinfectant, germicide, antiseptic, and deodorizer.
13. Differentiate between ptomains and leucomains.
14. Differentiate between toxemia and septicemia.
15. Why is the chemical disinfection of tuberculous sputum difficult, and what is the best disinfectant for general use?

PRACTICE OF MEDICINE.

1. Describe (*a*) lavage, (*b*) gavage.
2. Give causes of nasal hemorrhage.
3. Differentiate pallor, anemia, chlorosis.
4. Differentiate vesicular and bronchial breathing.
5. Differentiate renal, hepatic, and intestinal colic.
6. Give four physical signs of consolidation of lung tissue.
7. Describe (1) dry, (2) moist râles, and give significance of each.
8. Describe artificial feeding of an infant, month by month during the first year.
9. Describe eruption of (1) measles, (2) scarlatina, (3) varicella, (4) and variola.
10. Describe the *x*-ray. What are its uses, its dangers, and how can latter be avoided?
11. Where and what is the cause of a systolic murmur heard at the ensiform cartilage.
12. What is hemiplegia, paraplegia, paralysis agitans, and tabes dorsalis? Describe the walk in each.
13. What are the four physical signs of a cavity of the lung communicating with the bronchial tube?
14. Describe the various steps in making a complete uranalysis, giving your reasons and what you expect to find in each.
15. Locate on the surface of the thorax the points at which the four principal valve murmurs are heard with greatest intensity.

SURGERY.

1. Discuss rotary lateral spinal curvature.
2. Diagnosis and treatment of rupture of the urinary bladder.
3. What are the indications for trephining in fractures of the skull?
4. Mention the causes of ulceration of the cornea.
5. Describe in detail how you would proceed in retention of urine due to stricture of the urethra.
6. Give the causes of necrosis of bone. Define (*a*) sequestrum, (*b*) involucrum.
7. Describe the different varieties of hemorrhoids.
8. What pathological conditions may cause enlargement of the knee.
9. Indication for intravenous injection of normal saline solution. Technique.
10. Etiology, diagnosis, and treatment of retropharyngeal abscess.
11. Diagnosis and treatment of fracture of the neck of the femur.
12. What is the most common dislocation of the shoulder joint? Describe reduction by manipulation.
13. Aneurysm: Causes, diagnosis, and treatment.
14. Give the general characteristics of sarcomata.
15. What is surgical shock? Treatment?

OBSTETRICS AND GYNECOLOGY.

1. Name the processes of fecundation.
2. What changes does the uterus pass through after fecundation?
3. In threatening perineal laceration, what operative or other measures should be employed to prevent a tear?
4. Describe the first stage of labor.
5. Describe your method of conducting labor through the second stage, in (*a*) L. O. A.; (*b*), shoulder presenting.
6. What conditions justify the induction of abortion?
7. What should precede any abortion and how may the operation be safely performed when necessary?
8. (*a*) What conditions favor post-partum hemorrhage? (*b*) What precautions should be taken to avoid it? (*c*) Describe methods of controlling it.
9. Describe method of management of case of eclampsia beginning during first stage of labor.
10. Name symptoms, method of diagnosis and proper treatment of rupture of the uterus complicating labor.
11. Mention the manifestations of syphilis which may appear on, in, or around the female genitals.
12. How may retrodisplacements of the uterus be treated either by mechanical or surgical measures?
13. Give the symptoms, diagnosis and treatment of urethral caruncle.
14. Within the limit of 100 words describe vaginal tampons and their uses.
15. Outline treatment for dysmenorrhea.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. In selecting a house-site what is to be avoided and what sought?
2. (*a*) Why would you recommend an asphalt floor in a cellar? (*b*) How deep should drains be below the floor? (*c*) How else can soil be dried?
3. What do you mean by breaking the seal of a trap? What causes it?
4. Define soil pipe and house drain.
5. Outline construction of school-house, of floors, doors, and windows; approved size of rooms, and direction of light.
6. At what age would you place a child in school, and how long should he be kept at his studies?
7. Enumerate some occupations prejudicial to health.
8. Mention the usual and best methods of physical training.
9. Describe the different forms of baths, and give rules of bathing.
10. Give methods of restoring the apparently drowned.
11. What are the usual materials from which clothing is made?
12. What are ptomains and in what are they found? Name those that have been separated. Give symptoms and treatment of ptomain poisoning.
13. Define insanity.

14. Differentiate apoplexy, opium narcosis, uremia, alcoholic intoxication, epilepsy, to the satisfaction of a court.

15. What is malpractice?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NEW JERSEY STATE BOARD OF MEDICAL EXAMINERS.

June, 1908.

ANATOMY.

2. *The thoracic vertebræ* have a heart-shaped body with a facet or demi-facet on each side for articulation with a rib; the laminæ are broad and deep; the spinous process is long and points downward; the transverse processes are long and articulate with the tubercle of a rib; the superior articular process is directed backward and slightly outward; the inferior articular process is directed forward and slightly inward; the spinal foramen is smaller and circular.

The lumbar vertebræ have a large body, wider transversely, and with no facet or demi-facet; the laminæ are short and thick; the spinous process is horizontal; the transverse processes are "rudimentary"; the superior articular process is directed inward and slightly backward; the inferior articular process is directed outward and slightly forward; the spinal foramen is larger, and triangular.

8. *The inguinal or spermatic canal* is an oblique canal situated a little above and running parallel with Poupart's ligament. It is from an inch and a half to two inches in length, runs downward and inward, and extends from the internal abdominal ring to the external abdominal ring.

Its *boundaries* are: *In front:* the skin, superficial fascia, aponeurosis of the external oblique, and (for its outer third) the internal oblique. *Behind:* the conjoined tendon, the triangular fascia, the transversalis fascia, subperitoneal fat, and peritoneum. *Above:* the fibers of the internal oblique and transversalis. *Below:* Poupart's ligament and the transversalis fascia.

Contents: the spermatic cord in the male; and the round ligament in the female.

11. The *arteries supplying the uterus* are: the uterine artery (from the internal iliac) and the ovarian artery (from the aorta).

14. The *dura mater* is supplied by the anterior meningeal, middle meningeal, and posterior meningeal arteries.

15. In fracture of the surgical neck of the humerus, (*a*) the upper fragment is elevated by the supraspinatus, infraspinatus, and teres minor; (*b*) the lower fragment is drawn inward by the pectoralis major, latissimus dorsi, and teres major; (*c*) and the humerus is thrown obliquely outward by the deltoid.

PHYSIOLOGY.

1. *Physiology* is that branch of science which treats of the functions of living tissues and organisms in a state of health.

2. A *nerve cell* is a protoplasmic mass, with a diameter a little larger than that of a white blood corpuscle, roughly spheroidal or pyramidal in shape; and giving off several dendrites, and usually one axis-cylinder or nuraxon. The whole is called a neuron.

3. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

Superficial reflexes are such as can be elicited by stimulating the skin. *Example:* The cremasteric reflex.

Deep reflexes are such as are elicited by stimulating tendons or muscles. *Example:* The patellar reflex.

4. The *nerves which control the heart*, are: (1) The pneumogastric nerve, which slows or inhibits the heartbeats; (2) the sympathetic nerves, which accelerate or augment the beats; and (3) the intrinsic cardiac ganglia, which enable the heart to continue beating for some time after it is removed from the body.

5. The *nerves which control the gastrointestinal physiology*, are: The pneumogastric, dorsal, lumbar, and sacral nerves; also the plexuses of Auerbach and Meissner; and the sympathetic system (chiefly the splanchnics, hypogastric plexus and mesenteric ganglia).

6. *Metabolism* is a name given to the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive, called *anabolism*, and (2) destructive, called *catabolism*.

7. Urea is the product of the nitrogenous waste of the body; it comes from the proteids of the food and tissues. It is chiefly formed in the liver.

8. The *daily amount* of urine normally voided by a healthy adult, is about 50 ounces; the *reaction* is acid; and the *specific gravity* is from about 1015 to about 1025.

9. *Heat is developed in the body*, by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the brain; (4) the heart, and (5) the thermogenetic centers in the brain, pons, medulla, and spinal cord. (It also is produced by the food and drink ingested.)

Heat is *lost* to the body by (1) the skin, through evaporation, radiation, and conduction; (2) the lungs; and (3) the excretions (feces and urine).

10. Normal range of body temperature in adults is between 98 degrees and 99 degrees F. In childhood it may vary between 97 degrees and 100 degrees F. without the appearance of anything abnormal.

11. Four factors that directly affect the pulse are: (1) The ventricular systole; (2) the elasticity of the arterial walls; (3) the volume of the blood in the vessels; (4) the peripheral resistance. The normal adult pulse rate is about seventy-two per minute.

12. *Four factors that affect weight:* (1) age; (2) sex; (3) nourishment; and (4) disease.

14. *Action of Accommodation.*—"The lens is an elastic structure, and when released from the flattening influence of its suspensory ligament tends to assume a spherical shape. During accommodation the ciliary muscle (especially the circular fibers) contracts, drawing forward the chorioid and relaxing the suspensory ligament; this diminishes the tension of the lens capsule and allows the inherent elasticity of the lens to increase its convexity. The change in curvature affects chiefly the anterior surface of the lens. This is Helmholtz's theory and the one usually accepted. Lately Tscherning has advanced a different theory; he maintains that the ciliary muscle increases the tension of the suspensory ligament during contraction, and that this causes peripheral flattening of the lens with bulging anteriorly at its center. The act of accommodation is accompanied by contraction of the pupil, and (in binocular vision) by convergence of the visual lines."—(May's *Diseases of the Eye.*)

Accommodation fails in old age, because at that time the lens has lost its elasticity.

15. The *four chief functions of the nasal cavity*, are: (1) Respiratory; (2) olfactory; (3) vocal; and (4) auditory.

The *disturbances which may follow nasal obstruction*, are: Diminution or absence of the sense of smell; redness of the nose; mouth-breathing; dyspnea; vocal impairment or nasal twang; greater tendency to nasal, laryngeal, pharyngeal, bronchial, and pulmonary diseases.

CHEMISTRY.

2. Arsenic may be detected in organic matter by the Reinisch test, which is conducted as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

3. Bile is a viscid fluid, with a faint aromatic odor and an exceedingly bitter taste. It has a specific gravity of about 1020 to 1030, is alkaline in reaction, and is of a yellow or brownish color.

Its chief constituents are: Water, sodium glycocholate, sodium taurocholate, lecithin, cholesterin, fat, mucin, pigments, urea, and inorganic salts (chlorides and phosphates of sodium, potassium calcium, magnesium; and sodium carbonate).

4. *General properties of alkaloids:* Alkaloids are of two kinds, volatile and fixed. The volatile alkaloids are liquid, readily volatile without decomposition, and consist of C, H, and N. The fixed alkaloids are for the most part solid and crystalline, not, or only partially volatile without decomposition, and consist of C, H, N, and O.

Most of the alkaloids are alkaline in reaction, of a bitter taste, and of white color.

Most of the alkaloids are nearly insoluble in water, but are soluble in alcohol, chloroform, ether, and benzine; their salts are generally soluble in water and alcohol, but insoluble in the other solvents just named. They combine with acids to form salts in the same way that ammonia does.

5. Lithium compounds are administered to gouty patients on the hypothesis that the lithium salts of uric acid

are more soluble than other urates; therefore there is less chance of the formation of deposits, and if such deposits already exist their solution or removal may be aided by the lithium urate.

6. Ozone is an allotropic modification of oxygen, the oxygen being in a peculiar condition of condensation. The molecule of ozone contains three atoms, while that of oxygen contains two; three molecules of the latter are therefore condensed to two of ozone: $3O_2 = 2O_3$. Ozone is a liquid of a bluish color, peculiar odor, and is only sparingly soluble in water. Ozone is produced by the decomposition of water by the battery; by the slow oxidation of phosphorus in damp air; and by the action of concentrated sulphuric acid on barium dioxide:

$$3BaO_2 + 3H_2SO_4 = 3BaSO_4 + 3H_2O + O_3$$

7. *Carbolic acid* is phenylhydroxide: C_6H_5OH. It is a colorless crystalline substance when pure, but it soon assumes a pink color; it has a peculiar odor, and a burning taste. It is soluble in water, alcohol, and ether. It is an antiseptic, a poison, and a corrosive. It is also used in the manufacture of its derivatives which are used in medicine, and as dyes. It is made by heating phenyl iodide and potassium hydroxide at a high temperature: $C_6H_5I + KHO = KI + C_6H_5OH$.

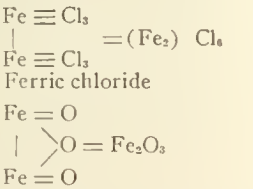
Tests: (1) With a solution of ferrous sulphate, a lilac color is produced; (2) its peculiar odor.

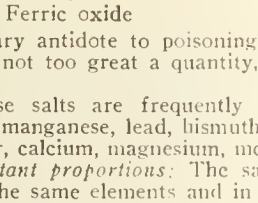
8. The following table (from Dunglison's *Medical Dictionary*) gives the average composition of normal urine:

	(Parts in 1000.)		Voided Per Day. *Grams.*	*Grams.*
Water	950.00			
Urea	28.00		520.80	35.00
Uric acid	0.60	Organic	11.16	0.75
Hippuric acid	0.35	matter,	6.51	0.44
Creatinin	0.65	37.60	12.09	0.81
Extractives	8.00		148.80	10.00
Sodium chloride	8.00		148.80	10.00
Phosphoric acid	2.00		37.20	2.50
Sulphuric acid	1.25	Inorganic	23.45	1.56
Lime (CaO)	0.25	matter,	4.65	0.31
Magnesia (MgO)	0.30	12.40	5.58	0.37
Potash (K_2O) and soda, (Na_2O)	0.60		11.16	0.75
Total	1000.00		930.20	62.49

The composition is influenced by: diet, quality of fluid ingested, exercise, and disease.

9. In *ferrous* salts, the atom of iron is bivalent. In *ferric* salts, the atom of iron is quadrivalent, and two such atoms are connected producing a double atom with a valence of six.





10. The best temporary antidote to poisoning by mercury is white of egg in not too great a quantity, and followed by an emetic.

11. The metals whose salts are frequently employed in pharmacy, are: Iron, manganese, lead, bismuth, lithium, sodium, potassium, silver, calcium, magnesium, mercury.

12. *The law of constant proportions:* The same compound always contains the same elements and in the same proportions.

The law of reciprocal proportions: The ponderable quantities in which substances unite with the same substance express the relation (or a simple multiple of it) in which they unite with each other.

13. *Reaction* has two meanings: (1) the interaction of two or more substances causing a chemical decomposition; (2) the action of substances upon certain organic pigments such as litmus.

Reagent is a substance used to bring about a reaction (first meaning above).

14. *Marsh's test for Arsenic:* This test depends on the fact that arsenic hydride is formed when nascent hydrogen acts on a compound of arsenic.

$$H_3AsO_3 + 3H_2 = AsH_3 + 3H_2O.$$

A small flask fitted with thistle funnel and a delivery tube, as for the production of hydrogen, is used; pure zinc and hydrochloric acid are introduced, and after a short time the hydrogen is ignited. It is advisable to cover the flask with a cloth before igniting the gas, as an explosion may happen unless the air has all been driven out. If the materials are pure the hydrogen flame gives no deposit upon a piece of cold porcelain brought into it, but commercial zinc usually contains arsenic. When the purity of the gas is proved, a little solution of arsenic may be poured down the thistle funnel, which will produce a more rapid evolution of gas, and the flame will become larger and perceptibly colored. A piece of cold porcelain depressed upon the flame will be covered with a deposit of metallic arsenic. The films of arsenic are metallic looking in the thicker places, brownish near the edges; they are easily volatilized by heat, and dissolve in solution of bleaching powder. A portion of the glass tube from which the gas is burnt should be heated to redness; the gas decomposes, and a deposit of arsenic appears on the tube, which may be identified in a similar way, or may be converted into crystals of oxide by cautious sublimation in an open tube.—(Fisher's *Elementary Chemistry.*)

15. Chemically, most of the volatile oils are terpenes, with the general empirical composition of $C_{10}H_{16}$ or some isomere thereof; some also contain oxygen sulphur or nitrogen. Their constitution is not settled. They are optically active, and mainly consist of two principles, stearoptene and eleoptene.

MATERIA MEDICA AND THERAPEUTICS.

1. Medicines may enter the circulation after being administered: (1) By the mouth; (2) by the skin; (3) by the rectum; (4) by inhalation; (5) by the vagina; (6) by intravenous injection.

2. Podophyllin. (*a*) *Principle:* Podophyllotoxin and Picropodophyllin. (*b*) *Taste:* Acrid, and slightly bitter. (*c*) *Medical uses:* as a purgative, a cholagogue; for chronic diarrheas, and some cases of vomiting. (*d*) *Adult dose:* Resina podophylli, gr. 1/10 to ½.

PRACTICE OF MEDICINE.

2. *Causes of nasal hemorrhage:* Injury, hemophilia, pernicious anemia, leukemia, scurvy, purpura hæmorrhagica, cerebral congestion, hypertrophy, and valvular lesions of the heart.

3. *Pallor* is merely a symptom, and may be found in several conditions.

Anemia is a disease in which the blood as a whole is diminished, or in which the number of red corpuscles is diminished. It is classified as Primary and Secondary.

Chlorosis is a disease in which the amount of hemoglobin is diminished.

5. *In renal colic:* The pain is in the region of the affected kidney, it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

In hepatic colic: The pain is in the region of the liver, it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

In intestinal colic: The pain is generally around the umbilicus; the abdomen is tympanitic; there are no rigors; there may be a history of indiscretion in diet.

6. *Four physical signs of consolidation of lung tissue:* (1) Increased vocal fremitus; (2) dullness on percussion; (3) bronchial respiration with prolonged expiration; and (4) increased vocal resonance.

9. (1) *Measles:* Eruption appears on fourth day as small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny.

(2) *Scarlatina:* Eruption appears at end of twenty-four hours, as a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes.

(3) *Varicella:* The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured.

(4) *Variola:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin.

12. *Hemiplegia* is a condition in which one side of the body is paralyzed.

Paraplegia is a condition in which the two lower limbs are paralyzed.

Paralysis agitans is a chronic disease characterized by a peculiar walk, tremor, muscular rigidity, and sensations of heat and pain.

Tabes dorsalis is a chronic disease in which the posterior columns of the spinal cord are involved, and characterized by incoordination, pain, visceral crises, anesthesia.

THE WALK: In *hemiplegia* the paralyzed leg is swung outward and forward (by a tilting of the pelvis), and the toes scrape along the ground.

In *paraplegia* the legs and knees are in contact, and the legs and feet cross each other at each step.

In *paralysis agitans* the steps are short, quick and shuffling; the patient finds it hard to begin walking, but when once started he has to run, and finds it hard to stop.

In *tabes dorsalis* the leg is hurled forward, the foot raised needlessly high, and brought to the ground forcibly, and generally on the heel; the patient keeps his eyes on the ground and on his feet; the legs are kept somewhat apart.

OBSTETRICS AND GYNECOLOGY.

6. *Conditions which justify the induction of abortion:* (1) Certain pelvic deformities; (2) where in previous labors the head of the child has been prematurely ossified, or unusually large; (3) placenta prævia; (4) toxemia of pregnancy; (5) habitual death of the fetus toward the end of pregnancy; (6) hydatidiform mole; (7) pernicious anemia.

9. The management of eclampsia in the first stage of labor includes: (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

13. *Urethral caruncle* is a small red fleshy growth generally situated on the posterior part of the meatus of the urethra. There are local pain and tenderness, which may be excessive; a burning sensation is experienced on urination; it may bleed. The proper treatment is to excise it or destroy it with the thermocautery.

HYGIENE AND MEDICAL JURISPRUDENCE.

3. To *break the seal of a trap* means to destroy its efficiency, whereby the sewer gases gain entrance into the house.

The *causes* are: Evaporation of the water, siphonage, the water passing too seldom along the pipe, too small a pipe, leakage or other defect in the laying of the pipes and trap.

4. *Soil pipe* is a pipe which receives the sewage from water closets, bathtubs, etc., and which carries the same to the *house drain,* which conducts it to the sewer.

7. *Some occupations prejudicial to health:* Coal miners; cutlery workers; needle makers; workers in steel or iron; stonecutters; masons, bricklayers; pottery and china workers; cotton, silk, and wool workers; furriers; workers in tobacco and snuff factories; street cleaners; carpet beaters; workers handling arsenic, mercury, phosphorus, lead, and copper, etc.

11. The usual materials from which clothing is made, are: Wool, silk, cotton, linen, leather, fur, flax.

12. *Ptomains* are basic compounds containing nitrogen, and produced from proteid material by the bacteria which cause putrefaction. They are *found* in decaying animal tissues and fluids.

The *chief poisonous ptomains* are: Tyrotoxicon, mytilotoxin, cholin, neurin, neuridin, putrescin, cadaverin, gadinin, muscarin, tetanin, typhotoxin.

The *general symptoms of ptomain poisoning* are: Onset in less than twenty-four hours after the ingestion of the noxious "food," chilliness, vertigo, headache, thirst, abdominal pains, nausea, vomiting, diarrhea, cyanosis, weak and rapid pulse, cutaneous eruption sometimes, subnormal temperature at times, convulsions.

Treatment consists in giving: emetics; rectal irrigation; cathartics or salines; morphine for pain (if necessary) heat and stimulants (strychnine, nitroglycerin, alcohol) for collapse; rest in bed; and gastrointestinal antiseptics.

13. *Insanity* is defined, in Allbutt's "System of Medicine," as "such a disorder or disease of the nervous system as prevents the individual from reacting normally as a member of the society to which by birth and education he belongs."

14. In *apoplexy:* There is generally paralysis of the head and upper limbs; and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

In *opium narcosis:* The pupils are contracted; there is no sign of paralysis; both respirations and pulse are slow and full.

In *uræmia:* The coma is deep; the pulse slow; the respirations are frequent and irregular; the urine shows the presence of albumin and casts, with a diminished output of urea; there may be a urinous odor to the breath.

In *alcoholic intoxication:* The patient can generally be aroused; the coma is not, as a rule, complete; the face may be flushed; the pupils are normal or dilated; the respirations are normal in frequency, but deep; the skin is cool and moist, and the body temperature may be below normal.

In *epilepsy* there will be a brief aura, sudden and complete loss of consciousness, pupils dilated and rigid, the tongue will be bitten (unless prevented), the sphincters may be relaxed, there may be a slight rise of temperature.

15. *Malpractice* is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treatment of a patient as the law requires; and thereby the patient suffers damage.* If due to negligence only, it is *civil malpractice.* But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice.*

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Oct. 13
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct. 13
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 11
Georgia	E. R. Anthony, Griffin	Atlanta	
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	Oct. 21
Indiana	W. T. Gott, Indianapolis	Indianapolis	Oct. 27
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	D. P. Cook, Clay Center	Kansas City	Oct. 13
Kentucky*	J. N. McCormick, Bowling Green	Louisville	Oct. 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	
Maine	Wm. J. Maybury, Saco	Portland	Nov. 10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 13
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Nov. 4
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec. 30
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct. 20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 12
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	J. C. Mahr, Shawnee	Shawnee	
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. —
Rhode Island	G. T. Swarts, Providence	Providence	Jan. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Dallas	Nov. 10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 16
Washington*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov. 10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 12
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 14

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Alabama.—At the examinations held in June and July there were 138 applicants; of these, 66, or less than one-half, were successful.

Indiana.—During the year 1907 State board certificates were issued to 190 physicians after examination. Nineteen failed to pass the examinations.

Connecticut.—Reciprocity is now permitted under certain conditions.

Washington.—At the July examination there were 145 applicants; of this number, 39 failed in the examination, and one withdrew.

Oregon.—At the July examination there were 67 applicants, but only 23 of these were successful.

New Jersey.—At the examination held at Trenton, June 16-17, 1908, the total number of candidates examined was 59, of whom 49 passed and 10 failed.

Wisconsin.—At the examination held at Madison, July 14-16, 1908, the total number of candidates examined was 66, of whom 60 passed, 3 were conditioned, and 3 failed. Eleven reciprocal licenses were granted at this examination.

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Original Articles.

THE DIAGNOSIS OF PEPTIC ULCER.*

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Considerable progress has been made in the diagnosis of gastric ulcer in recent years; it is true that no pathognomonic sign or symptom has been discovered, but we have learned that the classic picture is present only in the unusual case; we realize now that to demand this complete picture is to fail in the recognition of the large proportion of cases. The widest variation is symptomatology is expected and thorough exhaustive study of the individual patient is coming to be recognized as the *sine qua non* in diagnosis.

The typical case of peptic ulcer, in the history of which there is the complaint of regular pain after meals, tenderness in the epigastrium, vomiting occurring regularly with the pain, and blood macroscopically evident in the stool or vomitus, is not at all likely to be overlooked; such a syndrome is generally familiar, and the danger lies in the possibility of assuming the presence of ulcer incorrectly when the symptoms are superficially similar to ulcer symptoms but are actually different in important particulars. It is not the mere presence of this quadrad of symptoms which is diagnostic, but the appearance of these symptoms in a typical form. The characteristic form of these symptoms becomes then a matter of great moment.

The typical ulcer pain is that which develops from half to two hours after eating; begins not suddenly but develops somewhat gradually: it is burning, boring, cutting, or stabbing; is localized in the middle line close to the ensiform, possibly radiating to a degree into the back or up into the precordium; it is regular in its occurrence, coming after every meal when coming at all; it is more apt to be induced by the solid foods, rarely following the ingestion of water; it usually lasts for quite some time, often only to be terminated by vomiting, or the ingestion of an alkali or an albuminous food. Pain such as this is almost positively diagnostic of gastric ulcer even without other pronounced symptoms. As in one particular or another it deviates from this description, pain is less positively diagnostic until of itself it ceases to be even suggestive of this condition.

The tenderness in this type of case is pronounced, even exquisite; it is sharply localized over a small area in the middle line between the ensiform and a point midway down to the umbilicus. The more diffuse tenderness or such as may be found in other situations, has a diminishing degree of diagnostic value. The Boas tender spots in the back are frequently found in ulcer, but so commonly are such spots found in the neurotic, that their presence must not in my opinion be taken as strongly suggestive unless the tenderness in the epigastrium is also marked.

Vomiting, occurring as it does in only about fifty or sixty per cent. of cases, is not at all essential in the picture. In the type of ulcer under consideration it occurs only in conjunction with the pain, and usually not until the pain has become severe. Vomiting alone without pain cannot be spoken of as at all suggestive of ulcer except that form which occurs when the pylorus is stenosed; when this takes place there is either occasional profuse morning vomiting or a painless overflowing of the stomach after meals. Otherwise, vomiting which takes place ten to fifteen minutes after meals is to be attributed to acute protracted gastritis, ulcer or stenosis of the esophagus or cardia, psychopathic states, or cerebral lesions. Regurgitation is often mistaken for true vomiting, but the distinction is an important one, as regurgitation rarely evidences an actual gastric lesion, but usually esophageal stenosis or a nervous abnormality.

Actual hematemesis taken with these other symptoms is almost absolutely diagnostic; without pain or tenderness it has less of diagnostic value because its occurrence is not uncommon in conditions other than ulcer. Slow leakage from the gastric mucosa, as in passive hyperemia and severe anemic states must be considered, and the possibility of the blood having arisen from the respiratory passages, and been swallowed is sometimes presented. It is surprising what quantities of blood may come from a pulmonary lesion which occasions little or no cough; such blood when swallowed may be vomited either fresh or dark and clotted. In beginning miliary tuberculosis with few physical signs this type of bleeding may cause serious mistakes. The occurrence of a few flecks of blood in mucus or even a small quantity of bright red blood after prolonged retching is too common to allow us to draw conclusions from its occurrence; it has frequently happened that the tendency to base too much on the presence of very small quantities of blood in the vomitus has led to a diagnosis of ulcer when, for example, hysterical vomiting demanding absolutely different treatment has been entirely responsible for the appearence of the small quantities of blood.

Black stools while suspicious so often result from constipation and a meat diet that they should not be accepted as evidencing bleeding; when an intelligent observer insists that the stools have been tarry or purplish in color there is very considerable ground for suspicion. If the appearance admits of any doubt whatever, the proof by chemical test is absolutely necessary. A history of the passage of fresh blood with or after the def-

*Read before the Brooklyn Medical Society, March 20, 1908.

ecations can rarely be taken as an evidence of gastric or upper intestinl bleeding. Only on two occasions have I personally seen fresh blood from such a source, and in each instance the bowels were very active and the bleeding so severe that marked constitutional symptoms were developed.

A case presenting these symptoms and signs in the form described is one of gastric ulcer almost beyond the peradventure of a doubt. Carcinoma which has developed upon an ulcer may have to be eliminated by further study. Such a complete picture being so uncommon, the question arises as to the suggestiveness of individual symptoms, and the variation of these and other symptoms as yet unmentioned.

It is well agreed that pain is the commonest symptom which calls attention to the possibility of an ulcer in the stomach, but in its characteristics it frequently varies from the form described. When a pain is complained of in situations other than in the upper epigastrium it is not suggestive of simple, uncomplicated gastric ulcer. Sequelæ and complications may give rise to pain, not directly in the upper epigastrium, but even though the stomach is much enlarged or much below the normal position the pain of ulcer *per se* occurs well above the umbilicus and but little to the right or left of the median line. Diffuseness of pain speaks against simple ulcer as a cause.

In character the pain is frequently different from that previously described; it may be a localized heavy ache or a dull, boring sensation. It may occur only on infrequent occasions, particularly after a dietary indiscretion or a period of physical or mental strain. When attacks of pain seem only to follow periods of overwork or anxiety a diagnosis of a neurosis is very apt to be erroneously made. At such times the constantly present ulceration occasions discomfort either because of an increase of acidity of the stomach contents or because of the unusual irritability of the nervous system.

For no reason whatever that can be discovered ulcer may occasion no pain for long periods, and then suddenly give rise to great distress for a time. This seems to be almost characteristic of the chronic indurated ulcer as seen in those of middle life. The tendency is to consider that medical treatment has effected a cure when there has been a natural period of remission. Given an individual apparently free from psychopathic taint who for years has suffered from periods of epigastric pain alternating with periods of absolute freedom from signs of digestive disturbance or with only those of the mildest sort, the diagnosis of chronic ulceration of the stomach is highly probable, although there be no complaint of other symptoms. Formerly it was the custom to attribute such a complaint to hyperacidity, but stool examination during the periods of suffering have shown that there is bleeding from the gastrointestinal tract and exploration has frequently of late shown the presence of an organic lesion.

While the pain of ulcer is expected to begin one-half to three hours after meals, it is often more delayed, particularly when the ulcer is near or on the pylorus. Pain which occurs very late is, of course, more suggestive of a duodenal location of the ulcer. Sometimes the pain comes in sharp attacks, awakening the patient at midnight or after. Pain which occurs thus late after meals is usually spasmodic in character, coming and going rather suddenly and being very severe and cramplike in character. This sort of pain which is apparently the result of pylorospasm as the last of the stomach contents are being emptied into the duodenum, may also arise from other abnormalities, and the differential diagnosis may be a matter of great difficulty. The reflex pylorospasm from gall-bladder and appendix disease is much less apt to be regular in its time of occurrence, and definite signs and symptoms referable to the diseased organ are expected. Emotional states certainly seem to lead directly to attacks of pyloraspasm. When such an occurrence is frequent or recurs at a definite time without marked emotional excitement, an organic cause should be suspected.

Pain which is constant or complained of before breakfast in the morning, when the stomach is empty, is rarely due to a gastric ulcer; there may be slight constant discomfort even though the stomach is empty; this may be suggestive of ulcer, although not often met with. Pain which begins immediately or a very few minutes after food ingestion is also rarely to be attributed to ulcer except in those somewhat rare cases of ulcer at the cardia.

Tenderness is usually present early in the course of ulcer, but when a lesion has been present for some time, it is not at all unusual to find no tenderness whatever or only a slight degree during periods of apparent exacerbation. This is exceedingly important, as the classical teaching regarding *tenderness* in ulcer is quite different.

The tenderness is usually located sharply in the middle line high up in the epigastrium, possibly a little to the right or left. When an ulcer is situated directly beyond the pylorus or near the orifice and there is spasm of this sphincter, tenderness is discovered in an area which makes for difficulty in differential diagnosis. The small individual with a narrow chest presents a very small right hypochondrium for examination; within this small area there is much to tax the diagnostic powers of the surgeon and clinician. The presence of tenderness may indicate but little more than that one of a number of disease processes is to be dealt with.

Belching of gas has quite frequently of late been mentioned by the surgeons as an important symptom in ulcer of the stomach; in cholelithiasis it is said to be less constant. The clinician hears complaints of belching so constantly he is not apt to attach much diagnostic significance to its presence. On the other hand it is frequently not complained of at all by those afflicted with gastric ulcer. Belching of itself is not suggestive, and when belching is added to the history of pain very little is added to aid in the diagnosis.

Hyperchlorhydria is contributory evidence in the diagnosis, but as it occurs, according to the best investigations on this subject, in only about 55 per cent. of all cases, it is not at all essential to the diagnosis. Hypochlorhydria is not rarely found. Hyperchlorhydria, on the other hand, does not rule out carcinoma, for long after the malignant degeneration of an ulcer very high degrees of free acidity may be found. This is, of course, the very exceptional case, and any free hydrochloric acid is weighty evidence against carcinoma.

A word may here be interposed, regarding the belief held by many in times past and even the present, that true epigastric pain may be the re-

sult of hyperchlorhydria. As cases of this apparent nature are studied with care, it becomes doubtful that there is not usually a lesion of the mucosa which accounts for the pain. Hyperchlorhydria is a common condition; slight epigastric discomfort, acid eructations, and belching are frequent resulting complaints, but attacks of actual epigastric pain or severe burning localized in the epigastrium so strongly suggest the presence of ulcer or some form of abrasion that this is to be ruled out only by most careful study of the case. Attacks of pylorospasm are also to be looked upon as due to hyperchlorhydria in rare instances, if at all. Both pylorospasm and hyperchlorhydria are occasionally observed following immediately upon a period of intense emotional excitement. There is no reason why the pylorospasm should be attributed to hyperchlorhydria, as their association is not at all constant.

Hypersecretion is an even more constant finding in gastric ulcer than is hyperchlorhydria. The test meal extracted from a stomach which is affected by an ulcer is usually very thin and large in amount. There is nearly always a rapid separation of the extracted chyme into a whitish clear upper layer and a lower finely granular layer, the remains of ingested bread. Just how much gastric juice may be found in a normal stomach is a matter of dispute; it would seem that there should be practically none if conditions are actually normal and the tube is kept in the stomach but a short time. One hundred or more cubic centimeters of gastric juice in the fasting stomach is somewhat suggestive of a gastric ulcer and one near the pylorus causing at least partial obstruction. In other words, I am of the opinion that acute or chronic gastrosuccorhea is exceedingly suspicious of a chronic lesion of the mucosa and rarely to be considered a neurosis.

During the past few years, largely as a result of the excellent work of Boas and his pupils, and more recently of many investigators, the occult blood tests on stomach contents and stools have come into much deserved prominence. It is unquestionably the most important recent addition to our knowledge of the diagnosis of gastric and duodenal ulceration and the exclusion of those diseases of the upper abdomen which simulate ulcer. The same criticisms apply to these tests that have been offered as objections to other laboratory methods of diagnosis; they may be misleading if not interpreted by the careful study of the case; they may lead to mistakes if the greatest care is not taken in technique; they are fallacious unless certain sources of error are rigidly excluded. The taking of repeated test meals is objected to with good reason and the passage of the tube may be contraindicated by the features of the case. In ulcer of the stomach it frequently happens that blood is not found in the stomach contents while clearly demonstrable in the stools; the contrary, however, is not observed. It is for this reason that the stools are now relied on to show evidence of bleeding. If it can be shown or assumed that there is no addition of blood from the upper or lower respiratory passages, none in the ingesta, and none coming from the lower bowel, the presumption is in favor of a gastric or duodenal origin when symptoms indicative of trouble in this area are present. These tests are not so fine that the positive test can be neglected. Given the meat-free diet and free as well from such medicaments as are made from meat or blood, even the benzidin test, the most delicate of all, cannot be disregarded if positive.

Personal experiences with the routine examination of the stool for blood in all sorts of gastrointestinal complaints has convinced me of the value of such tests in differential diagnosis. Repeated examinations are frequently very necessary if we are to gain the full value from these tests. Single negative tests certainly mean very little. Repeated tests of the stools for occult blood often make possible an absolutely positive diagnosis of the obscure case of ulcer when it would otherwise be impossible without direct inspection. The effort to unravel the nature of an upper abdominal complaint should never be looked upon as completed until daily examinations of the stools for occult blood have been made for a period of days and even weeks during which all sources of error, such as meat in the diet, are excluded.

Gastroscopy promises to be of value in the occasional case, but it must be recognized that the upcurved pyloric area, the most frequent site of ulcer, must remain somewhat difficult of inspection. Duodenal ulcers can only in very rare instances be directly seen by this method. Gastroscopy can therefore hardly be looked upon as a procedure which is to exclude the presence of ulcer, although it may demonstrate that such a condition is present when not at all suggested by other clinical procedures.

Orthoform, as suggested by Murdock, is sometimes of value in the diagnosis, but it has been found that in some instances the pain of ulcer is not relieved by this drug, while occasionally the pain of conditions other than ulcer may be somewhat abated.

In the fact that a bland diet, such as the strict milk diet, is particularly apt to bring about a cessation of the pain and other symptoms of gastric ulcer even though it be of no permanent value, we have a distinctly valuable point in the diagnosis of the obscure case. Other lesions and the neuroses which occasion complaints in this area are much less apt to be thus favorably influenced by this quality of blandness in the diet. Forced feeding, on the other hand, which has such a salutary effect on many of the functional disturbances, is not at all well borne if there be an abrasion of the mucosa. This is often evidenced when the attempt is made to add solid foods to the dietary of the patient afflicted with ulcer who has for weeks taken a fluid diet without any disturbance of sensation.

In the diagnosis of gastric ulcer the importance, indeed the necessity, of prolonged observation is not to be forgotten. In this way the temperament and the peculiarities of the individual become understood, and to all complaints we are able to give a proper valuation. Unless it is evident that there is a lesion present which makes temporizing unwarranted, cases in any way suspicious of gastric ulcer should be studied with care for a long time. The patient should often be given to understand the difficulties of the diagnosis and the likelihood of apparent cures from long and dangerous periods of latency. The importance of again submitting to observation if there is any return of the trouble must be carefully explained. In this way only can we avoid being confirmed in our mistakes; as it is, in a large city the tendency is to see only the mistakes of our neighbor. In passing from the

observation of one clinician to another the patient is apt to be the loser, as the same ground is covered many times, the same mistakes made, the same unsuccessful treatment administered, and the same temporary relief taken to be a permanent cure. Frankness to all those who are intellectually able to stand it, is the remedy for much of this unsatisfactory state of things connected with the diagnosis of obscure upper abdominal disease.

84 Remsen Street.

THE RATIONAL TREATMENT OF SPLANCHNOPTOSIS:*

DISPLACEMENTS OF VISCERA, BOTH ABDOMINAL AND THORACIC.

By J. MADISON TAYLOR, A.B., M.D.,

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This brief paper is intended to set forth personal experiences and methods used in treating displacements of the viscera. These disorders are exceedingly common, often unrecognizable except by inference, yet, even in their incipience extend causal relationships to a large number of disabling maladies. While it is occasionally possible for good health to be maintained in spite of maladjustments of any of the great organs, it is obviously essential that, to maintain organic competency, normality of anatomical interrelationships must be preserved. Medical literature is full of testimony to the hurtfulness of morphological dissociations in the hydrostatic mechanisms.

In pursuing researches while preparing former papers on allied subjects, the writer was constantly impressed with the clinical significance of displacements of viscera, especially the potency for harm which distortion of blood-vessels and connecting tubes exerts on visceral integrity and organic action.

Fatigability, all those conditions which evolve from lowered vitality, and the whole complex array of exhaustion states which complicate so gravely the problems of infection and form indices of prognosis, stand at the head of causal agencies. We may here outline a postulate on which to build our argument: that individual is most favorably qualified to exercise his autoprotective powers whose hydrostatic mechanisms are, and remain, the nearest possible to normal in position, elasticity, patency, etc. Conversely: that individual who suffers from whatsoever degree or kind of interference with the caliber of the tubular organs, blood-vessels, etc., stands in grave peril, the extent and character of which it is often difficult to estimate.

The causes of splanchnoptosis, movable, displaced, prolapsed, wandering or dislocated hollow organs, lie far back in the origins of growth and development. A neurasthenic tendency is the fountain source of all such defects. Some of these may be characterized as hereditary and others as acquired, but they are often so interwoven by evolution as to be etiologically indistinguishable. Clinically it is important to estimate how much is referable to accident or constitutional weaknesses from whatsoever source. A large part of those factors which are blamed for the initiation of the splanchnoptosis, such as digestive faults, intestinal putrefactions, functional derangements, errors during parturition, and the like, are usually, if not always, merely efficient or instrumental, not primary causes.

It is obvious then that the clinician must direct his remedial measures to the correction of the primitive defects, local or constitutional. By this course alone is it possible to achieve satisfactory repair.

To relegate these extremely prevalent, insidious, often most baffling but ultimately disabling disorders to the operating surgeon and be content with whatever perfection of mechanical replacement he can accomplish, is to fulfill but a small part of our intelligent duty. It must be admitted that the surgeon has given the subject that habitual thoroughness of practical study, within his jurisdiction, which is less noticeable among practitioners of medicine. To be sure, the surgeon enjoys the privilege of seeing, handling, and adjusting parts after removal of the obscuring envelope not vouchsafed to the physician. If we would justify the name of "internists" we must utilize our equipment in the same lines of anatomical, physiological, and pathological knowledge common to both. Our faults lie in depending too much on memory and not making adequate use of reasoning.

When the condition presenting is one of graphic obviousness, *e.g.* a markedly displaced stomach or kidney, undoubtedly mechanical replacement, "plication," or fixation is often the only course to be considered. When, however, the best that surgery can do has been done, there yet remains a multitude of organic faults of circulatory apparatus, constitutional damagements, and disordered nerve centers, original or acquired, which demand correction from the points of origin.

Whatever the sources of causation, and they are necessarily various, differing in degrees and directions of evolution, we have then to overcome cellular vitiation in several situations, among which are:

(1) Loss of nutritive vigor in the vasomotor subcenters in the cord, through which the affected parts are innervated and consequently,

(2) Impairment of nutrition in the internal structures which contribute to support; and

(3) Relative weakness in the external abdominal muscles.

There are also contributory sources of weakness to be corrected, such as loss of tone in the skeletal structures, vitiation of motor innervations, and in the whole cycle of the autoprotective powers, oxygenation, etc.

Oftentimes the patient will present such profound neurasthenic conditions—relaxation of the arterioles, exhaustion of the nerve centers, intense fatigability, physiological and emotional irritability, nutritive derangements, and the like—that it may be necessary to begin with a thorough and protracted course of rest treatment.*

Dietetic measures are of paramount importance and have been presented at length in previous papers. The chief dissiderata are, in treating the splanchnoptoses, to overcome intestinal putrefactions, especially by teaching how to eat and masticate, the use of lactacid milk, rational measures to overcome constipation, etc. Personally I cannot agree with the views expressed by so many that it is desirable to encourage collections of intra-abdominal fat with the expectation of thus affording support. One might as well use a jelly fish for a pillow.

Replacement of the prolapsed, wandering, or dislocated and fixed viscus should be performed by the physician himself. Later a masseur may do the routine work with safety, but only under supervision. Posture is helpful in securing replacement

*Read at the meeting of the American Therapeutic Society, May 8, 1908.

*See articles by the author, "The Conduct of Rest Treatment," Internat. Clinics, 13th Series, 1903; "The Essence of the Rest Cure," Monthly Cyclopedia, June, 1908, and "Repair of Will Loss," Internat. Clinics, Vols. II., III., and IV., 7th series.

and ultimate relative fixation. It is often well to keep the patient in a shoulder dependent, hip raised attitude for an hour or more at a time, inviting the cooperation of gravity. Several times I have relieved an agonizingly painful crisis by partly suspending a patient, placing a leg over each of my shoulders, half lifting him from the bed, meanwhile moulding the offending tissues and steadily, continuously, and forcefully applying taxis.

It is desirable frequently to assure oneself by palpation of the exact position of the viscus. Skill becomes instinctive. All lax viscera tending, as they do, to gravitate in an inchoate mass to the lower floor of the pelvis, it is essential to lift those systematically and repeatedly up and out from the lower quadrants of the abdomen. The subject lies in the dorsal decubitus, legs drawn up; the operator applies the hands one on top of the other to exert a steady force, drawing the underlying structures toward the umbilicus, and holding them there an appreciable length of time.

To replace a stomach, colon, liver, gall-bladder, cecum, sigmoid, kidney, or spleen, to say nothing of uterus and adnexa, is a nice operation demanding skill and power. An unusually large experience with masseurs convinces me that few can perform this act judiciously and even those require supervision and teaching. No disparagement is intended of the masseurs, for whom I feel the highest esteem. As they realize, few physicians have taken the pains to perfect themselves in their art as has the writer.

Incidentally let me mention that insomnia is often caused by an overfilled and dilated stomach, be it with fluid, air, or both. To empty this gives grateful relief and is often followed by instant sleep. Massage of the abdomen is powerful for good only if performed with a full appreciation of the varied, often diverse needs which must be met. Too often it is found useless and condemned unjustly. To appreciate all this, however, requires a degree and quality of knowledge impossible to be expected of any one but the physician.

Where there is pain due to pylorospasm, spasm of the common gall-duct, etc., vast comfort is often afforded by first employing steady pressure on the fourth to eighth dorsal vertebræ or adjacent tissues till the spasm is relaxed. From thence is the vasomotor innervation, and pressure relaxes the sphincters. The abdominal viscera are supported by the combined action of (*a*) the skeletal structures, (*b*) mutual adaptations among the structures within the cavity of the abdomen, (*c*) the diaphragm, (*d*) the omentum, and (*e*) the external abdominal walls. The skeletal structures should be put in good condition. This involves cultivation of all those factors which combine to maintain erectness. Stooping attitudes, slouching, encouraging depressions of those structures depending from the diaphragm, and the vertebral aspect of the abdominal cavity, especially an abnormal tilting of the pelvis, all invite confusion in the lower floor. Hence the first desideratum is to train the individual so to strengthen the massive muscles, ligaments, etc., that normal erectness shall become habitual. This can be done more decidedly by special education in promoting elasticity, in accurate adjustments, especially in securing full mobility and horizontality of the ribs, by forcible expiratory acts, than by the ordinary active sports or gymnastics. To attain this object my personal attention is given both directly and by supervision.

As a part of the pursuit of correct posture is the necessary training in full elasticity of all the muscles, movability of the ligaments and of junctures large and small, which is to be secured only by systematic stretchings, torsions, and other movements, both passive and cooperative. This is the only method of achieving the needed full motor power.

Development of the abdominal supports was the subject of a paper read by me before this Society May 4, 1907 (*N. Y. Med. Journal*, Nov. 6, 1907). No single measure is more capable of overcoming many baffling disorders of metabolism. Artificial supports to the abdomen, especially the invaluable belt devised by Morris Longstreth (to be described later), are indicated and should be used until there is full restoration of power to exert normal counterpressures, always essential to the maintenance of hydrostatic balance. There is much lymph stasis to be overcome, especially in muscles waterlogged as well as long disused, and often never properly developed.

To achieve this needed development is not easy. The subject is rarely sincerely desirous of radical improvement, at least not to the point of making the necessary continued efforts. We have to deal usually with individuals of feeble musculature, relaxed arterioles, marked fatigability, and habits of indolence. Their structures are all at fault, hence correct motor habits have suffered long neglect. The hollow viscera act through regular rhythmic peristalsis, of varying rates of speed. Rest is an important agency, definitely periodic rather than constant, but never too prolonged.

The most potent agent in overcoming the anatomical defects of the ptoses is to secure such a tone of the muscles of the torso that they shall not only recover their aforetime vigor, but become developed toward perfection. They should be made to reach the highest grade of efficacy which the inherent resources of the individual are capable of attaining, to resume not only what they were at their best, but become as good as they can be made. No muscles of the human body are so neglected as those of the diaphragm, the external abdominal muscles, and those involved in respiration. Systematic breathing exercises, even though they be clumsily and partially employed, produce gratifying results. When these are consistently taught and faithfully practised, this measure alone will establish a degree of invigoration of the whole economy which will satisfy the most exacting. The patient should first learn to draw the abdomen forcefully and deliberately inward and upward, next to combine this forceful indrawing of the abdomen and lifting up of the symphysis pubis with the act of expiration. This again should be combined with other simple muscle tensions by slow increments, such as flexion and extension of the wrist, of the ankle, of the shoulder girdle, etc. All acts should be a complex of respiratory, especially expiratory, emphasis plus simple increasing extensions or flexions of a limb, or portion of a limb. Along with this should be practised exercises promoting the elasticity of the flexures, the joints, especially the hips, the pelvis, the scapular muscles, also torsion movements, rotations, etc.

Among the difficult problems in relieving the splanchnoptoses is to secure suitable support for the relaxed abdominal walls. At best all artificial devices are but temporary measures, secondary to the radical restoration of the power of the tissues to perform their own duty, and they should be modified or abandoned when possible.

In a paper on this subject I pointed out the hurtfulness which ill-fitting girdles are capable of producing (*New York Med. Jour.*, May 11, 1907).

The only one which, in my experience, avoids most evils and supplies the right kind of help is that devised by Morris Longstreth, of Philadelphia. This consists of a belt, preferably attached to a corset, though it is useful for men and for some women without this attachment.

No girdle, belt, or special corset is of any permanent value which fails to compel the pelvis to remain on a normal level. Dr. Longstreth emphasizes one essential feature in normal standing posture: the shoulder, anterior superior spine of the ilium, external trochanter, and arch of the foot must fall within one vertical line. To achieve this the pelvis must be in its normal position, and this is accomplished by using his belt.

The desideratum is to secure a convenient, comfortable garment, readily adjusted, interfering as little as possible with esthetic requirements; it must support the abdomen fully, maintaining *in situ* organs which have been "replaced," or exerting a continuous assistance in the process of gradual replacement, whereby the intestines may regain their normal tone, caliber, direction, and affording relief to the organs, connecting ducts, and vessels from hurtful forms and degrees of pressure. It must simulate the natural support and pressure normally exerted on the abdominal contents; it must relieve increased weight when thrown upon the diaphragm and those structures which contribute to mutual organic support. It must not impair the normal excursus of movable parts, lower ribs, etc. It must not exert heavy, continuous pressure on paravertebral tissues, which causes excessive vasodilatation, hence chronic vascular relaxation and functional derangement in the organs or parts.

Most devices aiming to do all this unfortunately exert their force upon the soft structures of the abdomen in front and in the rear upon those above or near the sacrolumbar region and above the pelvic brim. The straight front corset is, in my opinion, most objectionable for reasons stated elsewhere. It invites, it practically compels the wearer to assume unnatural attitudes, especially a tilting downward and forward of the pelvis. The buttocks are pushed out posteriorly to relieve the pressure in front. It is a curious fact that women will eagerly welcome any special form of corset which promises to flatten the abdomen and squeeze the contents anywhere out of sight, no matter what the hurtful cost may be nor how deforming the effects. The effect of all straight front corsets is to tilt the pelvis down in front, exaggerate the backward thrust of the buttocks, and interfere seriously with normal plantigrade progression; it impairs the natural alignment of the body and throws strains upon the mechanisms which contribute to poise, hence economy of functionation. There is no question in my mind, after years of close attention to the damaging effects of faults in posture, that the nearer the individual achieves a level pelvis, *i.e.* a pelvis the plane of which stands at a practical right angle to a perpendicular vertebral line, the better. To be sure, the lines of beauty (displayed typically in the region of the hips and thighs) involve a moderate lumbar curve. The less of this, beyond that seen in a healthy, well developed young woman, the better. Not only is this the more beautiful attitude, but it more efficiently serves the purposes of Nature. The pelvis is a basin devised to contain the soft structures of the abdominal cavity. If it remains practically level these hollow, movable viscera stay where they belong. If it tilts downward in front these structures tend to pour out over the pelvic brim.

Any abnormality in the proper position of the pelvis is a serious factor in deranging the functions of structures lying within or immediately above, notably the appendix, Fallopian tubes, etc.

The belt devised by Dr. Longstreth is five inches wide, of extra firm webbing, the upper and lower lines parallel. No alteration is made in the parallelism (except where attached over the corset it is "worked in" by sewing). It encircles the hips from the "hip bone" (anterior superior spine of the ilium) to the "thigh bone" (external trochanter) which are ordinarily five inches apart; it is carried down in front to support the under surface of the abdomen. Thus the forces expended in sustaining the tissues of the torso proceed from the most solid, powerful structures in the body—those of the pelvic girdle, loins, and upper thighs. The effects of this firm horizontal encircling are to compel the pelvis to remain on a normal level, the back bone vertical, and for the patient to preserve habitually the erect posture. A corset alone, even of the straight front pattern, encourages relaxation of the back muscles. The combination of belt and corset enforces erectness, in both sitting and standing.

The belt is open in front, continues with the corset opening, and is fastened with three or four broad hooks. Behind it is also open, about three inches apart, adjusted with four strong tapes and buckles; no continuous pressure should rest on the paravertebral tissues. It is an index of normality in these muscles that they shall be free from adhesions to the subcutaneous tissues. A shrinkage in body girth is often rapidly effected, along with a replacement of the displaced organs and tissues. No offensive perineal bands are required to keep this belt in place. It will support equally well a thin or a pendulous abdomen. Most other girdles or belts lie above the hips, exerting too severe and constant a pressure on the lower back and belly; they are not steady; they tend to slip or pinch. It is most important, as has been said, to elicit the cooperation of the heavy muscles of the upper thighs. By this means the parallelograms of force are made to radiate upward and inward toward the vertebral line, obtainable in no other way. This belt by securing the pressure from these powerful hip and thigh tissues tends to lift the entire corset. Hence not only is there no constriction exerted on the waist, but the movements of the lower ribs become far more extensive and rise well above the pelvic brim.

When once the wearer becomes accustomed to this belt the comfort is complete. Nevertheless, much skill and judgment are required to attain individual adaptabilities. It is an artistic garment, only of service when nicely applied. Many careful fittings and progressive refittings are demanded, otherwise it may be unjustly condemned. The muscles must become adjusted slowly and progressively. There are always changes in shape, contour, alignments, and poise, as the normal attitude is approached. At first nearly all patients condemn and would reject the belt, but, with tactful persistence, they are finally led to accept it and, when needed, welcome it gladly. My own experience with it engenders enthusiasm for this device in ameliorating a variety of conditions not at first obviously related causally, among which are dyspepsia, loss of motility, venous tasis, dilatations, constipation, and obesity; especially those morbid states which the gynecologist finds rebellious, protracted, but not always demanding radical operation. It is of the utmost efficacy in regulating splanchnic circulation, relieving many cardiac diseases and derangements, and removing the passive hyperemias which are the chief causes of so much functional derangement.

In that group of obscure yet serious derangements caused by splanchnic arteriosclerosis it is peculiarly valuable. Often these are unrecognizable; inexplicable yet extraordinary improvement in vigor following the prolonged use of the belt may well be ascribed to the restoration of tone in the abdominal blood-vessels.

The measure to which I desire to direct final yet chief attention, one which has proved for me of greatest efficacy (although no logically contributory measure should be omitted) is the potentialities evoked by manipulating the paravertebral tissues with the purpose of so stimulating the vasomotor subcenters that the activity of the local circulation shall enhance nutrition in the disaffected structures. While this agency has been recognized and employed for nearly a century, as shown historically and outlined physiologically in a recent paper by my friend Seymour D. Ludlum (*Jour. Am. Med. Ass'n*, May 2, 1908), we have learned hitherto little more than empirical facts. In so brief an article it is only possible to assume the certitude of the physiodynamics involved in the reflex stimulation of viscera and supporting structures through hand pressures directed to the paravertebral tissues which are innervated by the posterior primary divisions of the spinal nerves, as set forth in other papers ("Diagnosis in Diseases in Children," *British Journal Diseases in Children*, January, 1905). (Hypothesis on the Etiology of Scoliosis, Monthly Cyclopedia, Vol. VIII., p. 303, 1905).

A rapidly accumulating experience, both personal and other, in the treatment of many protracted disorders, involving many instances of hitherto incurable organic derangements, has abundantly proven the efficacy of this form of manipulation in diverse fields of usefulness. In brief, so far as the correction of the splanchnoptosis is concerned we have to deal with depleted nutrition of the whole organism, but particularly in the parenchyma of the abdominal organs, along with pronounced impairment of functional activities, which act as secondary causes of distentions, dilatations, obstructions to local circulation, and these in many ways retroact also upon the supporting structures. Much of the disability is due to vascular stasis, waterlogging, the effects of retained toxins and toxic wastes on circulation and thereby constricting blood-vessels unduly. The object to be attained is to activate the total circulation both directly and generally. While many of our reliable drugs accomplish this in part, alone they often fail, whereas it will become obvious to any one, even to the scoffer, that manual treatment can and does rapidly and efficaciously improve circulatory activity, hence nutrition.

This is neither the time nor place to unfold the argument, but rather to indicate what to do. It is my custom to perform this spinal manipulation myself at least two or three times a week. It occupies about five to ten minutes. Not only does this measure bring about swift, patent, and permanent results, but oftentimes by other well chosen manipulations I am able to relieve many sensory irritations. If there are local congestions, inflammations, acute toxic irritations, etc., gentle continued pressure near certain vertebræ, inducing lessened tension in hyperemic areas, through sympathetic vasoconstriction, materially expedites removal of stasis.

In conclusion let me express the conviction, based on some experience, that, by the rational treatment of the splanchnoptoses or those diverse neurasthenic conditions in which it is safe to assume they are latent, we can rescue many invalids from lives of misery or from cruel limitations.

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THE PERSONAL FACTOR IN DISEASE.

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The personal equation in disease seems to me, at present, to be of more real importance in practice than anything else. Formerly, this was thought to be true and emphasized in several ways. To begin with, the old practitioner was believed in for more than one good reason—but his powerful hold on the family was due essentially to the fact that it was believed and recognized that he knew all about it—that no individual peculiarity or idiosyncrasy escaped him. This was true in both health and disease. Hence they (the members of the family) always did, so far as practicable, what he advised, and they prized the advice most highly and loved and revered the giver of it.

From watching keenly and very carefully, during long and patient years of service, many patients, young and old, in all classes and conditions of life—and long before laboratory research work was known, or even thought of—arose a conviction that people could be grouped in classes in health, and thus sickness studied and observed. These classes had different temperaments, and among the temperaments there were, also, marked individual characteristics, and these, again, should be regarded and estimated collectively. These collections were grouped in large numbers and labeled with the term "diathesis." Now, diathesis is not one; it is several. It means constitutional peculiarity or individualism, as influenced by habits, professions, exposure, ambient conditions, food, drink, medicines, worries, anxieties, work, play, etc.

Among the diatheses, notably, were found: 1. The rheumatic. 2. The gouty. 3. The lymphatic. 4. The nervous. 5. The bilious. These names meant more and differently than they mean to-day—and much of what they tried to teach was wrong, or exaggerated. On the other hand, there was a kernel of great truth; there was a factor influencing, powerfully, certain individuals, and capable of becoming pronounced and influential on slight provocation, very frequently. Illustrations of these statements could be given which would be very numerous, widespread, and proceeding from the daily life work of every practitioner, general or special. I shall give a few to illustrate my affirmations, and among them are some which are familiar to many—perhaps to all.

Take an individual of the so-called rheumatic type. Let him be exposed for a short time to marked dampness, or let him get a casual wetting, or sit in a draught, or sit with wet shoes, and very soon he may and will give evident signs of rheumatism—such as pains, or aches in the joints, muscular stiffness and soreness, pain on pressure, or motion in certain parts, sometimes without fever, sometimes with. Again, take a gouty subject and let him make excesses or errors of diet; let him become thoroughly tired through overwork or anxiety; let him indulge freely in wine, beer, or spirits, and very soon his big toe will become red, swollen, and painful, his urine very light in color, of low specific gravity, but on cooling throwing down a marked deposit of red sand—or again he will pass a muddy, reddish fluid of high specific gravity, in diminished quantity. This urine, on boiling, will very soon clear up and appear normal and healthy by reason of solution of the contained urates.

Witness a pale, pasty-looking, phlegmatic young man, or woman, whose skin is dirty-looking, punctuated with little black specks (comedons), or having here and there reddish blotches, or swellings,

and here and there, perhaps, on the side of the neck a disfiguring, depressed scar, which shows where a former small abscess had opened and allowed pent-up pus to escape. These patients tire easily, are subject to catarrhal disorders of throat and nose, have coated tongues, foul breaths, constipated, or irregular bowels. They are notably improved, or helped whenever they can take salt baths and sojourn at the seashore for a prolonged period. They are especially helped by medication with cod liver oil and hypophosphites of lime and soda—iron may or may not be useful. Nutritious and abundant food of varied nature, properly prepared, is essential to their wellbeing. Little by little and with increasing years, when under proper care and treatment, they improve and outgrow acute manifestations of their constitutional defect, unless the provocation to it be very marked and important.

Now, aside from the general dyscrasic conditions which are clearly defined and evident to the experienced practitioner, there are many instances in which some accidental cause, or causes, some interlocking of different circumstances, short or long continued, may bring out symptoms, or signs which seem without much doubt to make the underlying constitutional state probable, or even tolerably clear.

In many individuals, however, there is no dyscrasia of any kind that can be shown, or that seems probable from any symptoms, or conditions, noted, or observed. And yet such individuals, and they are the vast majority of men, women, and children, have their pronounced peculiarities, idosyncrasies, reaction to, or effect caused by, some special food, or drink, or combination of divers foods in the form of prepared dishes. Again, as I have said, exercise, worry, heat, tire of mind and body may bring out symptoms and signs in one individual and not at all in another. Medicines, as we know, act very differently and sometimes alarmingly in different patients, and we have absolutely no means of knowing in advance frequently, why, or in what manner, they cause these occasionally untoward and unexpected effects.

As regards drink, I have known a tumblerful of milk bring on an attack of asthma with hives in an otherwise healthy child. When the milk was taken and a piece of bread eaten at the same time, there was no asthma and no hives. I could explain this by saying that the bread helped break up curd and that stomachal digestion was not interfered with. But why and precisely in what manner and for what reason asthma and hives were occasioned are certainly matters largely of thought and conjecture. I have known mushrooms in good condition and on repeated occasions cause most distressing edema of the uvula and palate. Prior to these attacks the same individual had eaten mushrooms repeatedly with no bad or unpleasant effects at all and had always thoroughly enjoyed them. I have known an individual in whom a single strawberry would give neuralgia of the teeth which lasted twelve to twenty-four hours. Again, prior to the attacks of neuralgia of the dental branches of the fifth nerve, the same individual had eaten repeatedly and abundantly of strawberries without pain, ache, or unpleasant symptoms of any kind. In this case it seemed as though the only plausible, though not entirely satisfactory, explanation was that with increasing years strawberries had become inimical to that patient.

Some anemic girls are kept awake with coffee; some go to sleep after taking coffee. No appreciable difference is noted between the girls who sleep and those who remain awake. The best one can say is that their temperament differs, and yet when we say it we do not really know what we mean, but cover up our ignorance with a big word. I have been called to a very alarming condition of syncope, followed by paralytic symptoms in the limbs and disordered cerebration, occasioned by two grains of quinine, when absolutely nothing else seemed rationally to account for the condition. Coca has been to me more than once the most powerful cardiac stimulant I could use. The same preparation with others under apparently similar conditions had little or no effect, good or bad, so far as I could determine.

I have known very large doses of nitroglycerin to be given experimentally in a healthy individual, and again where there was evidence of arteriosclerosis, and no appreciable effects were produced in either case. No throbbing of head in the one, no relaxation of arteries or head symptoms in the other. Many preparations of digitalis seem at times relatively inert, and yet the drug itself may have come from a well-known, honorable pharmacist. And thus I might further multiply example after example.

Undoubtedly with time the body of man changes, and changes, as we all know, to the effects of food, drink, medicine, exercise, etc.

We all discover these facts sooner or later if we watch closely, intelligently, and with proper training. It is to the wise physician to be guided and directed by this acquired knowledge so as to be most useful to his patient. And so it is with every new drug, every new combination of drugs; one must be extremely careful and give small, very small doses, until one has gauged properly the personal equation of the individual.

And so it is again in regard to mere pathological lesions. One man will carry a lesion for many long years without distress and almost with impunity which to another is rapidly fatal. Further, lesions found post-mortem are of such a character that we fail to comprehend how long life and its enjoyment were compatible with their existence—and yet they were. On the other hand, the closest scrutiny, the most minute investigation at the autopsy, and later in the laboratory, fail to discover the cause of a life-long suffering and misery, or adequately and rationally to explain the cause of death.

We must believe, therefore, that a wise, judicious empiricism in the way of caring for patients, in administering drugs, in trying to relieve symptoms and perhaps cure disease, is thoroughly allowable and desirable, and this despite all of the advances and teachings of the most recent scientific methods of research.

Many times we have seen, all of us, syphilitic lesions of horrid type and affecting deeply and in most aggravated ways most important organs, and yet we have known them to disappear almost magically with the use of mercury or iodide of potassium properly given, and sometimes, also, long continued.

Most pernicious and deadly malarial poison is undoubtedly cured with bark and its alkaloids, and that, too, when seemingly indelible evidences existed of its presence and passage. But why in either case do these results obtain? Little by little we believe we have reached in a measure the explanation, but final truth is, even in these best known instances, not yet attained altogether, as I humbly believe.

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ABSCESS OF THE LUNG FROM ASCENDING INFECTION FROM APPENDICITIS, WITH REPORT OF CASES.

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Although the rupture of amebic abscess of the liver through the lung, with expectoration of its contents, is a well-recognized and not rare clinical condition, I have been surprised to find that a similar mode of emptying of a liver abscess arising from an appendical infection is sometimes not taken into account by even well-qualified members of the profession nor mentioned in many excellent textbooks. The exhaustive work of Kelly upon the appendix makes no note of it, further than a single line stating that an abscess may rupture into a bronchus, no hint being given that an extensive cavity in the lung substance may be formed. Much space is given to subphrenic abcess in this and other works, and empyema is frequently mentioned as a result of appendicitis, but of the lung itself little or nothing is said. Perhaps one reason for this lies in the fact that much of the writing on appendicitis is done by surgeons, while the lung abscess from this source comes to the physician oftener than to the surgeon, perhaps after existing a year or two, and often without a hint of its true origin excepting upon pointed inquiry, as in Case III.

Eisendrath, in a recent comprehensive article upon subphrenic abscess (*Journal of the American Medical Association*, March 7, 1908), states that "rupture of the subphrenic abscess into the lung has been reported in 19 cases." In some cases of the kind we are studying I feel sure that no definite abscess formation occurs beneath the diaphragm, but an inflammatory union between liver and diaphragm, diaphragm and pleura, and finally pleura and lung successively, with almost direct propagation of the liver abscess into the lung substance, and thence into the bronchus.

I wish to report three cases of extensive cavity formation in the lung from this cause, and shall associate with them reports of liver abscess and various other conditions which throw much light on the general subject.

Much stress is laid on septic embolism as the means of carrying appendical infection to other parts of the body. Doubtless this is a prominent factor in the spread from the radicles of the superior mesenteric vein about the cecum and appendix, upward by way of the portal system to the liver. Propagation by contiguity and extension of the inflammation directly from liver or subphrenic space to right pleura, left pleura, or pericardium is the rule—and in the great majority of cases to the right pleura, as we should expect.

The recognized origin of brain abscesses and other embolic conditions from suppurative processes in the lung makes it reasonable to assume that the late troubles noted in Case I were brought about in this manner by septic emboli from the wall of the cavity.

A strong argument for the removal of an offending appendix may be based upon the fact that the appendical inflammation, the first link in the pathological chain we are tracing, may be so slight in some instances (as in Case III herewith reported) as to fail to attract the physician's attention. Eisendrath states that "subphrenic abscess may follow an attack of appendicitis in which there has been no suppuration in or around the appendix." The serious results in Case V, where three minute ulcerations of the mucous membrane of the appendix had evidently been the starting point of a fatal illness which produced most of its symptoms far from this point, are worthy of note. It is far better for the patient to remove the appendix after the first definite attack, even though it show but comparatively slight pathological changes, than to allow it to remain, having the trivial or even almost imperceptible ulceration which may be the starting point of such troubles as we are discussing. The liver and lung complications are far more frequent in cases which run for some time unrecognized or without operation, and the fear of them should lead to prompt and intelligent action when we can recognize the early steps of the process.

In this region appendical lung abscess is apparently much less frequent than the amebic variety, for I have seen more than twice as many of the latter as of the former in Colorado. The number of my cases, however, is far too small to base judgment upon. In regions where amebic dysentery is more common, the disproportion in favor of amebic abscess would doubtless be very much greater.

Case I.—J., male, 28 years of age, seen with the late Dr. Parkhill, July, 1899. He had had an attack of appendicitis two and a half years before, and a second one a year later. In this attack an abscess formed, and was opened late. Within a fortnight or so he had a pain in the right side and lower chest, cough, and, beginning suddenly, the expectoration of many ounces of fetid pus daily. This had continued since. He had lost about 30 pounds in weight.

We found the appendical region negative excepting for the scar. An induration existed up toward the liver margin, and the liver was slightly prominent about the region of the gall-bladder. We found no evidence that the latter had ever been involved.

The right thorax was contracted so that the patient was bent laterally with the concavity to the right, as I have seen after amebic abscess of the liver and right lung. There was dullness over the lower right chest, with signs of a large cavity under the right nipple. The heart was displaced two inches to the right of its normal position, evidently from the shrinking process about the cavity.

About two ounces of offensive sputum was being expectorated daily, containing pus, elastic fibers, and many cocci. The urine had a trace of albumin and considerable pus. I think a pyelitis probably existed on the right side, but my notes are not complete upon this point. A letter just received from his physician, Dr. E. C. Baldwin, states that this patient had the right leg amputated above the knee for some septic trouble three years ago, and has since had abscesses of the arm, and later of the wrist. He has very rapid heart action and great dyspnea, but retains his weight. I infer that the infections have been embolic in origin, presumably from the lung process, which is still apparently more or less active.

Case II.—J. S. T., 42, married, laborer. Entered the Arapahoe County Hospital July 27, 1899, in my service. On February 1 he had had a painful abdominal trouble, and was sick for three weeks, presumably his first attack of appendicitis. May 1 he had a sharp attack, with abscess formation, and was operated upon ten days after at St. Joseph's Hospital by Dr. W. S. Bagot. Very slow recovery. Pain below ribs on right side was severe, and he was told by a physician that he had gall-stone colic. Moderate fever persisted, and soreness was pronounced over the liver region.

On July 30 I examined him at the hospital. Above the usual scar of the operation there was tenderness to the upper border of the liver, with

much induration below the edge of the ribs, and dullness on percussion. The lower half of the right chest was dull, merging into flatness below the eighth rib in the back and the fourth in the front, with decreased respiratory sounds and occasional wheezing râles. The usual signs of a cavity were found between the right nipple and the liver when he was examined after free expectoration. He was expectorating about eight ounces daily of thick, yellow pus, less offensive in odor than in some of the cases reported. The urine was negative. The temperature reached 101.5° once, but generally did not exceed 99°. The pulse was at different times as high as 108.

He gradually improved during his six weeks' stay in the hospital under tonic treatment, and gained in weight, the expectoration lessened, and the firm, dull mass in the upper right abdomen largely disappeared. He still had the signs of a cavity on discharge, and the cough and moderate expectoration persisted. I saw him two or three times during the next year. His condition was about that of a tuberculous patient with a quiescent cavity. He finally disappeared, and I cannot learn his further history.

Case III.—Male, 34 years of age. Seen with Dr. E. M. Brandt on January 27, 1908.

Fifteen months previously he had evidently had a sharp attack of appendicitis, followed by chills and septic temperature. About eight weeks after the beginning of the attack, a rib was resected above the liver, his physician in an Eastern State believing that he had empyema. No pus was found. Two days later he began coughing up pus of a most fetid character, and is still, after more than a year, raising a pint a day. His wound was reopened six months later, but nothing could be done.

We found that he had lost fifty pounds of flesh. He was moderately rigid over the right abdomen. Liver apparently negative in front. Over the right back there were dullness and decreased respiration to the tip of the scapula and the right posterior axillary margin. Many colon bacilli in sputum.

Drs. Brandt and McGraw opened up the old wound, and found a large cavity in the right lower lobe communicating below with a sinus in the dome of the liver, and above with a large bronchus. Free drainage was established. Old dense adhesions existed about the appendix, but no abscess was found there. He did fairly well for some weeks, when an attempt was made to collapse the ribs over the large cavity, since it seemed that it could never heal. The patient died shortly of shock and exhaustion.

The following cases of ascending infection from the appendix, but not causing abscess of the lung, are of interest in this connection:

Case IV.—K., female, eight years of age, seen with Drs. C. B. Van Zant and Leonard Freeman in 1902. Following an obscure abdominal disease, she had been operated upon in the East for empyema of the right side, and now, after coming West to recuperate, had an abscess encysted behind the navel, between the intestine and the abdominal wall. This was opened in three places and drained. Dr. Freeman found the old thickened appendix with a dense mass of adhesions running upward toward the liver, which had obviously been the cause of the ascending infection causing the empyema. In this case the connection between the appendical inflammation and the pleural trouble was not suspected until the discovery of the adhesions about the appendix.

Case V.—Mrs. B., 24 years of age, seen with Drs. Swerdfeger and Tennant. Several mild attacks of appendicitis during the past four years. Has had the usual signs of a new and more severe attack for nine days, with temperature upwards of 102°, pulse over 100, pain, rigidity, and tenderness. We found marked pericardial friction, and the next day, rough, dry pleuritic friction over the lower right chest. Much pain and soreness were found in both locations and over the liver.

A chronically inflamed appendix was removed the next day, with three small ulcers showing upon the internal surface upon section. We had expected to find an abscess here, but found none. As in some other cases I have seen, the inflamed appendix was doing much less harm than the severe ascending infection which it had originated. The patient died, thoroughly septic, some four days later. The involvement of the pericardium is rare enough to deserve careful attention. We were much disappointed in being unable to locate a pus cavity above the appendical inflammation, but the septic infection carried the patient off before such a localization could take place.

Case VI.—M., female, 6 years old. Seen with Dr. L. Freeman, October 20, 1905, at St. Joseph's Hospital. She had a typical attack of a severe appendicitis, beginning seventeen days ago, diagnosed and treated by Dr. Wheden, of Monte Vista. Although it was believed that the attack had subsided, the temperature still reached 102° to 103° daily, and she had the chills and sweats of sepsis. We found a subphrenic abscess containing air and foul pus, with tympany and changeable dullness. Dr. Freeman resected a rib and drained it, and later opened an abscess in the liver. She recovered slowly but fully.

Case VII.—M., 60, male, seen with Drs. Sewall and Freeman, December 23, 1905, at the Denver City and County Hospital. He had an immense right subphrenic abscess from an ascending appendical infection, which was opened and drained successfully by Dr. Freeman.

Case VIII.—Mrs. S., 30, seen at Mercy Hospital with Drs. C. K. Fleming and E. H. McGill, March 18, 1908. She has had two attacks of appendicitis during a recent pregnancy, the second one bringing on labor at the sixth month, this occurring six weeks ago. She has now chills, sweats, pain over the liver, temperature of 103° daily, and a large, tender liver. The spleen is palpable. No sign of disease in the pelvis, nor in the chest, excepting occasional cough.

Dr. Fleming removed the puckered and shrunken appendix from a mass of dense adhesions. The liver was mottled in color and softer than normal. No pus could be located by aspiration. A dozen gallstones were removed from the gall-bladder, but there were no adhesions nor thickening of its walls to suggest any severe infection.

A month later she was still in a condition suggesting septic anemia; there was jaundice of varying intensity, with a somewhat enlarged liver, transient but perfectly distinct pleural friction over the lower right lung on two occasions, and some pain and cough. We regarded the case as an instance of purulent infection of the liver from the appendical disease compressing the gall passages, while the upward extension involved the pleura. On April 28 the jaundice and pain had disappeared, the temperature and pulse were normal, and she seemed on the way to complete recovery. If an abscesss existed, it evidently discharged without our knowledge, presumably through the bowel or gall-passages. She went home apparently well May 1. Within a week, after a short febrile attack, pus was discharged in a fecal movement, and from the incision over the liver. She is now apparently well.

Case IX.—Male, miner, examined once only at

St. Anthony's Hospital, March 27, 1908, with Dr. Thomas H. Hawkins. On February 6 he states that he had abdominal pain, vomiting, fever, retention of urine, and soreness in lower right abdomen.

He now has a septic type of fever, pulse rising to 108, rigid abdomen, great tenderness over the appendical region, and upward towards appendix upon rectal examination. He had dry pleural friction at the left base five days ago, not found at my examination. The liver is moderately enlarged and tender. There was a dullness at both bases behind, with decreased respiratory sounds. No jaundice; spleen easily palpable; marked leucocytosis; operation advised, but declined, and the patient disappeared and cannot be traced.

This case is not conclusive, but extremely suggestive of the same pathological process we have been studying. Peptic ulcer and pancreatic disease would be difficult to exclude without operation. It is obvious, I think, that the large, tender liver, with involvement of the base of the lungs, the pleural cavities, or both, following an abdominal infection, points toward infection, and in just such cases abscess of lung may easily arise. The left-sided pleural friction would strongly suggest pancreatic disease, or gastric or duodenal ulcer, infecting the lesser peritoneal cavity and extending thence upward through the diaphragm, a condition I have observed before. Yet, as in Case V, the pericardium may be involved in appendical disease and the left pleura might as easily be affected.

Case X.—S., 23, male. Seen January 26, 1903, with Drs. Conroy, Miller, and Hawkins, at St. Anthony's Hospital. He had been operated upon four weeks before, forty-one hours after the beginning of the attack, for a sharp appendicitis, a pint and a half of seropurulent fluid being evacuated from the appendical region. The wound was closed without drainage.

A week later he had dry pleuritic friction over the region above the liver, and dullness extended to the tip of the scapula. The liver was enlarged, and we thought it contained an abscess. Dr. Hawkins found upon operation that the pus was beneath the right lobe of the liver, crowding it upward, and recovery followed free incision and drainage.

Case XI.—F., male, 41 years of age, seen with Drs. Freeman, Hawkins, and Fleming at St. Anthony's Hospital, March 7, 1902. Thirty hours after the beginning of his first attack of appendicitis he was operated upon, the appendix being found gangrenous and perforated. He had all the signs of an intense sepsis with gangrene of the edge of the incision, and died on the fifth day. Jaundice appeared the day after operation, the liver dullness practically disappeared, leucin appeared abundantly in the urine, with albumin and many hyaline, granular, and epithelial casts. Hiccough and delirium were noted. We concluded that death was directly due to acute yellow atrophy of the liver, but we were not able to obtain an autopsy.

Case XII.—M., aged 19. Following perforation in a virulent attack of appendicitis, an abscess was opened in the appendical region, another of the upper abdomen on the seventh day, and three days later yet another of the abdominal wall over the liver. Jaundice was present; death resulted shortly. The appendical inflammation may have been of typhoid origin in this case. There was no evidence of direct suppurative involvement of the liver, but there can be no question, I think, of a virulent ascending infection from the inflamed appendix.

Case XIII.—A., ranchman, seen with Dr. Leonard Freeman. He had had an attack of appendicitis five months previously, but was not operated upon. Three months later Dr. Freeman opened an abscess in the substance of the right kidney, which was still discharging when I saw him.

He was having chills almost daily, temperature ranging up to 103°, liver greatly enlarged and very tender; leucocytes 11,000; a motile bacillus was reported in the urine. The right kidney was opened again, and many pus cavities were found in its substance. The liver was explored, but no abscess located. The kidney was removed two weeks later, as the suppuration had destroyed it. At the post-mortem examination a few days later we found disseminated abscesses throughout the liver.

Case XIV.—Y., 42, male. Seen with Drs. Thorp, Greedy, and Perkins at St. Luke's Hospital, October 19, 1906. Following a sharp attack of appendicitis, four weeks ago, he has had pain over the liver and lower right lung, and now has chills and sweats and a septic temperature; leucocytes 40,000.

Dr. Perkins opened an abscess of the liver found by inserting a needle three inches below the tip of the right scapula. The pus was full of colon bacilli and had the familiar odor of this infection. A second operation was demanded two days later because of an abscess between the liver and the appendix, but the patient succumbed to general septic infection after three days. At the post-mortem examination the communication between the appendical abscess and that in the liver was easily demonstrated.

In several cases I have seen pneumonia after operation upon the appendix, but due, I believe, to the anesthetic or to mere chance, and not at all to a direct infection ascending from the abdomen. In several gynecological cases I have seen pneumonia or empyema follow an ascending infection, while in one such case we assumed that the pneumonia of the lower right lobe was embolic, because embolism also occurred in the left eye, with loss of that organ.

The constant affection of the lower lobe of the right lung in the cases we quote is sufficient evidence to me that the infection is usually conducted to the pleura and lung by direct contiguity, and not by an embolic process, as might well be assumed to be the case, for instance, should the upper left lobe be involved.

I think we may conclude that abscess of the lung is not infrequent in neglected cases of appendicitis, and that a cavity may remain for a long time after the abscess has emptied through a bronchus. The absence of the usual color of the pus of amebic abscess of the liver, of the history of dysentery, and the presence often of a definite colon bacillus odor to the expectoration lead us to think of the appendical origin of the trouble. The attack of appendicitis may have been unrecognized, but questioning will establish a plain history in many cases.

The bowing of the patient with concavity toward the right is not at all pathognomonic of lung involvement, either appendical or amebic, since I have seen it occasionally when dense adhesions had formed about an opened appendical abscess, and in other diseases of the right side of the abdomen. The position assumed reminds one of that in certain chronic cases of sciatica.

The prognosis is grave in cases of pulmonary involvement. Operation should be carefully considered. The chances of recovery must be doubtful at best, I believe, and we may accomplish much more by striving to avoid the complication than by attempting its cure. Although in any case we may have hepatic and pulmonary complications, in most cases they result from disregard of the early indications for operative intervention.

GONORRHEAL SEPTICEMIA, WITH MARKED CARDIAC INVOLVEMENT.*

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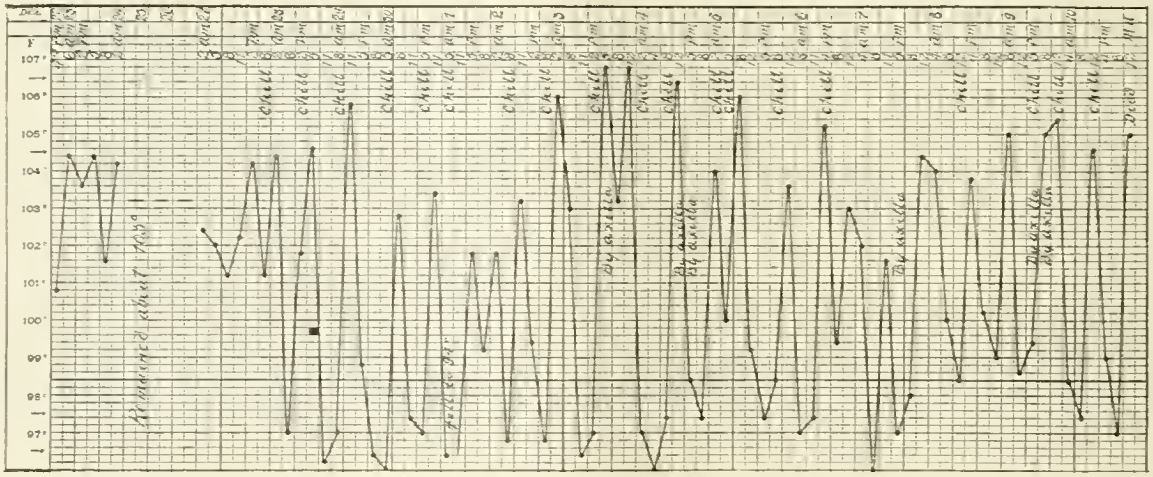
Endocarditis has undergone a gradual evolution since 1824, when Bouillaud showed it to be a distinct disease with the pathological lesion in the heart valves or walls. Its relation to rheumatism and pneumonia, and the presence of pyemia in some cases was also recognized by him. Klebs, in 1878, recognized all forms of endocarditis as having their etiology in some microorganism, as from any of the acute infectious diseases. This was later demonstrated to be a fact, as the organisms were found in the vegetations on the valves. The difference between the simple and the ulcerative or malignant form is chiefly one of degree of infection, or rather involvement, of the heart. The different microorganisms were soon demonstrated by numerous observers. The pyogenic organisms, streptococcus and staphylococcus aureus and albus were most often found to be the cause. Next in frequency the



pneumococcus, the influenza bacillus, the colon bacillus, the tubercle bacillus, and finally, comparatively recently, the ubiquitous gonococcus have been found in the active rôle of the cause of endocarditis. Thus endocarditis may be found as the terminal or intercurrent affection of such infections as erysipelas, carbuncles or pus anywhere in the body, either of staphylococcic or streptococcic origin, or following acute infectious diseases. The most common cause of simple endocarditis—rheumatism—is now numbered among the infectious diseases, or rather diseases of microbic origin.

The first case of gonorrheal endocarditis—so proven—Whittaker says was reported by Leyden in 1893. It is only within the last ten or fifteen years that gonorrhea has been looked upon as the cause of endocarditis, and even now the number of cases reported is comparatively small. Because of the inability to find the gonococci present, either in the blood or on the vegetations of the valves, it is held by some that the infection is a mixed one and the cardiac lesions are due to the pyogenic organisms.

While it is undoubtedly true that the infection is sometimes a mixed one, and that the pyogenic organisms only are found in some cases, I think most often the real cause for not finding the gonococci lies in the inability to make the organism grow on the media as commonly used in the laboratory for other organisms. Johnston and Harris, in an article in the Johns Hopkins Hospital Bulletin for October, 1902, on this subject, give as their conclusions, in regard to the cultivation, etc., of the gonococcus, the following: "(1) To cultivate the gonococcus from blood during life it is neither necessary to use a large amount of blood nor to greatly dilute the blood, nor to employ any specially prepared media. (2) It is more advantageous to mix the blood with melted agar and plate the same than to use fluid media where oxygen supply is more restricted. (3) That the time selected for making the culture taken in relationship with the course of the disease may be a factor of sufficient importance to be taken into consideration. (4) Compared with its action upon the typhoid bacillus and pneumococcus the bactericidal power of the blood seemingly has little effect in retarding growth of the gonococcus."

C. J. Habhegger, in an article in the *Philadelphia Medical Journal* of May 30, 1903, says of the difficulty of cultivating the organism: "The gonococcus grows very slowly, requires a special medium and is readily killed by slight changes of temperature, while the microbes ordinarily responsible for septic endocarditis are not difficult of cultivation on blood serum, agar-agar or gelatin. The method of making cultures is of practical importance and is performed as follows: Blood is drawn from the median bacillic vein by means of an aspirating syringe under aseptic conditions and mixed with twice as much agar-agar and then plated."

In his case the fact of negative cultures made from the blood during life, and from the vegetations and the organs of the body at autopsy, rather substantiates the diagnosis of gonorrheal involvement than otherwise, because of the known difficulty in cultivating the organism.

Babcock thinks that the virulence of the infecting organism usually determines the character of the cardiac lesion: that is, as to whether it is simple or ulcerative endocarditis.

One English writer, Fürth (*Edinburgh Medical Journal*, xviii, 1905, 33-38) speaks of a "gonorrheal" and a "gonococcal" endocarditis, the first following the inflammation of gonorrhea by reason of a point of entrance being made for streptococcic or staphylococcic invasion. "Gonococcal" is that form where the gonococci can be found in the blood during life, or tissues after death, and in which they or their products are the active cause of the endo-

*Paper read before the Medical Society of the District of Columbia.

carditis. This division seems to me unnecessary, as I think that with more exact culture methods the gonococci may be cultivated in many of the cases where now they are not found; although I do not mean to say that there cannot exist, as does in other microbic conditions, a mixed infection.

A hurried résumé of the cases reported by different authors shows that almost all the cases where *Staphylococcus pyogenes* was found in the blood during life proved fatal. Nearly all authorities who have reported cases in which bacteriological examination was made of the blood during life, have occasionally obtained negative results. Glynn of England (*Lancet*, April 11, 1903) reports negative results in several cases even though he used several cubic centimeters of blood. Habhegger reports the same; Thayer the same. Habhegger holds that some cases are due to the toxins of the gonococcus. This theory is held also as regards gonorrheal rheumatism.

The symptoms of the disease are so well marked that I will not give any extensive outline of them. The case that I will report later shows most of the typical symptoms of the disease, beginning with the infection of gonorrhea. A great many of the cases do not present symptoms of the general infection until the discharge from the urethra has stopped; sometimes when it has been checked very rapidly in the "quick cures" so promiscuously advertised in the papers.

The signs of a general septicemia exist as in any well marked case of septicemia. The heart sounds are of interest but not differing particularly in gonorrheal septicemia from any other septicemia in which the valves or endocardium of the heart are involved. One peculiarity in these cases is, as stated by several authors, that the heart sounds are not amenable to any ruling; that is, they change very frequently in character and cannot be gauged by the rules usually obtaining in other cardiac cases. In some of Thayer's cases, recently reported, the sounds during life were such as to cause the diagnosis of mitral stenosis. At autopsy no marked involvement of the mitral valves was found. Then again, the valves and endocardium of the heart may be involved to a marked degree without any physical signs on auscultation being heard. A case in point is one coming under my observation recently which at autopsy showed marked vegetations on the mitral valves, but during life presented no evidences upon auscultation or otherwise of any pathological lesion.

In the more severe cases of infection the septic temperature is very marked. There are wide excursions of temperature together with marked rigors; then again in milder cases, as in one reported by Thayer recently, the temperature runs a course very much like a mild typhoid fever. In fact, it was some time before Thayer could make a diagnosis between typhoid fever and gonorrheal septicemia. These milder cases, which often get well, are the ones which are more difficult to diagnose. The symptoms appear mild and the course of the fever is such as to lead one to believe it to be of typhoidal or malarial origin. One of the characteristic conditions seen in the severer cases is the *very* septic appearance of the patient. In these cases, as in other cases of infective endocarditis where there are vegetations on the heart valves, we may expect emboli and infarcts in the different organs of the body.

The diagnosis rests primarily upon the existence of a gonorrhea to which alone can be traced the source of an infection severe enough for the symptoms present. The mere fact of the organisms not being found either in the blood during life, or in the tissues at autopsy, does not to my mind invalidate the diagnosis of gonorrheal septicemia, for the reasons stated earlier.

The cases presenting severer symptoms of septicemia do not, as a rule, present marked difficulties of diagnosis. But the milder ones are the ones which are most often overlooked and diagnosed as some other infection. The prognosis, in these cases, depends, as in other cases of infective endocarditis, to a great degree upon the character of the infection. The milder cases *may* get well; the severer cases rarely do. If the case has a mixed infection with the staphylococcus present, a fatal prognosis is almost certain.

The treatment of these cases, as of all cases of ulcerative endocarditis, is very unsatisfactory. In the majority we can only use palliative measures and keep up the strength of the patient. In those cases where there is a mixed infection of streptococcus, antistreptococcic serum may be used. This has been used in some cases of malignant endocarditis where streptococci were shown to be present in the blood stream during life, with a few cases of recovery. If, as is held by some, the cases are pure streptococcic infection, which infection has gained entrance through the lesion in the urethra caused by the gonorrheal inflammation, and the gonococci or their toxins are not active agents in the infected blood or system, then the use of antistreptococcic serum, if it is any good at all, would be indicated. There have been some cases of infections, both by streptococci and staphylococci which have been exceedingly benefited by antistreptococcic and antistaphylococcic serum. Some cases have been reported cured.

I am indebted to Dr. T. Morris Murray for the following case as it came under his service at the Emergency Hospital:

S. Z., male, eighteen years old, Italian; laborer; family history negative; patient not able to speak much English, so history rather difficult to elicit. There is a history of no other diseases except that of gonorrhea recently.

Contracted gonorrhea February 15; discharge from urethra stopped March 10, after using medicine from drug store. Arthritic pains in both ankles followed. Has had fever for a month, and has had daily chills and fever for fifteen days this month. He worked until April 10. Came into Emergency Hospital on April 22. On April 23 the following physical examination was made:

On inspection a red spot, about the size of a quarter, was seen on the outer upper side of the left foot and also on the outer side of the last phalanx of the left third finger. Both spots were tender. Patient was pale, anemic looking, but did not present a markedly septic appearance. The apex beat was seen outside of and half an inch below the nipple. It was diffusible and carried up over the precordial region toward the base of the heart. Pulsation marked in both carotids.

The pulse is obliterated from the junction of the left axillary and brachial arteries, at which point there is tenderness and the artery can be felt hard under the finger. The arm was cold, pallid, and numb when admitted to Hospital yesterday. At present it is cooler than the right, but the color is normal and it does not feel so numb. Pulse is rapid, without force. With the impulse at the apex of the heart is a slight thrill on systole.

Two inches to the left of the sternum at the second intercostal space a high-pitched sound, almost typical cracked-pot in character, is heard on percus-

sion. The heart extends about one inch to the left, of normal dullness.

Breath sounds are increased over the entire left lung, more especially over the upper lobe. There is a loud sawing murmur with the systole at the apex of the heart which is transmitted three inches in all directions. The second sound is not clear. Over the pulmonary valve area there is a duller first sound; both sounds at the base are dull and booming. The heart murmur is heard posteriorly and the murmur is also heard in the axillary and brachial arteries of the right arm and at the outer end of the axillary in the left. No urethral discharge.

He complains of pain over the precordial region and some slight articular pain in the ankles. No other pains. An icebag applied to the precordia relieved the pain.

April 24: There is pain in the calf of the left leg; no pulsation is felt in the left tibial artery at the inner malleolus, but at the popliteal space. The red spot on the right foot is not so marked to-day, but still tender, and the same with the spot on the third finger of the left hand.

April 27: Leucocyte count showed 11,532.

April 29: Murmur heard with the systole at the apex is not so loud or rasping to-day.

April 30: At irregular intervals chills, with large excursions of temperature, and the pulse varies between 84 and 138.

May 1: Blood examined for malarial parasites and stained, but none found.

May 5: A few small hemorrhagic spots are noted around the neck and the upper part of the chest.

May 7: Has numerous pustules, about the size of a split pea, on the right side of back of the thorax. These appear pustular from the beginning and have very slightly reddened bases. Temperature extremely irregular, chills and sweats frequent; the patient sleeps a great part of the day and night. Pulse has returned in the left radial, but is very small and easily obliterated by pressure. The vessel does not seem to be full; evidently a collateral circulation has taken place through a small artery.

May 8: Pus from the pustules on the back stained and examined microscopically and showed many cocci and a few diplococci which retained the Gram stain.

The patient vomited several times daily during the latter part of his illness, and often refused nourishment and medicine. He did not complain much of pain after the icebag was applied to the heart, and insisted upon keeping it on his chest until a few days before his death. The diet was chiefly milk at first and later a more sustaining diet in the form of eggs, broths, etc. As the illness progressed he became paler and had a marked septic appearance, with an increasing number and severity of chills. The chills sometimes lasted for several hours. On April 30 a chill began at 7 p. m. and lasted until 10:30. On May 1 a chill began at 12 noon, and lasted until 3 p. m. On May 2 he had some bleeding from the nose, and the same condition was present on May 4 and May 6, and during this time he vomited frequently and had high ranges of temperature with chills and sweats. On May 7 his feet were slightly swollen; septic condition continued, becoming more severe as the disease progressed.

The uranalyses show the following: On April 23 nothing abnormal was found. On April 26, trace of albumin was found, with numerous hyalin and fine and coarse granular casts. On May 1, albumin was still present and numerous red cells and hyalin and fine and coarse granular casts. The same condition on May 5; also the presence of numerous leucocytes and blood casts.

About the 1st of May Dr. James Carroll of the Army was asked to take a blood culture from the patient. He sent his men over from the laboratory of the Army Medical Museum, and with aseptic precaution 10 c.c. of blood was drawn from the median basillic vein of the right arm, distributed over twelve agar plates, and taken to the Army Medical Museum, from which Dr. Carroll reports there were no growths of any kind.

The patient died on May 11, and the following autopsy was done twelve hours after death: Body fairly well nourished; apparent weight 140 pounds.

A few small petechial spots on left chest and around base of neck. Broken down pustules on back. Body white and anemic. Feet slightly edematous. Rigor mortis present. Right pleural cavity contained about 500 c.c. fluid; no adhesions. Lower edge of lower lobe of right lung had small fibrous flake on it, evidently a slight adhesion. Left lung normal. Crepitated. No adhesions. Right lung same. Heart large, soft, and flabby. Pericardial sac contained about 100 c.c. of a greenish yellow fluid. Wall of left ventricle very soft and friable. There was a large, white ante-mortem clot in left ventricle. Large, soft, friable vegetations covering mitral leaflets. Left auricle walls thin and flabby. Ante-mortem clot filling right auriculoventricular ostium. Tricuspid valves showed slight thickening and contained a slight vegetation or very small thickened mass. Right heart very pale. Aortic valve normal. Wall of aorta pale and thin. Pulmonary valve normal.

Peritoneal cavity and intestines pale; greater omentum very dark. Intestines and stomach full of gas. About eight inches jejunum and its mesentery dark and injected fan-shaped. Peritoneal cavity contained about 200 c.c. of fluid.

Spleen was adherent on posterior edge; was about three times its normal size, dark purplish in color. About the middle of the outer surface there was an irregular shaped spot (infarct) about the size of a silver dollar. Red area around border and darker in the center; adhesions formed over center; anterior surface near the notch had a similar smaller spot; there were also one on the posterior edge, one on the upper end, and one on the anterior border about the middle; all hard and apparently necrotic. On section, the organ was very soft and had a large white infarct; pyramidal shaped at first spot mentioned above.

Left kidney was slightly enlarged and pale, and was very pale on section. Capsule stripped easily. Right kidney slightly enlarged and pale. Anterior lower surface had infarct like spleen. There was also a small one on the upper posterior surface. On section, darker than the left. Pyramids very well marked and had a well marked infarct.

Liver was normal in size and on section was soft and friable.

Bladder was small and the walls were hard and thickened.

Cultures were taken at autopsy from the pericardial fluid, left ventricle, vegetations on mitral valve, and the spleen and were sent to Dr. Carroll. He reported that from one of the cultures made at the autopsy the *Staphylococcus pyogenes aureus* was grown, but he did not know from which one of the organs the culture was taken, as the culture tubes were mixed up and the labels lost.

Sections of the spleen and kidney were also sent to Dr. Carroll, but they were mislaid, and no report could be gotten on them.

VESSEL ANASTOMOSIS BY MEANS OF RUBBER TUBING.

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In the course of a series of laboratory experiments dealing with the subject of vessel anastomosis and transplantations, it was thought that if it were possible to transplant, with functional success, formalized or otherwise devitalized segments, it should be possible to obtain a successful result with inorganic segments. Rubber tubing was therefore implanted in the aortas of cats. In the first experiment, the aorta was isolated and laid bare just below the renal arteries, and a segment of tubing, two cm. long, was inserted in continuity by the Carrel method. The rubber was of the pure black gum variety, and the diameter of the lumen was the same as the outside diameter of the aorta after the latter had undergone the usual contraction incident to its exposure and section; for it has been found that in transplanting devitalized segments it is necessary, or at least advisable, to have the piece transplanted of larger diameter than the vessel of the host. The tubing was filled with vaselin, the excess of which was squeezed out just prior to tying the last suture. No difficulty was experienced in suturing the rubber to the vessel, and the sutures did not tend to tear out as it was feared would be the case. There was no hemorrhage from the suture lines when the temporary ligatures were released, and the aorta below the anastomosis, and the femorals pulsated normally. The abdominal incision was then quickly closed. There was little shock; and the next day the animal, if allowed, would walk about normally, and was in excellent general condition. The pulsations of the femorals could be felt and the circulation in the extremities was good. On the fourth day, the cat showed marked epigastric distention, vomited persistently, and soon died. At autopsy a volvulus of the upper part of the small intestine with beginning peritonitis was found. The aorta and implanted segment were removed and hardened in formalin. There was a peripheral thrombus beginning at the suture line at either end and extending the entire length of the rubber tube, but the canalization in the center was large enough to pass sufficient blood for the nourishment of the hind extremities.

A second cat was then operated upon in exactly the same way. The tubing was inserted into the aorta just below the renal arteries, and the suture was as satisfactory as before. There was no hemorrhage and the circulation below the anastomosis was perfect at the completion of the operation. The cat went on to an uneventful recovery, and a week later was in better general condition than when received into the laboratory. After the second day she appeared perfectly normal in all respects save for the abdominal wound, which healed readily. After three weeks the cat was killed and an immediate autopsy was performed. The transplanted segment of rubber tubing was completely thrombosed, and the circulation in the hind extremities had been maintained by an effective anastomosis between branches of the adrenolumbar and iliolumbar arteries, branches of the aorta given off just above and below the site of implantation. There was a thick zone of dense connective tissue encircling the rubber and adjacent portions of the aorta.

As the pulsations in the femorals could at all times be felt, it is apparent that the occlusion of the tubing had taken place so slowly that the animal had had time to establish a sufficient collateral circulation, for ligation of the aorta in either the cat or the dog is soon followed by paralysis of the hind extremities and fairly rapid death.

It has been repeatedly shown that the circulation can be maintained by the implantation of segments of either artery or vein from either the same or different species of animal, but it is not difficult to imagine a surgical situation where the immediate restoration of the circulation is imperative and where the necessary living tissue is not at hand and cannot be immediately obtained. Under these circumstances rubber tubing, in some cases at least, might be used to maintain the circulation temporarily.

Similar experiments have been made by Abbe, who in 1894 inserted a piece of glass tubing into the aorta of a cat. While the lumen of the tube was gradually occluded, the process was slow enough to allow of a sufficient collateral circulation to be established. Rubber, however, has many advantages over glass. It can be readily inserted by the suture method and the anastomosis is not appreciably more difficult than the similar performance with living tissues. Within certain limits, one size of tubing can be used for vessels varying considerably in size, while with the glass many cannulæ of various sizes must be kept on hand and the proper one selected for the anastomosis in question. With the suture method, which can be used with the rubber, the danger of immediate thrombosis is not great, while it is the rule with glass, the introduction of which into the vessel is a matter of complicated technique. Finally, the effect of trauma on glass can readily be disastrous, while no such effect need be apprehended when rubber is used.

My thanks are due to Dr. Paul W. Kimball for his kind assistance in the operative procedures.

The Direction of Abdominal Incisions.—A. E. Maylard offers the following conclusions: (1) When time is not of paramount importance, more permanently secure cicatrices result from transverse than vertical incisions, whether median or extramedian. (2) Transverse incisions afford more room for the treatment of pelvic diseases, and are also better for exploratory purposes. (3) Vertical incisions involve the division of fewer blood vessels, and the apertures can be closed by a single series of through-and-through interrupted sutures. For these reasons, therefore, they can be executed much more expeditiously than the transverse, and should be employed in all cases where time is a serious consideration. (4) In dividing the sheath of the rectus, the chief end to be aimed at is to carry the incision as much as possible in the line of the fibers of the aponeurosis. Thus, in the upper part of the abdomen for, say, 2 inches from the xiphoid, the incisions should course obliquely from above downwards and outwards. In the lower part of the abdomen, for, say, 2 inches from the symphysis pubis, the incisions should be carried obliquely upwards and outwards. In the central part of the abdomen—that is, between those parts just delineated—the incisions should be transverse. (5) If sufficient room can be obtained by separation of the recti muscles after division of their sheaths, the fibers of these muscles should not be cut; and when division is necessary it should be carried obliquely, so as, if possible, to leave some of the outer fibers undivided. (6) Serial suturing should be employed, and particular attention should be given to the accurate coaptation of the edges of the divided aponeurosis. (7) No operation should be performed, if the exigencies of the case do not otherwise demand it, when the patient has a cough which it is possible to cure or alleviate. (8) Four weeks should be allowed, at least, after the operation for rest in the dorsal or semirecumbent position, and two months more before any undue strain is exercised on the wound. In wounds which become septic, and therefore heal by granulation, six weeks to two months should be allowed for complete rest in the dorsal position.—*British Medical Journal.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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ASEPSIS IN CHILDBIRTH.

IT is only a little over sixty years ago that Oliver Wendell Holmes laid the foundation of a new era in our knowledge of puerperal sepsis by insisting upon the contagious character of puerperal fever, and Ignaz Semmelweiss wrought a great change in the mortality of a maternity ward in Vienna by the simple expedient of having the students wash their hands in chlorine water before examining parturient women. The new doctrine taught by Holmes was fought by his contemporaries in America, and Semmelweiss was so derided and ridiculed by the physicians in Vienna that the disappointment drove him to an insane asylum. Pasteur and Lister completed the work begun by these two men by discovering the bacterial origin of septic infection and its prevention by antiseptic and aseptic methods; and then the frightful mortality of the puerperal bed became forever a thing of the past.

The great change that has taken place in this department of medical activity is well illustrated by the results attained by Hofmeier in the University Maternal Clinic at Würzburg. In the *Münchener medizinische Wochenschrift* for September 15, 1908, Hofmeier tells the story of the last ten thousand patients at the clinic. Of them only nine died of puerperal sepsis, six deaths having taken place among the first three thousand deliveries of several years ago; in the last seven thousand deliveries only three cases of sepsis occurred, and all three could be traced to infection outside of the clinic. These seven thousand deliveries without a single case of infection in the clinic form a remarkable showing when it is remembered that each parturient woman was examined by from three to nine medical students or candidates for the midwifery licenses. Moreover, the clinic directed by Hofmeier is not a palatial institution with all modern conveniences, which many American physicians look upon almost as *sine qua non* of successful medical management and treatment The Würzburg institution is much cramped for space, and is one of the least well furnished maternity clinics in Europe. The simplicity of the aseptic technique, too, is worthy of being mentioned. No very elaborate sequence is used in the disinfection of hands, careful and prolonged cleansing with soap, followed by bichloride having been found amply sufficient. The addition of alcohol to this cleansing was not followed by any better results, while rubber gloves are looked upon by Hofmeier as entirely unnecessary in the general run of cases, however indispensable they may be under special circumstances. He considers that the routine use of rubber gloves leads to a quite unjustifiable expense, for equal results may be obtained by the thorough disinfection of hands, and especially by a most careful cleansing of the parturient woman.

Hofmeier claims to have attained the ideal of a maternity clinic. His institution serves as a great teaching center for the medical students of the university and for aspiring midwives, and yet this instruction has been rendered completely safe for the patients that serve as the objective material for teaching. The results attained by him once more dispose of the objections to the general admission of students to the hospital wards such as are frequently made by well-meaining but poorly informed philanthropists. Just as the presence of students in the general wards of a hospital spurs the attending and resident physicians to greater accuracy in diagnosis and more careful treatment of disease, so the care required in maternity institutions to prevent any possible infection from repeated examinations of parturient patients throws increased safeguards about the women who trust themselves in childbirth to public institutions.

PARSIMONY IN NUTRITION.

A MARKED and in some respects curious change has taken place in the last few years in our dietetic notions. In the last century overeating or rather redundancy in nutrition was recommended, but now the pendulum has swung in quite the opposite direction. Physiologists and physicians of high authority are preaching this new doctrine and advising not merely simplicity of diet, but an abstemiousness carried to a degree that would have been regarded formerly as absolutely dangerous. The trend of public opinion and perhaps even of medical opinion is assuredly towards a reduced dietary. The new doctrine is, however, not accepted without a protest. Sir James Crichton-Browne in an address delivered a short time ago took parsimony in diet for his text and made an eloquent plea against the present day teaching. The experiments of Voit of Munich and Atwater of this country in connection with diet were referred to. Atwater's standard for a man doing moderate work places the proteid requirement at 125 grams with sufficient fat and carbohydrate to equal 3,500 calories. The Voit and Atwater standards have up to recent times been regarded as representing the minimum of what is necessary for the maintenance of health and strength, but the new dietetic philosophy holds that these standards are false, and that the quantities of foodstuffs allowed by them are far larger than the requirements of the body actually demand. As to proteids in particular we are now informed that we have been partaking of double or treble the amount that is necessary.

Sir James Crichton-Browne contended that this theory has received far more attention from scientists and physiologists than it deserves, and he proceeded to discuss Professor Chittenden's views on nutrition. While giving all credit to Chittenden for his brilliant and painstaking investigations on the subject, the speaker held that his views conflict with the orthodox physiological faith, as Chittenden's standard of proteid food is not only one-half

lower than that of Voit, but is still further below the common practice of the enormous majority of mankind in Europe and America. "If he is right," said the speaker, "then all the world up to this time, with the exception, perhaps, of a few supposed faddists, has been wrong. Gluttony has somehow become universal. It is Chittenden contra mundum."

The argument is advanced that it is not on *a priori* physiological data, nor yet on laboratory experiments, that the science of dietetics is to be based, but on common observation and on the hereditary customs and habits of mankind. It is pointed out that the lower animals select with unerring precision, as long as they are in a natural environment, from the materials around them those best fitted to their wants, and they do this by instinctive discernment inherited from a long line of naturally selected ancestors, while they are checked in their consumption by a sense of repletion of coeval origin. It may be unhesitatingly inferred that the articles they choose are, of all nutrient material accessible to them, those best adapted to the special needs of their economy, and that their consumption of them is proportioned to their needs for the time being. But man is, as regards his bodily functions, subject to the same laws as those which govern the lower animals, and it cannot be doubted that in the formation of his dietetic habits he has been guided by the same kind of influences which have been operative throughout the animal creation in the choice and consumption of food. The dietetic habits of civilized races are tardily ingrained instincts, which have been differentiated and elaborated as man has advanced in civilization. Sir James Crichton-Browne quoted, in support of his opinions, the manner of food eaten by the greatest ancient and modern nations and finally concluded that despite the result of recent dietetic physiological experiments the food generally consumed by the leading people of the earth is best adapted both in quantity and quality to their physical and mental requirements.

Undoubtedly many people eat and drink too much, and it is quite certain that a person who is engaged in sedentary employment needs far less meat than one who lives in the open air and who takes much exercise or who performs hard manual labor. But to assert dogmatically, although experiments would seem to show that the view is correct, that proteid food is almost unnecessary, is possibly carrying the argument too far. Experience is in a way more valuable than experiment, and experience has taught us that the most successful nations have done remarkably well on a proteid diet. It might be said that on a nonproteid diet they would have done better, but there can be no proof of this.

OLD AND NEW CONCEPTIONS OF HYSTERIA.

Few observers who have had any great amount of experience with hysteria have believed that its cause lay in any obscure pathological entity. The weight of evidence has been against such assumption from the beginning, and the world's greatest alienists are fast adopting the view that hysteria means simply disordered function without organic change. That is the primary or essential type of hysteria; but there is a secondary type of nervous manifestation, usually classed as hysteria but improperly so, which comes on after street-car or railway accidents, falls, frights, etc. The functional changes are often associated with some circulatory disturbance, such as anemia or hyperemia of an organ, appearing spasmodically upon sudden fright, or as a result of worry or excessive nervous stimulation. Globus hystericus so-called is sometimes due to increased congestion of the blood-vessels of the esophagus, and is usually most pronounced after the ingestion of condiments or alcoholic beverages. Spasm of the cardiac end of the stomach is not infrequent, as is evidenced by the difficulty one often has in passing the stomach tube. In some cases there is probably a pyloric spasm as well, for the stomach contents may be brought up undigested several hours after being swallowed.

The well-known contraction of the field of vision is possibly due to an imperfect blood supply brought about by a diminution in the size of the terminal arterioles. The central artery of the retina may function imperfectly, yet be not completely cut off; hence central vision is maintained. Moreover, relief of gastric and esophageal irritation has been brought about by drugs such as fluid extract of ergot; and cardiac and nerve-stimulating drugs sometimes serve a useful purpose in combating other troublesome symptoms dependent on a disordered nervous and arterial system.

While still inconclusive, the work done along this line at the recent French and international neurological congresses has been illuminated by a symposium of the Paris Neurological Society. The objective facts presented there confirm the assumption that the alleged stigmata of hysteria have no pathognomonic value and are merely the results of suggestion generally of medical origin (*Presse Médicale*, July 4, 1908); also that modifications of tendon and pupil reflexes do not properly belong to the symptomatology of hysteria. Illustrative of this view is the opinion of Babinski who has reconstructed from the ruins of former conceptions of hysteria a new definition which implies that there is a special psychic state manifesting itself in disturbances distinguished by the fact that it is possible to reproduce them by suggestion in certain persons and to cause them to disappear in certain others by the power of persuasion. Babinski thinks that so-called hysterical fevers, hemorrhages, etc., should be excluded from the category of hysterical manifestation inasmuch as such origin has been unproven.

Evidently, therefore, the tide of medical feeling regarding this mysterious disease is turning back again to the old ways when these unfortunate patients received scant courtesy at the hands of physicians. The task should not, however, be given up so readily, since the study of the disease is in itself a most absorbing one, and the literature coming from the pens of distinguished observers, such as Janet, is so thoroughly replete with human interest. The camps of the alienists are likely to remain divided for some time to come, especially as to etiology and treatment. In the meantime those practitioners who are necessarily esoteric may continue to hold their own opinions as to the nature of hysteria and treat it after their own fashion.

Antimeningitis Serum.

The discovery of an antimeningitis serum by Drs. Flexner and Jobling of the Rockefeller Institute for Medical Research, and the favorable results obtained in the first few cases treated with it, have been widely heralded by both the medical and the general press, especially as its introduction in the therapy of meningitis was followed by a new instance of munificence on the part of the founder of the institute. The actual results following the use of the serum, however, have been very hard to judge, the nature of the disease furnishing individual physicians but limited material from which conclusions could be drawn. The discoverers of the serum have supplied it to physicians on the express condition that full reports of the cases in which it was used should be sent them, and in the *Journal of Medical Research* for September 5, 1908, they analyze the reports of several hundred cases so treated. These cases occurred in different parts of the United States, Canada, and Great Britain, either as sporadic instances of the disease or during epidemics of varied severity and extent. The mortality of the disease in both epidemic and sporadic form was about seventy-five per cent., though it was not uniform everywhere, severe outbreaks being reported in some localities while others seemed to have suffered from infection of a rather low virulence. Everywhere, however, the use of the serum was followed by diminution of deaths from the disease. Thus in Akron, Ohio, there were nine deaths out of the first ten cases, a mortality of ninety per cent.; serum was employed in the next twelve cases, and of these there were nine recoveries, a mortality of twenty-five per cent.; in Scotland and Ireland the mortality in the cases treated without serum ranged between seventy and ninety per cent.; the cases treated with the serum showed mortalities varying from 26.7 to 44.5 per cent., even when all fulminant cases or those moribund at the time of the injection of serum were included. Of the total 393 cases considered in the analysis there were seventy-five per cent. of recoveries. Children under one year gave fifty per cent. mortality, while previous to the use of the serum Holt reported that of twenty cases under one year in the hospital wards not one recovered, and Koplik states that of twenty-seven such cases observed by him twenty-three either died or were discharged unimproved. In addition to these figures giving the general mortality of the disease under the application of the serum, the authors present much evidence that testifies to the promptness of recovery and the greater frequency with which complete cures were obtained when such sequelæ as deafness, blindness, and mental impairment are considered. In general, the success attending the use of the serum fully justifies the conclusion of the authors that "antimeningitis serum, when used by the subdural method of injection in suitable doses, and at proper intervals, is capable of reducing the period of illness, of preventing in large measure the chronic lesions and types of the infection, of bringing about complete restoration to health in all but a very small number of the recovered, thus lessening the serious, deforming, and permanent consequences of meningitis, and of greatly diminishing the fatalities due to the disease."

Complement Fixation in Malignant Disease.

Wassermann has claimed that substances are formed in the body of a syphilitic which react in a certain specific way with extracts of syphilitic tissues; this reaction is accompanied by the "fixation of complement" and a consequent inhibition of hemolysis in a mixture of substances in which the hemolytic agent cannot act because of such fixation of complement by the specific syphilitic bodies. Drs. Simon and Thomas have applied this reaction to the study of malignant disease, in which either a specific parasite could be supposed to give rise to substances capable of fixing complement or the cancer cell itself could be looked upon as such a parasite. Although no strikingly uniform results were obtained, yet the data given by the authors in the *Journal of Experimental Medicine*, Vol. X., No. 5, are of interest, as is everything that may throw light upon the mystery of malignant disease. In fifty non-malignant cases used for control, fixation of complement, as shown by the inhibition of hemolysis occurred but twice, and in one of these cases tertiary syphilis was demonstrated. In malignant disease, on the other hand, fixation occurred in sixty-five per cent. of the cases. The investigations were carried out with extracts of mammary cancers. The authors very properly refuse to theorize on the basis of their observations, both because not enough cases have been examined and because the very nature of the reaction has been questioned in the case of syphilis. It is quite questionable, for instance, whether the reaction is due to the binding of the complement by the hypothetic specific bodies of syphilis, it having been shown that it may take place with substances other than the extracts of syphilitic organs.

An Early Symptom of Perforative Appendicitis.

Inflammation of the appendix may exist in any degree from that of slight catarrh to gangrene, with or without perforation. In the early stages of the disease most surgeons are agreed that the patient should be kept absolutely at rest and be given a restricted fluid diet, an icebag being placed over the seat of pain. It is also generally agreed that perforative appendicitis demands immediate operation. In any given case, however, it is often impossible to make an early diagnosis of perforation, and the patient is not operated upon until symptoms of periappendicular inflammation or diffuse peritonitis have set in. In the *Presse Médicale* of June 3, 1908, Pierre Delbet draws attention to a single symptom by means of which he claims to be able to make an early diagnosis of perforation of the appendix. If the symptoms of a patient with signs of a beginning appendicitis are relieved by ice, rest, and fluid diet, and he is suddenly attacked with pain during the above treatment, Delbet claims the appendix is perforated and advises immediate operation, even if the patient's general condition is good. He cites numerous cases in which his early diagnosis was substantiated by operation, and urges the wisdom of operating at once when, without interruption of the above treatment, pain suddenly becomes worse after the symptoms had first been improved by the treatment.

Leucocytes in Basedow's Disease.

The diagnosis in goiter is usually possible from the physical examination without the aid of the history, and is difficult only in rare cases. Inspection, palpation, and laryngoscopic examination give the necessary data. We should, however, not be satisfied with the diagnosis of goiter alone, but should endeavor to discover which variety we are dealing

with. Exophthalmos, tachycardia, and trembling point to Basedow's disease, but one or all three of these symptoms may at times be absent. It is then that the kind of goiter is more difficult to diagnose. From a prognostic point of view a correct diagnosis is of great importance, especially if surgical treatment is decided upon, and any additional differential sign will therefore be of great value. At the thirty-seventh meeting of the German Surgical Society held in Berlin in April of the present year, Kocher of Bern drew attention to the white blood cells in patients with Basedow's disease. He examined the blood in over one hundred patients and found the number of white blood cells to be under four thousand per cubic millimeter. The percentage of multinuclear neutrophiles was greatly diminished, while that of the lymphocytes was increased. After partial extirpation of the thyroid normal blood conditions returned. Kocher furthermore found that these blood changes occurred early in the disease before the other symptoms became pronounced and were most marked in the severe cases of Basedow's disease.

News of the Week.

Harvey Society Lectures.—A very interesting program is announced by the Harvey Society for its course of lectures during the winter of 1908-09. The course will be as follows: October 24, "Intestinal Infection and Immunity in Tuberculosis," by Prof. A. Calmette, Director of the Pasteur Institute of Lille, France; November 7, "Fever," by Prof. W. G. MacCallum, of Johns Hopkins University; November 21, "Metabolism in Diabetes," by Prof. Graham Lusk, of the University and Bellevue Medical College; November 28, "Therapeutics of Diabetes," by Dr. Wilhelm Falta, of the University of Vienna; December 5, "Anaphylaxis," by Dr. M. J. Rosenau and Dr. John F. Anderson, of the United States Public Health and Marine Hospital Service; December 19, "Osmosis," by Prof. A. B. Macallum, of the University of Toronto; January 9, "The Relation of the Liver to the Metabolism of Fat," by Prof. J. B. Leathes, of the Lister Institute of Preventive Medicine, London; February 6, "Some Problems in Immunity and the Treatment of Infectious Diseases," by Prof. Philip Hanson Hiss, of Columbia University; March 6, "Heredity in Man," by Dr. C. B. Davenport, of the Station for Experimental Evolution, Cold Spring Harbor, N. Y. The lectures are given under the patronage of the New York Academy of Medicine, on Saturday evenings at 8:30, at the Academy of Medicine, 17 West Forty-third Street. They are for the benefit of the medical profession, and all who are interested are cordially invited to attend. Prof James Ewing, of Cornell University Medical College, is president of the society, and Prof. Francis Carter Wood, of the College of Physicians and Surgeons, secretary.

Philadelphia Founders' Week: Medical Day.—During the celebration of the 225th anniversary of the founding of Philadelphia by William Penn, Thursday, October 8, was devoted to Medical Day. In the morning a meeting was held at the Walnut Street Theater, where a report on behalf of the Committee on Scientific Institutions, Colleges, and Hospitals was made by Dr. John V. Shoemaker. Drs. Chas. K. Mills and Frederick P. Henry presented the report of the committee on the Volume of Scientific Institutions, Colleges, and Hospitals. Dr. Joseph P. Remington submitted the report of the Committee on Historical Exhibit. Dr. L. Webster Fox made a report on behalf of the committee on Medical Day. Dr. George A. Peirsol delivered a scholarly address on the Medical Colleges and Allied Institutions of Philadelphia. Dr. S. Solis-Cohen spoke eloquently of Famous Physicians of Philadelphia. Dr. J. M. Anders delivered an interesting address on the Development of Practical Medicine in Philadelphia. In the afternoon a reunion of former and present members of the visiting and resident staffs of the Philadelphia Hospital was held in this institution. An address of welcome on behalf of the Mayor and the city was delivered by Dr. Joseph Neff, Director of Public Health and Charities. Dr. Roland G. Curtin spoke of the early history of the Philadelphia Hospital, Dr. Chas. K. Mills of Some Blockley Doctors and Some Personal Experiences, and Dr. Alfred Stengel of Blockley and Clinical Teaching. In the evening a smoker was held at the Bellevue-Stratford, and among other things brief, addresses were delivered by Governor Stuart and Mayor Reyburn.

Anti-Noise Bills.—Four ordinances designed to restrict street noises in New York, which were recently introduced before the Board of Aldermen, will be given a public hearing on October 19. The ordinances are backed by the Health Commissioner and the Society for the Suppression of Unnecessary Noise. They provide for fining railway companies operating flat-wheeled cars, or cars with loose trucks or chains, or maintaining broken or loose rails or switches, etc., the fine for each offense not to exceed $500. Peddlers are forbidden to make any noise whatever for the purpose of calling attention to their wares, and except at the intersection of streets, the blowing of horns or sounding of bells on any vehicle is forbidden.

School for Deaf Mutes.—New York City has just opened the first public school for deaf mutes in America, believing that official steps should be taken to improve the condition of hundreds of deaf mutes who are growing up as illiterates and dependents. The work is, of course, under the direction of the Board of Education, and the Board has also received from the Institution for Improving the Condition of Deaf Mutes an offer of its entire plant, building, teachers, and pupils, to be incorporated into the public school system. Established forty-four years ago, this institution has carried on, in a semi-public way, a work of great value in training deaf mute children to become self-supporting. There is also a training school for teachers connected with it, which solves the difficult problem of finding persons equipped to train deaf mutes.

Medical School Inspection in Chicago.—The medical inspectors of schools in Chicago made physical examinations of 5,747 school children during the week ended October 3, and of these 2,450 were advised to seek surgical or medical treatment. The defects found were as follows. Nutrition, 143; anemia, 208; enlarged glands, 748; nervous diseases, 49; cardiac diseases, 56; pulmonary diseases, 34; skin diseases, 101; orthopedic, 96; vision, 899; hearing, 124; nasal breathing, 240; palate, 30; teeth, 1,620; hypertrophied tonsils, 1,068; adenoids, 198; mentality, 61. The total number of examinations made in the schools was 9,429, and the number of children excluded on account of contagious diseases was 372. The principal causes of exclusion were: Diphtheria and contact with diphtheria, 20; scarlet fever and contact with scarlet fever, 16; tonsillitis, 55; pediculosis, 105; impetigo, 87; ringworm, 17; measles, 6.

New York's Pure Food.—More than 11,000 tons of foodstuffs, with an estimated value of $1,500,000

have been destroyed by the food inspectors of New York within the last year in their efforts to insure wholesome supplies. The greater part of the destroyed goods consisted of fruit and vegetables, though a large amount of canned foods was also confiscated. The work is under the direction of Bayard C. Fuller, head of the division of food inspection of the Department of Health.

The Woman's Hospital of Philadelphia has arranged for the construction of a new building for a children's ward. The building will be three stories high, with a basement, and provision will be made for the addition later of two more stories. It will be of red brick, with blue marble trimmings of Colonial design, and it will be fireproof throughout. There will be accommodations for eye, ear, throat, medical and children's clinics, with wards and bathrooms on each floor. There will also be a diet kitchen and an *x*-ray laboratory.

Emanuel Church Movement.—St. Mark's Church in this city will, it is announced, open on October 18, an extension of the Christian healing movement which has its headquarters in Emanuel Church, Boston. It is said that a large number of patients from New York and Brooklyn go to Boston for treatment, and it is understood that the Boston leaders are cooperating in this new undertaking, which will be known as the Healing Mission of St. Mark's.

Street Car Accidents in New York.—The report to the Public Service Commission regarding street car accidents in New York during the month of August shows that forty-four persons were killed, and 3,317 injured in that time. Of these, 1,233 were injured while alighting from the cars; 15 suffered fractured skulls, and thirty-four broken limbs.

Anti-Vaccination in Massachusetts.—Mr. John H. Bonner, lecturer and organizer for the National Anti-Vaccination League of England, has recently been traveling through Massachusetts speaking before large public meetings on the "tyranny" of the Massachusetts law on vaccination, and on the "fearful cruelty" to animals which the process entails.

Public Milk Booth.—Plans have been submitted to the Building Department in New York for the big new milk booth to be erected by the city in Tompkins Square, for the distribution of sterilized milk. The building is to be octagonal in shape, twenty-nine feet in diameter and eighteen feet high, with an ornamental roof. It will contain a complete plumbing plant.

Loomis Annex Benefit.—The entire proceeds of October 7 from the Electrical Show at Madison Square Garden, New York, were donated by the management to the Loomis Sanatorium at Liberty, N. Y. In the evening lectures describing the work of the sanatorium among tuberculous patients were given.

Charitable Bequests.—The Bryn Mawr (Penn.) Hospital receives $5,000 by the will of the late Michael Callahan of Norristown. By the will of the late Miss Anne Van Reed $6,500 is bequeathed to the Medico-Chirurgical Hospital of Philadelphia.

Mt. Sinai Hospital and the Montefiore Home for Chronic Invalids each receive $1,000 under the will of the late Miss Eleanor Hendricks of New York.

The Health Protective Association of New York is made one of the residuary legatees of the estate of Miss Theresa Barcalow, who died last June. The value of the estate has not been announced.

The University of Texas Medical School opened on October 1, with over 200 matriculated students. The opening address was delivered by Dr. Terrill, professor of pathology.

Dr. G. Sims Woodhead, of Cambridge, England, delivered the Wesley M. Carpenter lecture at the Academy of Medicine on October 8. Dr. Martinez-Vargas of Barcelona, who was to have delivered this lecture was unable to be present. A large part of the audience was made up of delegates to the International Congress on Tuberculosis. A number of the foreign delegates have been spending a few days in New York, and have visited the Quarantine Station, Sea Breeze, Ellis Island, the Rockefeller Institute, and Bellevue Hospital, under the guidance of several New York physicians.

Mr. Rudyard Kipling delivered the usual address to the students at the opening of the Middlesex Hospital of London on October 1. Mr. Kipling divided mankind into two classes—doctors and patients, and admitted that he had had some delicacy in confessing that he belonged to the patient class since a doctor had informed him that all patients were phenomenal liars where their own symptoms were concerned.

Dr. Anne H. Thomas has been elected instructor in physical diagnosis and therapeutics in the Woman's Medical College of Pennsylvania, and she has also been appointed assistant physician at Bryn Mawr College.

Dr. Charles Adams of Chicago was appointed Surgeon-General of the Illinois National Guard in an order issued October 9 by the Governor of Illinois through Adjutant-General Thomas W. Scott. He succeeds the late Dr. Nicholas Senn.

Mr. Frank E. Wing has been elected superintendent of the Chicago Tuberculosis Institute to succeed Alexander M. Wilson.

Dr. John F. Erdmann has been appointed Professor of Surgery in the New York Post-Graduate Medical School and Hospital, and has resigned his Clinical Professorship in Surgery at the New York University and Bellevue Hospital Medical School.

Removals.—Dr. Otto Kiliani has removed to 50 West 77th Street. Dr. Charles H. Jaeger has removed to 471 Park Avenue.

Clinic for Speech Defects.—A clinic for speech defects (stuttering, stammering, etc.), has been opened at the New York Throat, Nose and Lung Hospital. It is under the direction of Dr. E. W. Scripture, and is held at 4 P.M. on Mondays, Wednesdays, and Fridays.

The Neurological Society and the Academy.—At a meeting of the New York Neurological Society, on October 7, a committee appointed by the President to consider the circumstances attending the reading of a paper upon the treatment of locomotor ataxia, at a recent meeting of the New York Academy of Medicine, made the following report: "Your Committee expresses disapproval of the occurrences following the reading of Dr. Denslow's paper. It is the belief of your Committee that papers which express radical views should be freely discussed at the time of their presentation and that every effort should be made to prevent the publication in the newspapers of communications which set forth promise of cure of diseases which are generally held to be incurable. Your Committee further believes that before such 'cures' are exploited they should be submitted to the most rigid investigation.

Oklahoma Medical Laws.—The new laws in

Oklahoma went into effect August 25 and September 25. On August 25 Dr. J. C. Mahr of Shawnee was appointed State Commissioner of Health, and on September 25 the new State Board of Medical Examiners was appointed. The medical license law requires that all schools shall be recognized, the Regulars to be entitled to four, Homeopaths two, Eclectics one, Physio-Medics one, Osteopaths one. This Board is constituted as follows: Drs. W. T. Tilly, *President,* Muskogee, A. M. Chambers, Poteau, A. M. Butts, Holdenville, and A. E. Davenport, Oklahoma City, Regulars; Drs. J. Hensley, Oklahoma City, and R. M. Miller, *Treasurer,* Blackwell, Homeopaths; Dr. F. P. Davis, *Secretary,* Enid, Eclectic, and Dr. A. C. Montague, *Vice-President,* Muskogee, Osteopath. The Physio-Medic member of the Board has not yet been appointed. The first regular meeting for the purpose of examining applicants for a medical license will be held in Muskogee, on November 6.

Tuberculosis Exhibition in New York.—Through the efforts of Dr. Alfred Meyer of this city, the exhibit, which formed so attractive and instructive a part of the International Congress on Tuberculosis in Washington, will be brought to New York.

The International Association of Medical Museums held its second meeting in the new building of the National Museum in Washington, D. C., on October 1 and 2, 1908, in connection with the International Congress on Tuberculosis. At this meeting a constitution was adopted and the following officers were elected: *President,* Prof. W. G. MacCallum, Baltimore; *First Vice-President,* Prof. G. Sims Woodhead, Cambridge, England; *Second Vice-President,* Prof. J. Ritchie, Edinburgh, Scotland; *Third Vice-President,* Prof. Ludwig Aschoff, Freiburg, Germany; *Secretary-Treasurer,* Dr. Maude E. Abbott, Montreal; *Councillors,* Major F. F. Russell, Washington, and Prof. A. S. Warthin, Ann Arbor, Mich. Since its first meeting the association had suffered a great loss in the death of its president, Dr. James Carroll of Washington.

The American Society for Humane Medical Research has recently been incorporated, the objects of the society being given as the conducting of clinical and laboratory research in medical science, the maintaining of chemical, physical, biological and physiological laboratories, and also the maintaining of an office and a statistical bureau in New York. Among the incorporators is Mrs. Diana Belais, President of the Anti-Vivisection Society. The list does not include the name of any physicians.

Medical Society of Virginia.—The thirty-ninth annual meeting of this society will be held in Richmond on October 20-23, 1908, under the presidency of Dr. William Francis Drewry of Petersburg. The secretary is Dr. Landon B. Edwards of Richmond.

The First District Branch of the Medical Society of the State of New York will hold its second annual meeting in Poughkeepsie on Wednesday, October 21, under the presidency of Dr. S. W. S. Toms of Nyack. The secretary is Dr. C. E. Denison of New York City.

The Binghamton (N. Y.) Academy of Medicine, which passed out of active existence some time ago, was reorganized on September 29, the following officers being elected: *President,* Dr. John H. Martin; *Vice-President,* Dr. John S. Kelley; *Secretary,* Dr. Frank L. Allen; *Treasurer,* Dr. John C. S. Lappeus.

The Cumberland County (Me.) Medical Society held its annual meeting in Portland on September 30. The following officers were elected for the ensuing year: *President,* Dr. Owen Smith; *Vice-President,* Herbert F. Twitchell; *Secretary,* Dr. Howard Pingree; *Treasurer,* Edward W. Gehring; *Board of Censors,* Dr. Stanley P. Warren, C. W. Foster, F. H. Jordan, South Portland.

The East Tennessee Medical Society held its annual meeting on September 24 and 25, at Newport. The following officers were elected: *President,* Dr. E. R. Zemp of Knoxville; *Secretary-Treasurer,* Dr. William M. Copenhaver of Bristol. The next meeting of the society will be held in Greeneville.

Obituary Notes.—Dr. John P. Seibert of Chambersburg, Penn., died on September 18, from cerebral hemorrhage, aged 55. He was graduated from the Jefferson Medical College in 1875, and for more than thirty years had been interested in the preparation of vaccine virus as proprietor of the Franklin County vaccine farm. He had served for many years as physician to the Franklin County jail.

Dr. Robert Morris Gibbs, professor of natural science in Kalamazoo College, Mich., died on September 18, after a long illness, aged 52. Dr. Gibbs was graduated from the Rush Medical College in the class of 1879, and was an ornithologist and entomologist of high standing.

Dr. J. P. Harrison of Richmond, Va., died suddenly on September 20, at his home, aged 74 years. Dr. Harrison graduated from the University of Pennsylvania Medical School in 1853, and served during the Civil War in the Confederate army as assistant surgeon in the Richmond hospital.

Dr. George H. Grant of Richmond, Ind., died, supposedly from a self-inflicted wound, on September 21, aged 42 years. Dr. Grant was graduated from Rush Medical College in 1888, was a member of the Mississippi Valley Medical Association and the American Medical Association, and lecturer on surgery in the Indiana Medical College. He had for some time been in poor health.

Dr. J. R. Hamill of Guthrie, Okla., died at his home on September 25, from typhoid fever, aged 44 years. He was a graduate of Rush Medical College in 1887, a member of the Oklahoma State Medical Association, and a specialist in diseases of the eye and ear.

Dr. William L. Reed of Indiana, Pa., a graduate of the Cincinnati College of Medicine and a member of the American Medical Association, died suddenly at his home on September 26, aged 65. Dr. Reed was a veteran of the Civil War, and from 1888 to 1892 served as a member of the Pennsylvania State Legislature.

Dr. Benjamin Whitely of Catonsville, Md., died at the Union Protestant Hospital in Baltimore on September 26, aged 64. Dr. Whitely was graduated from the Jefferson Medical College in 1867, and was a member of the Medical and Chirurgical Faculty of Maryland.

Dr. J. B. McGaughey of Winona, Minn., died suddenly from cerebral hemorrhage on September 27, aged 65. Dr. McGaughey was graduated from the University of Michigan in the class of 1867, and had practised in Winona for over forty years. He had been a member of the American Medical Association for thirty-six years, secretary of the Winona County Medical Society since 1872, and president of the Minnesota State Medical Association in 1884 and 1885.

Dr. George F. Heidemann of Elmhurst, Ill., died on September 29 at his home, aged 70 years. He was graduated from the Rush Medical College in 1863, and served in the Civil War as assistant surgeon of the Fifty-eighth Illinois Volunteer Infantry.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

VACATION CLOSES—SCIENCE CONGRESS—DEATHS UNDER ANESTHETICS—FATIGUE, PHYSICAL AND MENTAL—RADIUM—MEDICAL INSPECTION OF SCHOOL CHILDREN—SLEEPING SICKNESS—OBITUARY.

London, September 24, 1908.

The vacation is practically over, as next week the schools will open. Teachers have nearly all returned and are occupied with preparations for the work of the winter session. The introductory lectures should be composed or well in advance. At the schools where they are discontinued other functions which have been substituted are giving a larger number of persons no little anxiety as to the hoped-for success of the gatherings and the still more earnestly desired numerous entries of freshmen.

The proceedings of the Scientists at Dublin continue to afford food for conversation. Some of the subjects are outside those demanding your attention, but of course not beyond the range of your studies. In each section the addresses of the presidents sum up much that is of interest to the general public, and as much may be said for many of the papers. The wealth of material is thus so great that only gleanings can be offered to you in this column. In the physiological section Dr. Hewitt had a paper on the "Prevention of Deaths Under Anesthetics," in which he enforced on the attention of the scientists and through them on the public the views he is known by his professional brethren to hold. He put clearly before the gathering the conditions and circumstances under which anesthetics are at present administered and argued that this department of practice must be raised to a higher level in order to protect the public. He declared that both in personnel and other respects the departments of anesthetics are inadequately equipped. Considering his own position as a teacher and anesthetist at two of our great hospitals, this seems rather a hard saying, for I know that his example and teaching have been followed at other institutions. He complains that the examining bodies neglect the subject which he would have them enforce on the attention of students by making it a part of the compulsory curriculum. Many will perhaps think there is quite enough for the student to do in the already crowded condition of his curriculum, and the mere addition of an extra course of lectures cannot accomplish much. Neither can the obligation to administer anesthetics to a certain number of patients—of course under the supervision of the teacher. It is not by this sort of regulation that our practitioners attain, as a rule, their well-known skill in midwifery. The rule remains, but cannot account for the ability to meet great emergencies which is seen on almost all occasions of the kind, even in remote districts.

The first reform that Dr. Hewitt advocates I heartily endorse, viz., to make it a penal offense for an unqualified person to administer anesthetics. But the same punishment should be extended to other breaches of the medical acts. In this particular assumption of medical work by the unlicensed there are exceptional emergencies which would have to be provided for, and the attempt to restrict practice more efficiently and so protect the public from fraudulent pretensions will not very soon succeed. Where legislation is necessary the delay is usually of years' duration. The General Medical Council was imposed upon us to deal with such things, but in spite of its costly doings the protection of the profession and the public has not advanced. I agree with Dr. Hewitt that there is ample material in our hospitals for instruction in this and other subjects, but I think he underestimates what is being done. As a rule students are anxious to avail themselves of this "ample material." Another suggestion for reform is also a good one—the registration of all administrations at hospitals, specifying the anesthetic used and the result—so that the death rates of all agents could be compared.

I must add a line or two on the point which brought the paper within the program of the section. Acknowledging the work of Walter and other physiologists, Dr. Hewitt said many pin their faith on the adjustment of the vapor percentage, but he could not accept that as sufficient to secure safety. Could we in the human subject introduce our gases below the glottis their administration might be as safe in the operating theater as in Waller's laboratory. But we cannot, and unless there is just as free a lung ventilation when a one or two per cent. chloroform vapor is inhaled through the oronasal opening as when it is given through a cannula in the trachea, it is not to be inferred from animal experimentation that the danger in surgical practice is no greater. Dr. Hewitt expressed a desire that a small committee of physiologists would watch the difficulties that sometimes arise in the operating theater. He further urged the necessity of preventing the slightest obstruction to the free entry of air and of its free exit throughout the anesthesia, and further the selection of the appropriate agent to meet the requirements of the individual case.

A paper by Dr. W. MacDougal in this section dealt with fatigue, both mental and muscular. The writer said fatigue was not absolute, but relative. Sleepiness or tiredness coming on when engaged in some kind of work could be removed by another kind, e.g. heavy literary reading when it produced weariness or inattention would at once pass away on turning to lighter literature or exciting news. Fatigue, then, was a ratio between resistance and energy. In this way some pathological conditions could be explained. For health we needed to preserve the balance between resistance and energy so that when the resistance was below par there would be a tendency to excitement, fatigue, and slow recovery.

Mr. Sackville Lawson read a paper on some aspects of mental fatigue. He had applied the esthesiometer for experimenting as to the possibility of measuring mental fatigue. As it determines the loss of skin sensitiveness, he thought it might serve as a guide to the degree of mental energy expended. He found that a person may feel tired and yet be physiologically fresh. On the other hand, he may have the feeling and the esthesiometer may corroborate his sensations. Mr. Lawson suggested hard work as the best remedy for neurasthenia when the esthesiometer does not confirm the patient's symptoms. This nerve affection of which so much is heard nowadays is to be the "accidic" of medieval times, which Chaucer calls the "roten sin which maketh a man hevy, thoughtful, and wrawe, and full of sloth, wanhope and sompnolence." It would seem that "accidic" was sometimes mere sluggishness, when Mr. Lawson's remedy would be very effective. But we need not therefore deny that there are cases of neurasthenia which have another origin.

Everything relating to radium is so intensely interesting that you may not be surprised to know that the presidential address in the Geological Section in which it was dealt with is being spoken of as perhaps the most important contribution to science of this year's congress. Professor Joly said, uranium being the primary source of the supply—"the grandparent" of radium—we must look to that source, but there is no fear of a suspension of the supply. The uranium of the earth one hundred million years ago was hardly one per cent. more than it is to-day, and the fraction which is transformed in a year can only be estimated in tens of thousands of millionths. The interior of the earth may not be so rich in radium as the surface, but it exists far down and its presence in meteorites points to existence in that greatest of meteorites—the sun. Assuming a highly heated interior of the earth, Professor Joly saw no objection to the view that the loss of earth-heat may be supplied by radium and future cooling controlled by the transformation of uranium. Investigations already made show that radium and temperature are roughly proportionate. Professor Joly entered at length on the researches concerning the radioactivity of igneous rocks and the sediments of the beds of the oceans.

Sir A. Geikie declared the address was an epoch-making one and that the study of radium would probably help the solution of such problems as the earth's age and the upheaval of mountain ranges.

The circular of the Education Board lately sent to the local authorities on the medical inspection of school children has met with a varying reception. There are those who applaud every step in the direction of providing the children with all that their parents ought to supply and others who are asking anxiously where are we to stop? The ratepayers are in many places getting restive under the enormous burdens placed upon them in the name of education. Free instruction, free meals, etc., seem about to be followed by free medical attendance. As to this there is to be "a school medical officer" in every education area to be the head of a service of doctors, nurses, attendance officers, and teachers. He and his staff are to inspect and report on the improvements required in the school buildings and surroundings, lessons in hygiene, physical exercises, and so on. He is to advise as to baths and open-air schools. Further school clinics may be

established for further and more scientific examination of cases in which the medical inspection has shown defects in a child which cannot be conveniently investigated at the school. This looks like the establishment of a series of dispensaries or small hospitals at the cost of the ratepayers, and must, if carried out, lead to enormous and expensive changes. Only children are to be admitted to these clinics who cannot obtain the treatment needed at hospitals or the Poor Law arrangements. But this will mean little, and, as one objected, the extent of medical aid *gratis* will in a year or two be tremendous. The "school medical officer" is to be subordinate to the Medical Officer of Health, and this will bring the work into the Public Health Service. Is he to be well paid? is already asked. More important is the question whether he is to have security of tenure or be at the mercy of small local boards. He will have to prepare volumes of reports and statistics, but these will be of the usual useless kind, for the central board could not peruse them, still less digest such a mass within the year of issue.

It was announced on Tuesday that negotiations which have been in progress for some time between this country and Germany for the conclusion of a treaty to combat sleeping sickness are practically complete. A convention for a period of three years provides for the establishing of segregation camps on each side of the boundary between British and German possessions in Africa. Doctors and officials of the respective camps will keep in touch and compare the results of their researches. Infective natives will be prevented from passing to uninfected districts. They will be detained and segregated. Notification to the officials of both Governments is to be made of all infected areas and effective measures are to be taken for dealing with crocodiles or other animals which may be found to be the food of the parasite.

Dr. Walter Brown, physician to the Gloucester General Infirmary, died on the 12th inst. He qualified at the two London colleges in 1874-1875 and subsequently graduated at Aberdeen, 1879.

Dr. S. W. Bushell, late physician to the British Legation in Peking, died on Saturday at the age of sixty-four. He was a London graduate, B.Sc., M.B., M.D., at each stage taking honors. He was a gold medalist, exhibitioner, and university medical scholar. He held resident appointments at Guy's and Bethlehem Hospitals. In 1868 he was appointer to the Peking Post, which he held until 1900. He was created C.M.G. in 1897. He wrote a work on "Oriental Ceramic Art" and contributed to allied subjects, and was a Fellow of various scientific societies.

DOCTORS VERSUS NEW IDEAS.

To the Editor of the Medical Record:

Sir:—When Dr. Denslow's observation on the subject of locomotor ataxia appeared in the lay press, together with the comments of various colleagues, the editor of one of the most substantial newspapers wrote: "For our part, we cannot see the danger of giving hope, even illusive, to the man or woman burdened by a deep despair." This is no doubt the conventional lay view, and apparently a common-sense one. It is the chief obstacle which doctors meet when trying to prevent medical sects from obtaining legislative favors.

There are two sides to the question. Doctors have to protect the public against the multitude of fanciful theories and untried methods that are constantly being foisted upon the profession by earnest advocates, as well as by designing charlatans.

When a doctor comes forward with a new idea, it promptly oversets established ideas which are being employed in daily routine by good doctors, for helping the people who have put trust in them. It hurts honest men, by calling into question their wisdom in previous choice of method. They are bound to attack a man who comes forward with a new idea, and to ask him to defend himself. Their attitude is really impersonal in primal conception, and is in the interest of their patients, but it seems very personal to a man who is vain and weak. Most new ideas are batted down, and they belong down. We know of men who have been subjected to persistent and bitter attack almost from their first entrance into the profession, because they happened to be men of inventive talent, who could not help being constructive along new lines. It has cost them thousands of dollars a year, and has even reached a question of their personal characters, and has interfered with their entrance into some social clubs. This is as it should be, in accordance with existing conditions. When the people can no more be prevented from rushing to charlatans than horses can be turned back from burning barns, the doctor who comes forward with a new idea must stand the searching questions which extend clear down to the fish stories with which he amuses his friends. The doctor who plans a life devoted to new work must be fundamentally altruistic, and must find his chief compensation in the gratifying knowledge of the fact that he is molding professional opinion for the benefit of the public. He must be prepared, after carrying a new idea over the goal, to have it appropriated by others, who will forget that he did anything more than to create a disturbance—they have forgotten just what it was. All of this is acceptable to the doctor who is working in the true professional spirit. He must stand punishment like a football player, and must keep better natured.

The editor whom we have quoted rebukes the doctors who have attacked Dr. Denslow, and says that they should have waited until they had read his Academy paper before criticising him. How about the hundreds of sufferers who will not wait for the Academy paper? Our point of view is that no one should have had the subject for discussion before the Academy paper appeared. In the present instance it seems probable that a new idea has been developed successfully, but how about the multitude of ideas that have at various times gotten into the lay press in advance of proper publication? Thousands of sufferers in the past have been given vain hope, and have been plunged into the depths of despair. Thousands of people have expended upon false prophets the dollars which they needed for ordinary comforts. Doctors will protect the public against this sort of thing if the public will allow itself to be kept out of burning barns.

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Progress of Medical Science.

Boston Medical and Surgical Journal, October 1, 1908.

Acute Appendicitis in Children.—B. Vincent discusses the various features of the disease as occurring in children and summarizes her views as follows: Acute appendicitis is rare in infancy but is more common in childhood than is generally supposed. An early diagnosis is difficult and the first stages and lighter forms of the attack may be easily overlooked. The prognosis of the disease is more rapid in children than in adults; the involvement of the peritoneum and the appearance of pus are early features; diffuse peritonitis is probably more frequent, but there is still greater tendency to the formation of a localized abscess. A child is never so young and seldom so sick as to contraindicate surgical interference, but the extent of the operation must always be measured by the condition of each patient. Children stand short operations well, but may be needlessly lost through prolonged and ill-advised efforts to do more than is absolutely essential. The prognosis is more uncertain in children than in adults. Age is a very important factor. In children over ten years of age the prognosis is at least as good as in adults; in children under five years it is worse, and in infants the prognosis is exceedingly grave.

Measles in Utero.—N. E. Mason reports the case of a primipara of 19 years, who entered the hospital with a distinct measles rash which subsided in eight days after admission. At this period she was delivered by forceps. The child presented a mottling of the skin over the entire body and a branny desquamation over the chest and in the axilla. On the following day desquamation appeared over the forehead, on the plantar surface of the toes and between the toes. On the second day there was more profuse desquamation over the chest and face, being of a markedly furfuraceous character on the sides of the nose. Desquamation was also present upon the abdomen. On the thirteenth day very slight, fine desquamation could be seen over the temples and in the axillæ. On the seventeenth day fine desquamation could still be detected in each lower axilla. On the twenty-first day desquamation had completely disappeared and there was no sign of infection with measles. Mother and baby were discharged well from the hospital on the twenty-third day after delivery. The author quotes from various writers on pediatrics relative to such cases as his own. The main question in dispute arises over the fact as to whether the child has a true measles desquamation or the normal exfoliation of the newborn. Then, also, there is the notable fact that although the mother nursed the child and both remained in the measles ward, the child did not contract the disease, which it probably would have done had it not been for the recent attack. Most writers apparently regard the transmission of measles from mother to fetus as a very rare occurrence, but more doubt its possibility.

New York Medical Journal, October 3, 1908.

Apoplexy in the Classification of Diseases.—F. P. Foster makes a plea for the retention in the forthcoming classification of diseases by the American Public Health Association of the term apoplexy as signifying an affection of the nervous system. Some physicians think that apoplexy should be classified under diseases of the vascular system in mortality returns and death certificates. To make the change would be impracticable and illogical. The present international classification ranges malignant neoplasms by themselves, regardless of their situation; but it deals with benign tumors according to the part which they occupy. I think that this is correct. Apart from the displacement of fragments of bone, fractures of the skull owe their gravity to hemorrhage from an intracranial vessel which has been torn in the injury, but would anybody dream of treatment of such cases under the head of injuries of arteries? Tuberculous infection varies in its gravity according to the part involved, though the invading organism is the same in all instances. We dread the pulmonary and the meningeal manifestations much more than those of the spinal column, the joints, or the lymphatic glands, and in practice we do not associate them all together. It is the part affected that is of the greatest practical importance, and in the case of apoplexy it is the fact that the brain is involved that is the significant feature.

Repair of the Perineum.—The main thesis of J. W. Henson's paper is that in repairing the perineum it is just as important to search for and thoroughly suture the several bands of the levator ani muscle as it is in complete laceration to find and bring together the ends of the sphincter ani. The author does not laud any particular operation. If it accomplishes the aim referred to it is satisfactory; if it does not, it will fail to give the permanent relief sought. As a matter of fact, the author prefers the flap-splitting method, because thereby the muscles can be easily reached and because no tissue is lost. He regards the redundant tissue idea as only a bugaboo. Detailed technical features are the following: The incision, as it is carried up on each side of the vaginal orifice, is inclined within the latter just enough for the anterior margin of the new perineum, after the sutures are tied, to be a little back of the meatus so that upon micturition the urine is conducted off by the perineum as a gutter, none of it trickling into the vagina, as it frequently does after perineorrhaphy by other methods. In introducing the sutures the needle is made to avoid puncturing the skin as it is passed in, and the mucous membrane as it is brought out, or *vice versa*. Thus the suture can take more of the muscular tissue in its grasp, and furthermore, it does not cut and get loose as sometimes happens when skin or mucous membrane is caught.

Apoplexy: Its Causes and Treatment.—The familiar clinical appearances of apoplexy are set forth by J. D. Bonnar, who discusses also the pathological changes in the brain tissue, course of the disease, prognosis, and differential diagnosis. Concerning treatment, he says that nature attempts to stem the ebbing tide at first by increasing the intracerebral pressure, by equalizing the arterial pressure. The head should be lowered in embolism, but raised in apoplexy. The value of cold packs to the head is a measure of disputed value. Venesection is advisable when there is a rush of blood to the head, in middle-aged men with arteriosclerosis, accentuated second aortic sound and hypertrophied left ventricles. Purgation is good in apoplexy, but not in embolism. Aconite may be used in the fever of reaction. While doubting somewhat the efficacy of internal remedies, the author uses bromide of potassium with ergot and a mild aperient. He also advises in prodromic symptoms of apoplexy deep inspirations, so as to withdraw to the thorax the blood pressure bearing on the brain. A little food should be given. The swollen limbs should be warmly wrapped. Ether, digitalis, and ammonia may be given for weak heart. A specific case calls for the free use of the iodide. Later massage and electricity may be employed. The patient's friends should be informed that in complete hemiplegia the leg may recover, but that the hand rarely recovers finger movement. After middle life mental weakness, irritability, and emotionalism are apt to persist. If distinct improvement is not noted after three months, the case is generally hopeless. Unless collateral circulation does not sufficiently nourish the affected brain area within forty-eight hours, the brain focus will probably remain permanently softened and topical disease will result.

Irremovable Cancer.—This question is discussed by W. S. Bainbridge under the headings of (1) seemingly irremovable, (2) operable, but irremovable, yet curable, and (3) operable, but irremovable and incurable. Under each heading typical cases are described and illustrated by some excellent photographs. Under the first heading the author says that the case may be inoperable, yet the cancer *per se* may be perfectly amenable to operation (1) on account of the patient's condition in other respects than as regards the cancer. If the contraindication condition is temporary, measures should be instituted for its removal. Proper care may render the case both operable and removable. (2) Concurrent complications in the neighborhood of the cancer may lead to the diagnosis of irremovable malignancy. Many times the growth may be complicated by septicemia and sapremia and it is to these rather than to the neoplasm itself that the immediate desperate condition is due. If these can be controlled the case assumes an entirely different aspect. Under the second heading the author says that the word curable as applied to cancer is a relative term. Strictly speaking, we do not cure cancer; we remove it and in the vast majority of cases, when it is impossible to remove it, it is impossible to cure the patient. Statistics amply justify the so-called three-year limit. In still another limited number of cases of advanced cancer which is operable, but in which it is impossible to remove the entire growth, by removing as much as possible and instituting other measures, nature seems to be able to cope with the malignant process and to reduce it to such a state of subjugation that it disappears or remains so completely quiescent that the patient lives a number of years and is to all intents and purposes cured. Under the third heading we have at our disposal the following procedures: (1) General treatment of the patient, (2) treatment of the indirect conditions caused by the cancer. Thus: A malignant tumor may cause obstruction of the nose, for example, of the esophagus, of the stomach, etc., and to relieve this obstruction it may be necessary to resort to tracheotomy, esophagostomy, gastrostomy, enteroenterostomy, etc., as the case may be. In case of obstruction of the bladder suprapubic cystotomy or perineal drainage may be necessary. (3) We may ligate the blood-vessels in the carotid region (the Dawbarn plan). (4) We may ligate vessels in the pelvis in inoperable uterine and other pelvic cases, as it lessens the danger of hemorrhage, decreases fetor, and renders it possible to proceed with the necessary surgical intervention, such as curetting, cauterizing, etc. It also diminishes the rapidity of growth in some instances, lessens pain, and frequently prolongs life. (5) Other plans may be followed, as the use of the *x*-ray, high-frequency current, fulguration, leucodescent light, radium, mixed toxins (Coley's fluid), *Streptococcus pyogenes* (Wyeth), oophorectomy, and pancreatic enzymes. Finally, the author devotes some space to the matter of caring for the absolutely hopeless cases, those which are inoperable, irremovable and incurable. Under this are enumerated the various measures for controlling pain, keeping the fungating masses clean, etc. Alcohol may be taken with food. More of these cases present a hyperacidity and alkaline waters are beneficial. Acetphenetidin in doses of 10 to 15 grains twice daily combats pain very well. Something should be given with morphine to counteract its bad effects. Atropine may be added if the patient sweats. The U. S. solution of morphine may be combined in long-continued cases with elixir of lactopeptin.

Journal of the American Medical Association, October 3, 1908.

Prolapse of Rectum.—L. J. Hirschman reports two cases of hysterectomy which emphasize one of the sequels of this operation, which, he thinks, has not received sufficient attention. In both cases there was more or less rectal prolapse which required a second operation. From these two cases he deduces that in patients requiring hysterectomy, who have suffered from chronic constipation, the possibility of postoperative prolapse of the rectum and sigmoid must be considered. In such patients the removal of the uterus deprives the rectum of an important anterior support, and the broad ligaments should be brought together whenever possible. Further, if in these cases laceration or rectocele exists perineorrhapy and posterior colporrhaphy should be performed. If there is any tendency to prolapse of the rectum or sigmoid, mesosigmoidopexy should be done as a prophylactic measure. Mesosigmoidopexy should be the operation of choice in any case of complete prolapse of the rectum or sigmoid, whether following hysterectomy or from other causes, "as it holds the sigmoid in place by its natural support, its own mesentery, which, being double its original thickness, becomes twice as strong a support. By not causing a fixation of the bowel to the abdominal or pelvic wall, its natural mobility is not interfered with, and the normal peristaltic movements are not interfered with."

Cervical Ribs.—J. B. Roberts calls attention to the disturbances that may be caused by cervical ribs in producing vascular and nervous lesions of the neck and upper extremity, and reports an illustrative case in which a rib

gave rise to suspicion of the existence of an aneurism. It behooves physicians, he says, to remember that pain, anesthesia, muscular spasm, defective circulation and atrophy may be due to pressure in the supraclavicular triangle of the neck by an anomalous rib connected with the sixth or seventh cervical vertebra. He describes the various forms which these growths may assume and the symptoms they may produce. The determining cause of the advent of symptoms is obscure; it has been supposed that there is a tendency for these ribs to increase in length about the third decade of life by the development of exostoses, but the symptoms have been observed to develop suddenly in children as well as in adults. Those that extend directly outward from the spine seem to cause less trouble than those that point downward, and the longer ones than the short, stumpy ones. This is perhaps due to the fact that more perfectly shaped ribs cause less disturbance than the more abnormal ones. The treatment is excision in all cases in which the symptoms are severe. The operation, properly done, is practically safe, though it naturally varies in surgical importance in different cases. The palliative treatment in mild cases consists in rest of the arm, suspension of the patient, local counterirritation and massage. Electricity may also be useful.

Posture in Treatment of Rectal Disease.—G. S. Hanes reports that he has employed as nearly complete inversion of the patient as possible in the treatment of rectal and sigmoid conditions, with results better than could be otherwise obtained. The patient is placed on the table with the foot rest dropped and is allowed to hang over the end of the table on his thighs, with either the right or left shoulder resting on the edge of a plain chair, the other hand resting flat on the floor, or, still better, the patient is allowed to rest his head on a pillow, folding his arms and supporting his weight on each elbow. He has often kept patients in this position, he says, for from ten to twenty minutes with comparatively slight discomfort to them. As soon as the patient assumes the position, the abdominal viscera gravitate toward the diaphragm and the maximum tension on the sigmoid and rectum is obtained, the bowel approximating a straight line. The use of instruments with the least possible injury is thus facilitated. The article is illustrated.

Submucous Resection of Nasal Wall.—R. B. Canfield describes and illustrates an operation for the relief of intractable cases of antral empyema, simple or combined with ethmoid or sphenoid disease, that have resisted less radical methods. It includes, after local anesthesia with cocain and adrenalin: (1) Incision through the soft parts of the nostril at the inner margin of the vestibule, beginning about the middle of the lateral wall of the pyriform opening and extending well down to the floor of the nose. The incision passes through the periosteum, which is incised along the lateral wall of the pyriform opening. (2) Raising the mucous membrane and periosteum of the lateral wall of the nose from the floor upward to the level of the attachment of the inferior turbinate and backward as far as convenient. (3) Elevation of the periosteum of the anterior antral wall for any desired distance. (4) Removal of the pyriform opening and the lateral wall of the nose over the area where the mucosa has been raised so that the floor of the nose is continued outward into the antrum without irregularity. (5) Enucleation of any desired amount of the inferior turbinate without disturbing the soft tissue. (6) Removal of the desired amount of the anterior antral wall, *i.e.*, enough to allow view of the antrum. (7) Penetration of the lining membrane of the antrum and inspection of its cavity. (8) Curettage of the antrum if needed. The ethmoid is then entered, if necessary, after enucleating the bone of the middle turbinate, making it easily movable and permitting access to the ethmoid bulla and anterior ethmoid cells, which can be thoroughly curetted. If removal of the anterior wall of the sphenoid is required, it can now be brought in sight, in the absence of a septal deviation toward the affected side, by pressing the soft tissues of the turbinate laterally into the region of the ethmoid. (9) Formation of a flap of mucous membrane from that part of the lateral wall of the nose beneath the level of the attachment of the inferior turbinate, removal of the deepest portion of the median wall of the antrum to insure good drainage. Careful approximation of the mucous membrane flap to the floor of the antrum and packing the nose and antrum with vaselin gauze complete the operation. The after-treatment is very simple. The gauze is removed on the fourth or fifth day and the operative field is inspected and wiped dry. Some cases require nothing more. Sometimes a little granulation tissue calls for the curette or silver nitrate. Canfield claims certain advantages for this operation: it can be performed under either local or general anesthesia; can be as simple or radical as desired; calls for no buccal incision and little bruising of soft tissues; affords the most satisfactory view; can be performed in several steps if desired and simplifies the after-treatment. The results have been satisfactory in his experience of the twelve cases in which he has performed it.

Anemia of Hepatic Cirrhosis.—J. E. Talley reports two cases, one rather conclusive, the other suggestive at least, of hepatic cirrhosis without hemorrhage terminating in pernicious anemia. That such a change should occur in the blood is easily conceivable, he says, when it is remembered that both hepatic cirrhosis and progressive pernicious anemia are probably due to infection. In any case, secondary and primary, or pernicious, anemia are but relative terms. Many of the cases formerly classed as primary latterly have been found to be secondary, the cause having been demonstrated. The differences in the blood findings are moreover largely those of degree. Hemolysis and hematogenesis are present in both. A limited amount of metaplasia may occur in the marrow in marked secondary anemia; occasionally it is absent in pernicious anemia. Usually, however, it is only when marked destruction of imperfectly formed blood corpuscles begins that the true picture of the pernicious type appears.

British Medical Journal, September 12 and 26, 1908.

Bulbar Paralysis Followed by Progressive Muscular Atrophy.—The case is reported by J. F. Little and T. J. Bokerham who believe that the application of intermittent electric currents at high tension by means of electrodes impregnated with drugs capable of introduction by the plan known as "ionic" medication caused an actual improvement in the symptoms referable to the bulbar lesion. The course of the case is well described in the title of the paper, and there was nothing unusual in the symptomatology which suggested to the authors the existence of changes not only in the nuclei of the bulb, but in addition lesions in the anterior gray cornua of the cord. The patient is an electrical engineer of thirty-four years and his symptoms dated back four years, the first thing noted being an inability to whistle. The disease ran its usual course and the patient at the end died quietly as if falling asleep. A full description is given of the various systemic symptoms together with an enumeration of the various electrical reactions.

X-Ray Dermatitis and Its Prevention.—J. F. Han-Edwards, a sufferer from this affection, gives a full account of his own case. The hands were particularly affected and their condition is shown by radiographs. It is interesting to note that the phalangeal bones became involved and that amputation of one forefinger was necessary. The ideal method of protection, says the author, must be one which so cuts off the rays that they emanate only from an opening representing a portion of the surface of the tube and which is entirely under the control of the operator. He prefers to inclose his tubes in globes of thick lead glass and uses a Dean's shield. He also advocates the use of screens composed of wood covered with thin sheet lead, containing a window of lead glass of sufficient size to allow the operator to watch the patient during the exposure. He prefers to use the fluorescent screen as little as possible. In one of the first communications given to us in the early days of the *x*-rays it was pointed out that the interposition of an earthed aluminum plate placed between the *x*-ray tube and the operator or patient rendered the effect of the rays upon the skin inert. At the same time there existed some difference of opinion as to how far the rays, thus cut off, influenced treatment. There can be little doubt that the electrostatic field which surrounds an *x*-ray tube in action has considerable influence in the production of radiodermatitis. That this electrostatic field is diminished by earthing the anode pole is certain, and the author feels convinced that extra safety is secured by the earthing of all metallic conductors in this field. The first shields devised were made upon unscientific lines, and for this reason, while they protected the operator they failed to bring about satisfactory therapeutic results. Belot's shield was the first constructed upon sound lines, and it paved the way for the introduction of many pieces of apparatus which are more or less efficient. The author is convinced that the shield or protecting box for cutting off all rays from the tube, except those which are actually required for the purpose of diagnosis or treatment, offers the best method of protection, and I would advise every worker to adopt it. The position of the operator in relation to the tube is one of importance, and it should always be borne in mind that the safest place is behind the anticathode.

The Relation of Disease of the Accessory Nasal Sinuses to Diseases of the Eye.—A discussion of the subject occurred at the recent meeting of the British Medical Association and was opened by A. Logan Turner, who said that when we study the nasal sinuses we are struck with their intimate relation to the orbit. There is

not only a juxtaposition of long walls, but there is a direct intercommunication between the veins of the nasal cavities and the accessory sinuses on the one hand and the venous trunks of the orbit on the other. A direct lymphatic connection has not yet been established on anatomical grounds. From the foregoing statement it follows that septic processes in the nose and sinuses may easily invade the orbits. With reference to the cavities, we may divide the sinuses into the same anterior and posterior groups as we do when considering simply their nasal relations. Thus, anteriorly, the frontal sinus and anterior ethmoidal cells may occupy to a varying extent the roof of the orbital cavity in its anterior part. The anterior ethmoidal cells are in intimate relation to the anterior part of the inner orbital wall, while the maxillary sinus lies both anteriorly and posteriorly beneath the orbital floor. In relation to the posterior part of the orbit, we find that the posterior ethmoidal cells and sphenoidal sinus have a constant relationship to its inner wall. Occasionally a large posterior ethmoidal cell intervenes between the antrum and the floor of the orbit, while the roof of the orbit close to its apex may be slightly invaded by an exceptionally developed posterior ethmoidal cell. If we proceed a step further, and study the relation of the sinuses to the orbital contents, it is possible to maintain this grouping in connection with certain orbital and ocular phenomena which may have their origin in pathological conditions of the sinuses. Thus, when we meet with displacement of the eyeball, swellings in the inner and upper part of the orbital cavity and peridacryocystitis, the attention should be directed to the frontal sinus, anterior ethmoidal cells, and maxillary sinus. On the other hand, the existence of retrobulbar neuritis, optic atrophy, and paralysis of ocular muscles may result from diseases of the posterior ethmoidal and sphenoidal sinuses. In other words, affections of the anterior group of sinuses may be responsible for bulbar affections, while pathological conditions of the posterior group may be the causation of certain retrobulbar affections. It is true that a classification of this kind does not include all the ocular affections that may be secondary to diseases of the nasal accessory sinuses, nevertheless it forms a sufficiently useful working basis both for the ophthalmologist and the rhinologist.

Some Cases of Vaccine Therapy.—W. M. Crofton presents the clinical histories of four cases of, respectively, chronic pyemia, tuberculous disease of the hip-joint, eczema and sycosis, all of which recovered under the vaccine therapy. He concludes that it is legitimate to vaccinate patients with strictly localized infections without any estimation of the opsonic index. To confer any permanent immunity materially increasing doses are necessary. Given in such a way vaccines may prove to be of prophylactic value. Of the four cases detailed the opsonic index was estimated only in the first. The other three were treated without its estimation, the intervals being determined by the amount of local and general reaction. The first dose was always small and varied with the age and condition of the patient. As to increase of subsequent dosage the author says that in an adult case of localized staphylococcus infection the first dose would be: ½ c.cm. of a vaccine containing 200 millions cocci to the cubic centimeter, the next dose, as a rule a fortnight to three weeks after, 1 c.cm., the next 2 c.cm., the next 3 c.cm., the next 4 c.cm., and so on. He makes it a rule, if possible, to give a final large dose after the patient is apparently cured, and finds this has a potent influence in preventing relapse; the only relapses he has had were in patients who refused it.

Some Requirements of Modern Surgery.—C. H. Hough enumerates asepsis, antisepsis, the importance of a bacteriological training, therapeutic immunization, the Roentgen ray and the Finsen light. Concerning the matter of surgical bacteriology, he says that anyone who has been trained in a bacteriological laboratory will have exalted ideas of surgical cleanliness and will be sure to note the many inconsistencies which occur during the average surgical operation. Thus it is by no means uncommon to see those who are considered careful men touching with their hands after sterilization the face or hair, or permitting them to come in contact with some non-sterile article, such, for instance, as a blanket which protects the patient, an unsterilized instrument, or any portion of their own unprotected clothing. These inconsistencies may appear trifling to many, but unfortunately they are too often responsible for the introduction of infectious material into the wound. Though it may be true, as has been contended by some, that every wound made by the surgeon contains microorganisms, under ordinary circumstances the resisting power of the patient will be sufficient to prevent their growth and development. While admitting that an infection following operation must, with our present knowledge, be sometimes attributable to a lowered systematic resistance, and to no fault of the surgeon or his assistants, it must be understood that this is extremely rare, and that in nearly every case of sepsis a rigid analysis of the technique employed will bring to light some act of omission or commission to account for it. The author believes that a perfect technique can ultimately be obtained by submitting every step to the test of bacteriological examination, and that the surgeon who is able to work on these lines will, *cæteris paribus,* undoubtedly obtain the best results in his own operations.

Some Forms of Cardiac Arrhythmia from the Point of View of the Myogenic Theory.—W. J. Fenton discusses present-day theories of cardiac action, defining the myogenic theory as postulating the formation of the stimulus to the heart's contraction in the heart muscle cells themselves, and not as an impulse conducted to the cells from the nervous system. The fundamental attributes of heart muscle are stimulus formation and conduction of irritability and contractility. These have certain relationships to each other, and yet are capable of independent variations within wide limits. The co-operaton of these properties produces the rhythmical heart movements, but the adaptation to the varying needs of the body is brought about through the nervous system, acting on one or another of the muscle cell properties. Some portions of heart muscle may possess a given property in an unusual degree. The simplest form of arrhythmia is that disturbance of rhythm known as the extra systole. The so-called "heart block," or the Stokes-Adams disease, results from a defect in conductivity and the complete syndrome depends on the combination of two factors: (1) prolonged or permanent slowing of the heart beat with paroxysmal attacks of extreme bradycardia and (2) diseased cerebral arteries. Most cases presenting this disease syndrome of the auricular ventricular muscular bundle present either sclerosis, gumma or vascular disturbance. In some cases no gross lesion has been present. The best example of defect of contractibility is perhaps that of the "pulsus alternans," in which large and small beats are found in alternation in the radial pulse. When the contractility is lowered the heart's contraction is made more quickly than normal, that is, it does not last so long, the consequence of which is that the duration of the pause following the smaller contraction is longer than that following the larger one. But a longer pause will be followed by a larger and, therefore, longer enduring contraction by reason of the length of the rest allowed by the longer pause, and, conversely, a large contraction by lasting longer will be followed by a smaller beat. If, therefore, when the contractability is lowered the duration of a pause should be lengthened from any cause, while the cardiac rhythm remains otherwise unchanged, a pulsus alternans will be the result.

Deutsche medizinische Wochenschrift, September 24, 1908.

Indications for Operation in Compression Paralysis.—Bardenheuer says that subcutaneous traumatic compression may produce paralysis when it acts suddenly, and is of great intensity, as instanced by the injury to the brachial plexus through forced hyperabduction and rotation of the arm which are sometimes necessary in the reduction of dislocations of the humerus. Such compression may be less intense in degree and yet produce similar paralysis because of prolonged action, as instanced by the paralysis of the brachial plexus that sometimes occurs after narcosis. From the practical standpoint the difficulty lies in estimating the amount of injury produced, for the intensity of symptoms, that is, the degree of paralysis, is a very inadequate criterion. Yet such estimation is of great importance for operative treatment is called for in cases of severe compression of the nerves, while rest, massage and electrical treatment are sufficient to overcome minor injuries. Bardenheuer considers that operation is called for, if no improvement in the degree of paralysis takes place in two or three weeks; if the electrical irritability of the nerves disappears in ten to fourteen days after a short preliminary increase; if the muscles cannot be stimulated by the faradic current during the first week of paralysis, while an increased irritability to the galvanic current occurs in the second week together with the appearance of the reaction of degeneration and of atrophy. The operation may consist of baring the nerve, which diminishes the intranervous pressure and allows the escape of the lymph and blood gathered within the sheath, which often prevents the formation of scar tissue with subsequent interference with the regeneration of the nerve; in other cases simple splicing is indicated.

First Class in Inebriety.—A class of one hundred habitual drunkards in Richmond, Va., recently took a three-day cure under the supervision of a physician of the city who claims to induce a distaste for alcohol in that brief period.

Book Reviews.

The Spectroscope. Its Uses in General Analytical Chemistry. An Intermediate Textbook for Practical Chemists. By T. Thorne Baker, F.C.S., F.R.P.S., Author of "Spektralphotographie, und deren Anwendung," "Orthochromatic Photography," etc. New York: William Wood & Co., 1907.

The spectroscope has attained a very important place in the laboratories of physiological chemistry as well as of clinical pathology, its use furnishing the readiest means of determining the presence of blood, of bile elements, etc. The book under consideration aims to acquaint a worker in these fields who has some knowledge of general physics with the special questions involved in the formation of a spectroscopic image, the modern forms of the apparatus, and with the technique of spectrophotography. The book is necessarily technical in character, and is intended for the specialist in laboratory analysis and for the advanced student of physics as well. Any physician, however, using the instrument will obtain a clear idea by perusing this book of the principles and the theories upon which spectroscopic analysis is founded.

Aids to Osteology. By Philip Turner, B.Sc., M.B., M.S. (Lond.), F.R.C.S., Demonstrator of Anatomy, Guy's Hospital. New York: William Wood & Co., 1908.

This pocket volume is a competent compend on Osteology. There is, naturally, nothing new in such a volume; but the essentials of the subject are adequately represented, and the book will be a substantial help to many a first year student in his struggles with Gray or Cunningham.

The Blues (Splanchnic Neurasthenia). Causes and Cure. By Albert Abrams, A.M., M.D. (Heidelberg), F.R.M.S.; Consulting Physician, Denver National Hospital for Consumptives, the Mount Zion and the French Hospitals, San Francisco; President of the Emmanuel Sisterhood Polyclinic; Formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College, San Francisco. Illustrated. Third Edition, Revised and Enlarged. New York: E. B. Treat & Company, 1908.

The author's novel views are again in evidence in this, his third edition. The main part of the work has simply been revised and enlarged while the author has added an entirely new note on the vasomotor test in splanchnic neurasthenia and a new chapter on intestinal autointoxication. Although much unproved theory abounds in the book it makes interesting reading, and may in the future lead to an improved method of therapy in these cases of "the blues." The author describes his technique carefully and gives the necessary illustrations such as are needed for thoroughly understanding the text.

Milatär-Sanitätswesen. Herausgegeben von der Medizinal-Abteilung des Königlich Preussischen Kriegsministeriums. No. 37: Ueber die Anwendung von Heil-und Schutzseris im Heere. Berlin: August Hirschwald, 1908.

In this work the value of many of the immunizing and curative sera are discussed. For use in the army during war only those are advocated which are prepared under government supervision. Diphtheria antitoxin should be taken along only in small quantities as diphtheria epidemics rarely occur during war. Tetanus antitoxin should be carried upon the battlefield in large quantities, it being most valuable as a prophylactic. As meningitis and dysentery epidemics frequently occur, meningococcus and dysentery serum should be carried in large quantities. The value of the latter two is still doubtful, though it is certain that they can do no harm. The Pfeiffer-Kolle method of using typhoid serum is considered the best for immunizing purposes. It, however, requires a week or longer to carry it out, and is therefore impracticable in an active army, excepting for nurses in typhoid wards. The sera mentioned have no bad after effects, can be preserved a long time, and can be made in large enough quantities for army use. For army physicians this contribution to literature will be especially valuable.

Insomnia and Nerve Strain. By Henry S. Upson, M.D., Professor of Diseases of the Nervous System in the Western Reserve University; Attending Neurologist to the Lakeside Hospital, Cleveland, Ohio. With skiagraphic illustrations. New York and London: G. P. Putnam's Sons, 1908.

In this little work the writer finds opportunity to set forth in the main, a provisional sketch of the mode of origin of the psychoses. He describes the action of the nervous system in its relation to inhibition, vascular control, nutrition, shock, etc., and formulates an ingenious hypothesis of a "vasoneural circuit." His view of the neuroses and psychoses in general, is that they are primarily irritative disorders of the sensory nervous system affecting the remainder of the nerve mechanism indirectly. He contends, therefore, that these conditions have a right to a better prognosis than is often ascribed to them in that their etiological factors are removable. As an illustration, skiagraphs of several maxillæ are shown, in which there were dental abscesses or impactions, removal of which caused recovery or improvement in the psychoses. In speaking of convulsive seizures, the writer states that motor convulsions are never critical, and that there can be no such thing as sensory or psychic epilepsy. This seems a step backward.

Klinik für Psychische und Nervöse Krankheiten. Herausgegeben von Robert Sommer, Dr. med. et phil., o. Professor an der Univ. Giessen. III. Band, 1. Heft. Halle a S.: Carl Marhold Verlagsbuchhandlung, 1908.

In this number may be found: An article by Knauer on the electrolytic potential and conductibility of the skin; two articles by Gregor, one with Zaloziecki, on the diagnosis of psychiatric processes in stupor; an article by Plönies on sleep disorders from stomach disturbances; and a scheme by Prof. Sommer for the examination of idiots and imbeciles.

Die Fehlergrösse bei den histologischen Methoden. Von Privatdozent Dr. med. W. Berg, Assistent am anatomischen Institut der Universität zu Strassburg. Berlin: August Hirschwald, 1908.

In this little pamphlet of fifty pages attention is called to the changes in the tissues caused by the various solutions and steps used in the preparation of histological specimens. Figures are given with respect to changes in porosity, volume, weight, and specific gravity. It should be of interest to the laboratory worker.

Les Eunuques à Travers les Ages, par le Dr. Richard Millant, Paris: Vigot Frères, 1908.

This book of 295 pages, with 20 illustrations by the author, is Volume XIII of a series entitled "Les Perversions Sexuelles." It is written in the sprightly style that stamps the very modern French feuilleton, and as such offers entertaining reading, provided one is willing to accept horrors of brutality and disgusting details of perverse sexuality as entertainment. The author has certainly given much energy to literary research for his subject matter, and presents the results in all the elegance of style of the polished writer. The value of the book to physicians is questionable; criminologists and students of sociology, however, may find some useful points therein.

Etudes sur les Contusions, Déchirures et Ruptures du Rein. Par le Dr. Georges Lardennois, ancien interne des hôpitaux de Paris, prosecteur à la Faculté de Médecine. Paris: Steinheil, 1908.

The object of this monograph of 232 pages, with 22 illustrations, is to present the indications for and against operative interventions in contusions, lacerations, and ruptures of the kidney. These indications are based essentially upon the study of 767 cases reported by other authors, whose contributions Lardennois condenses with remarkable precision. These lead him to conclude that renal contusions are generally benign, that renal ruptures can be produced by slight traumatism, that hemateuria is the sign of renal lesion and hematoma the measure thereof; that a hematoma of considerable size, if untreated, often brings grave mechanical, toxic and infectious complications, which imperil life and are destructive to the kidney. The concomitant lesions render the prognosis grave, but must never discourage the surgeon. The book is well-written, and will prove valuable not only to the urologist, but equally so to the general operator, who has much to do with emergency surgery of the kidney.

Beiträge zur Klinik der Tuberculose. Herausgegeben von Dr. Ludolph Brauer, Professor an der Universität Marburg, Director der Medizinischen Klinik. Band IX, Heft 3. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1908.

This number of the periodical devoted to clinical tuberculosis closes the ninth volume, and consists of six separate articles. Dr. Adolph Schmidt writes of the therapeutic use of pneumothorax and hydrothorax in tuberculosis and bronchiectasis; Dr. Brecke follows with the consideration of tuberculosis of the endothoracic lymph nodes; Benecke and Kürbitz report a case of tuberculosis of the placental site, and Benecke alone a case of air embolism of the greater circulation after an operation upon the lungs. The most important article is that of Roepke, who gives the results of numerous cutaneous, conjunctival and subcutaneous tests for tuberculous infection. Roepke has studied a great deal of material very thoroughly and his article deserves the attention of all who are engaged in testing the values of the new reactions for tuberculosis.

Society Reports.

SIXTH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Held in Washington, D. C., September 21 to October 12, 1908.

(Special Report to the Medical Record.)

(Concluded from page 652.)

SECTION ON TUBERCULOSIS IN CHILDREN.

Fifth Day—Friday, October 2.

Calmette's Tuberculin Diagnosis.—Dr. L. Emmett Holt of New York said the unfortunate results that had been reported were in sufficient number to warn against using this diagnostic test when other means were available. He cautioned against the error of relying upon these local tests to the exclusion of others.

The Prognosis in Pulmonary Tuberculosis in Children Under Fifteen Years of Age.—Dr. Frank A. Craig of Philadelphia read this paper, which was based upon a study of 193 cases of pulmonary tuberculosis occurring in children, the ages ranging from sixteen months to fourteen years. Among the cases with one or two lobes involved with cavity formation, or with more than two lobes involved, with or without cavity formation, in no instance was the disease "arrested" or "much improved." No patient with a pulse of 80 or less became progressively worse or died, and no patient with a pulse-rate above 120 had the disease "arrested" or "much improved." The respiratory rate also gave valuable information. None of the other factors gave very positive indications. In older children the prognosis was better than in the younger, and the cases treated in the sanatorium did a little better than those treated in the dispensary and hospital. The results in children were better than in adults when the disease was not extensive, but not so good when the disease was advanced.

Hypertrophy of the Lymphoid Tissue; Its Relation to Tuberculosis.—Professor P. Nobecourt and Dr. Leon Tixier of Paris, France, presented this communication, which was based upon investigations of 22 children, whose ages ranged from 31 months to 14 years, with adenoid vegetations and enlarged tonsils. None of them had open pulmonary tuberculosis. Only five of the children were entirely free from tuberculosis. Examination of sections from tonsils and adenoid vegetations in these 22 cases revealed no tuberculous foci, and staining methods failed to show any tubercle bacilli. In only one case did inoculation of the adenoid vegetation produce tuberculosis in the guinea pig, and in this case the child from whom the vegetations were taken was not tuberculous. The authors concluded that there was no evidence that the lymphoidal tissue of the pharynx was the portal of entry of the tuberculosis infection.

The Seashore and Fresh-Air Treatment at Sea Breeze Hospital of Tuberculous Diseases of the Bones, Joints, and Glands in Children.—Dr. John W. Brannan of New York read this paper, illustrating it with lantern slides. Sea Breeze Hospital was the first experimental station for the sea-air treatment of bone and glandular tuberculosis in America, and was established four years ago at Coney Island by the New York Association for Improving the Condition of the Poor. During the four years 136 patients had been under treatment, of whom 68, exactly one-half, were cases of spinal or hip disease, which in 81 per cent. was in an advanced stage at the time of admission to the hospital. Forty-two of the 68 cases had been discharged, and of these 36 per cent. were cured and 19 per cent. improved, making 55 per cent. that were either well or progressing to recovery when they left the hospital. Among the discharged cases were 22 in which the knee or other points were affected Although 80 per cent. were in an advanced stage, 73 per cent. were cured and 13 per cent. were improved. It was demonstrated that to secure the best results in bone and glandular tuberculosis the patients must spend the entire time in the open air, and that the seashore offered especial advantages for outdoor life for children.

A Contribution from Orthopedic Surgery to the Study of Tuberculosis.—Dr. Adoniram B. Judson of New York advanced the proposition that patients affected with tuberculosis would recover and that new cases would not occur if the environment, local and general, was favorable. The argument was brought down to a comparison of two common forms of infection, hip disease and consumption. The statement that the former recovered without treatment except correction of environment was derived from clinical experience and from the literature. It was claimed that if hip disease recovered thus there were reasons in the comparative anatomy and physiology of the lung and the hip for the belief that the same and better results would follow in consumption. A correct environment for consumption was outlined. It was admitted that it was not possible at present to secure for all, the sick and the well, the desired general environment, which included abundant food, innocuous occupation, and sanitary housing, but observations in hip disease indicated that local rest should be secured in consumption by superficial breathing, the cessation of coughing, and the avoidance of exercises which quickened the respiration.

The Possibility of Avoiding Scar Formation in Softened Tuberculosis of the Cervical Glands.—Dr. Willy Meyer of New York believed that by following the rule of making the incisions in the course of the skin-folds of the neck when operating for softened cervical tuberculous adenitis, even long cuts might show very little later on. Still there would be a scar corresponding to the length of the incision made. Bier's hyperemic treatment enabled them to reduce such scars to a minimum if the method was properly carried out with the help of the neckband, as well as suction glasses, especially if combined with open-air treatment, and, of course, if the other means nowadays at their disposal in the treatment of surgical tuberculosis were observed. Dr. Meyer set forth the beneficial effects of the lung suction mask originally designed for the physical treatment of tuberculous pulmonary disease, which also greatly improved the general condition of the blood, a point of the greatest importance in dealing with these usually anemic patients.

Medicinal Treatment of Tuberculosis.—Dr. Abraham Jacobi, president of the Section, in closing, made by request some remarks, as follows: We have heard much of the causes, the pathology, the prognosis of tuberculosis, with much on air, good food, etc., but nothing on the medicinal treatment of tuberculosis. Not a pharmacopœial friend. One need not always give medicines. Many times one sends patients away without medicine, although this may lead to the question: "Doctor, do I owe you anything?" To which he answers: "I have given you the best I have, therefore you owe me something." No disease is uncomplicated. No disease will stand entirely alone, and there is always something to be treated to advantage. For example, constipation in pneumonia, requiring a purgative. Not to give the purgative may be in such cases a dereliction of duty. The purgative not only empties the bowels, it improves the circulation in the intestines, in the liver, in the lungs, and even in the heart. Much has been said of sanatoria, but only for incipient cases. We should have more places for the advanced cases, which can be taken away from thir tenement surroundings and from their families, which will be thus protected from infection. That is being done. Dr. Dixon says that in Pennsylvania he has 500 cases outside cities, and in a few years expects to have 4,000. In New York we are promised (we live on promises in

New York) 5,000 beds for such cases. In such direction lies the hope of limiting infection.

Now, as to the treatment of individual symptoms. Your patient has a cough. That cough keeps him awake at night. Unless you relieve such a cough by an appropriate opiate he may lose more in a single night than he can gain in a fortnight. There is proper medication. There is fever. Long fever is exhausting. It interferes with digestion. Shall we let the fever alone, to get well of itself? It may not do so before the undertaker comes. Fever should be relieved—not let alone—even if you do not believe in medication. Acetanilid should not be given for this purpose. It is a poison, and I have seen quite a number of cases of death from its use. It is always dangerous, even in small doses, and should not be used. Phenacetin should be used for the fever, combined with caffeine, as a rule. For diarrhea many say no medication. Diarrhea does no good. Bismuth will do much for it; opium will do more. If there is hemorrhage with the diarrhea, ergot will do little or no good. Adrenalin subcutaneously will do something. Morphine will do much better. Give enough to allay excitement and keep the patient quiet. Combine with it lead. Not in pharmacopœial doses. I have never seen lead poisoning of my own making. Give with the morphine one or two grains of lead every hour or two for six or eight hours. Then if the patient responds, drop, not the size of the dose, but the frequency. Expectoration—shall we do anything? The usual proprietary medicines will do no good. Use an expectorant, but not a depressant. Ammonia, the carbonate, is sometimes irritating. Liquor ammonii anisatus, 3ssi, every hour or two, is better. Perhaps the best thing is camphor—in powder, pill, or capsule. Give a grain or two every hour or two.

Is there any medicine for the process? None that kills the germs, but some that improve the general condition. Arsenic will do this. If the stomach is disordered, treat that. If the circulation is poor, use digitalis. If digitalis is to be used, see that it is freshly made, of good English leaves, and do not give it in large doses. Guaiacol is preferable to creosote and is cheaper. It is objectionable at first. Five to ten drops can be given three times a day. I always give it with digitalis, strophanthus, or tincture of nux vomica. I often add arsenic to the prescription. Guaiacol carbonate is more easily borne, but is more expensive. Codliver oil is of benefit, but can be given only in winter. In this we give more than oil. It probably contains some substances which affect metabolism like the thyroid.

SECTION ON CLINICAL STUDY AND THERAPY.

Fourth Day, Thursday, October 1.

The Work of the Sanatorium at Bligny.—Drs. L. Landouzy of Paris and L. Guinard of Bligny described the administration of this State sanatorium and noted that the cost of maintenance for each patient was about 70 cents a day; the cost of food alone was 28 to 30 cents a day. The medical results attained were extremely good in the first and second degree cases, but as a rule the advanced cases did not show any marked benefit. Therefore, they considered that the sanatorium should be reserved for the early and curable cases, since the advanced cases cost the State as much for maintenance as the earlier cases and returned no recompense.

Ten Years' Experience in Sanatorium Work.—Professor C. Pannwitz of Berlin read this paper. His experience had shown that the free sanatoria should be constructed not like the general hospitals, but on a different type, having in view not merely the treatment of patients, but their education, so that they could continue their same method of life after returning home. More than 100 free sanatoria, with an average of 100 beds each, were now in operation in Germany. The cost of erecting such a sanatorium need not exceed $1,000 a bed. The rest cure in the sanatorium must be followed by a period during which the convalescent patient follows some light agricultural occupation. The medical treatment should include, beside the general hygenic and dietetic measures, the use of tuberculin administered with the greatest caution to avoid producing any reaction. Recovery was considered from the economic point of view, and not from the pathological. In sanatoria for children the writer laid special stress on the educational feature. The children, too, should be put to work in the gardens after the rest stage. He considered that the sanatorium treatment was a saving of money for the nation.

Ultimate Results of Sanatorium Treatment.—Dr. L. Brown of Saranac Lake considered that the test of the cure lay in the absence of symptoms, and not in the absence of abnormal physical signs. He thought a patient should be considered well if he was able to return to his former life and remain well. In this respect the working class of patients did not do so well as the well-to-do, since they had to return to more strenuous labor. Of the patients discharged from the Adirondacks Sanatorium during the last twenty-three years 41 per cent. were living and engaged in or able to do some work. Of those that were known to be living 87.5 per cent. were still able to work. This included 63 patients who had been discharged more than fifteen years. In regard to the present residence of the old patients the number living in small towns was practically unchanged, while the increase in the health resorts was but little larger than the decrease in the number living in large cities.

Graduated Labor in Pulmonary Tuberculosis.—Dr. M. S. Paterson of Frimley Sanatorium, England, entered a plea for adapting the amount of work allotted to each patient to his ability to stand it. The fever patients were kept in bed and not allowed to make any more movements than was allowed to the cases of typhoid fever. When the temperature fell to normal they were allowed to get up and go to the toilet, and later to sit out of bed, and then the muscular exertion developed by light exercises, and then by walking and labor until the patients would stand a walk of twenty miles without any reaction. A walk of five or six miles was considered an insufficient test of their ability to exercise. He said the slightest exercise by increasing the expansion of the lungs and the blood supply to the lungs increased the toxins in circulation from their point of origin in the tuberculous foci in the lungs, and had the same effect as tuberculin injections, and therefore exercise produced autoinocluation.

The Effects of Exercise on the Opsonic Index of Patients Suffering from Pulmonary Tuberculosis.—Dr. A. C. Inman of London had worked with Dr. Paterson, and believed with him that during the active febrile stage of pulmonary tuberculosis autoinoculations occurred spontaneously. These autoinoculations were evidenced by variations in the tuberculo-opsonic index, which did not occur in nontuberculous subjects. Ninety-five per cent. of the cases investigated at the Brompton Hospital Sanatorium had opsonic indices above normal some time during the day. If the opsonic index showed no variation as the result of hard exercise, whereas before such a variation had been obtained, it was presumptive evidence that the disease was arrested.

The Value of Sanatorium Treatment.—Dr. Arthur Latham of London though that sanatoriums were essential to the successful treatment of pulmonary tuberculosis on a large scale, and to any scheme directed to the eradication of the disease, provided they were used intelligently as an important link in a properly coordinated system of attack. The value of sanatoriums did not meet with universal acceptance because the majority of sanatoriums were

inefficient, acting as hotels, and not as disciplinary schools; because sanatoriums had by some been regarded as sufficient in themselves, which was manifestly not true; because the erection and maintenance of sanatoriums cost so much that it was believed to be impossible to pay for the treatment of the majority of the patients, disproved by the fact that in some of the large factories an insurance fund of one cent a week from all the employees paid the sanatorium expenses of the tuberculous sick from that institution; and because of the difficulty of making arrangements for the maintaining of the family while the breadwinner was at the sanatorium, and in finding suitable work for him on his return home.

The Application of Rest and Exercise in the Treatment of Tuberculosis.—Dr. F. M. Pottenger of Monrovia, California, thought that the functions of the body were best carried on when rest and exercise in suitable proportions could be prescribed. The amount of each must be determined by the natural resisting power of each patient and the pathological condition present.

Rest of the Lung in Pulmonary Tuberculosis.—Dr. Norman Bridge of Los Angeles thought that the tuberculous lung should be kept as still as possible, especially if the disease was unilateral. There was no reason for keeping a tuberculous joint still that did not also apply to the lung; violence to a wound increased scar tissue and would probably increase fibrosis of the lung; violent coughing and lung gymnastics might disseminate the disease; stretching the diseased tissue was liable to injure it. The Bier method of passive congestion doubtless tended to retard disease and help toward recovery, and the lung that was kept still had more passive congestion than the active lung.

Dr. C. T. Williams of London, in discussing this group of papers, asked if the right patients were being sent to the sanatoriums. He thought that only the non-febrile early case ought to go to a sanatorium, and that the advanced cases should go to hospitals for tuberculosis. He thought the portions of the lung that were not involved in tuberculosis needed exercise to make them hypertrophy and compensate for the diseased areas, but such exercise was to be allowed only in the non-febrile cases. He thought there should be a central dispensary for tuberculous cases, from which the early cases should be sent to the sanatoriums, the late cases to the hospitals, and the intermediate cases treated at home.

Dr. Philip of Edinburgh said the question whether a patient should have rest or exercise depended on his general and local condition.

Dr. King of Liberty, N. Y., said he considered a certain rise in temperature following labor as normal, and found that there usually was some such rise, perhaps to 100.6°. If this rise was only temporary, lasting not more than half an hour or so, he did not consider that the degree of labor was contraindicated.

Dr. Minor of Asheville said he disapproved of an excess of rest, considered 99.2° too low a figure to indicate excessive autoinoculation, and held that the fatigue that followed labor was a benefit, if not excessive. He considered the advice of Dr. Norman Bridge was good for advanced cases; but in light cases an attempt should be made to expand first the good lung and later the affected lung.

Dr. Woodcock of Leeds said the sanatorium treatment was usually too short, and a labor colony was needed to complete the good work that had been started. He felt the moral effect of work was so great that all of his patients did something. If too ill to take active exercise, they were given massage, following the temperature, or, rather, the pulse, as a guide.

The Establishment of Dispensaries in Cities and Towns.—Dr. R. W. Philip of Edinburgh considered that a dispensary should be a central institution devoted to the guidance, supervision, and assistance of the tuberculous poor. It should act as an information bureau on all points for those interested in tuberculosis; a clearing house from which all the tuberculous patients who inquired, after a diagnosis had been made, were steered to the proper place for treatment; a center for the supervision of the home treatment of all those remaining at home, and the connecting link which bound together all the undertakings for the prevention of tuberculosis. It should send doctors and nurses to the homes of all its patients, and there, while ostensibly helping the patient that came to the dispensary for aid, they should also find the other cases in the incipient stage which were still early enough to be very hopeful and steer them to the places for best treatment. The dispensary must not stand alone, but be in touch with the public health boards and local authorities.

The Part Played by the Preventorium or Supporting Dispensary in the Social Antituberculosis Fight.—Dr. A. Calmette of Lille said that the preventorium, or antituberculosis supporting dispensary, was essential—an instrument of social preservation against tuberculosis. Its function did not consist in treating patients medically; that was the part of sanatoriums, hospitals, and the medical dispensaries attached to benevolent institutions. Its mission was to seek out, attract, and keep under supervision, by means of active propaganda, those among the poor who were peculiarly exposed to tuberculous infection and those who were already infected. It selected curable patients who were suitable for sanatorium treatment; took charge of children who were menaced or already attacked by the bacillus, placing them in the country or in seaside establishments; sent patients who were dangerous to their surroundings to isolation hospitals; sterilized dwellings; disinfected and cleansed contaminated linen, and distributed sputum cups and antiseptics. It brought about the hygienic education of families through the collaboration of monitors of hygiene, chosen from among the most capable and authoritative men. The sanatorium was exclusively for patients already attacked by disease, but considered curable; but the preventorium extended its benefits not only to patients, but also to their families and their environment. It was a recruiting agency for academic colonies, for sanatoria, and for hospitals, and also was a school for practical hygiene. The work could well be done in part by ex-sanatorium patients. It needed at its head a physician who was also a sociologist.

Dispensary Examinations of Tuberculous Families.—Dr. A. Kayserling of Berlin said that it was not enough to do merely defensive work against the inroads of tuberculosis, but that a distinct offensive work must be done against the tubercle bacillus to protect the uninfected. He urged that the whole family of the tuberculous patient be examined systematically in all cases, physically, by sputum examination, and with tuberculin. While the center of infection was from the open, frank cases of tuberculosis, the fight for the cure must be made among the latent cases, if we wished to prevent the wiping out of families.

The Work of the Chicago Tuberculosis Institute.—Mr. A. M. Wilson of Chicago described this Institute which, beginning in December, 1907, had established seven tuberculosis clinics, which were maintained in conjunction with the large general dispensaries of the city. The Institute supplied a nurse to each clinic, and through its central office coordinated the work of the clinics and prevented duplication.

Dr. Charles Templeman of Dundee said that the dispensaries acted socially as well as medically. That environment and heredity were important in the social and medical development, but that the individual factor was the greatest of all.

Dr. Stafford of Ireland said that he considered the dispensary, as outlined by Dr. Philip, the most efficacious of all plans for the extermination of tuberculosis, for nothing

but the coordinated action of all the antituberculous modes of combat would be efficient.

Dr. Krause of Jena said that in the dispensary work he cut down expenses by having the senior medical students do the medical work, and thus trained them, aroused their interest, and get plenty of assistance at the minimum cost.

Dr. Minor of Asheville said that the State care of the sick must always be careful not to undermine the morale of the patients. That it was better to have the patients die uncured but independent, rather than have them get well to live forever at the expense of the State.

Comparative Value of the Dispensary and Sanatorium Treatment.—Professor Fritz Egger of Basle brought out the point that both were useful and needed, as their aims were different. The dispensary did not give treatment. The sanatorium results had not been as good as was hoped for, because they were not so permanent. The dispensaries had larger early mortality, but later on about the same mortality as the sanatoriums, because the sanatorium patients had not learned to work under home conditions. The tuberculous patients in the first stage, and earlier, needed only hygienic treatment at home, and need not go to the sanatoriums. The dispensary should also take cars of the patients going out from the sanatoria.

The Care of Patients in the Advanced Stages of Pulmonary Tuberculosis.—Dr. Meyer of Berlin said that since the advanced cases of tuberculosis were a distinct source of the spread of tuberculosis, particularly under unfavorable living conditions, measures should be taken to limit the constant advent of newly infected individuals. The isolation of the patients, therefore, was important. The institutions for isolating patients should be so constructed as not only to guard against infection, but also to hold out prospect of recovery to the patients and make them feel that they could get well at the sanatorium, but not at home. They should not differ so widely from other hospitals as to create a prejudice against them.

Prof. von Leube of Germany said that since it was impossible so far to immunize the healthy, we could hope for extermination of the disease only by destruction of the bacilli causing the disease. This could be done by preventing carriers from coming in contact with the healthy and by destruction of the sputum. Sanatoria offered the hope of cure for the second stage cases and improvement for some of the third stage cases.

Fifth Day—Friday, October 2.

Day Camps for Consumptives.—Dr. David Townsend of Boston called attention to the lack of provision that had been made until recently for the type of case which was unsuitable for the sanatorium of incipient cases and the homes for the advanced cases. To provide for these, in 1905 the Boston Association for the Relief and Control of Tuberculosis operated the first camp in this country near Boston during the summer months. The equipment consisted of a kitchen shack, an administration shack, a dining tent, and several smaller tents. Paper bags and crepe paper napkins were used for sputum and burned at night. The patients had two lunches and a dinner each day. They came at 9:30 A. M., and returned home between five and six in the evening. They spent the day in reclining chairs at rest, or in moderate amusement under the direction of a nurse and physician. The chief aim of the camp was educational. Lectures on various health topics were given each season.

Night Camps.—Dr. W. C. White of Pittsburg said there were many tuberculous subjects who were working, conscious of their lesion, but from their existing circumstances compelled to work, or not working but able to work four to eight hours daily. Among these there were many who needed supervision, and many who could not have proper care in their existing home or boarding house. For these the reasonable and most valuable scheme was the night camp, where they could be supervised and taught and cared for during the night hours after work, in the evening and before going to work in the morning, and given the benefits of fresh air and hygiene all of the time that they were not employed.

The Treatment of Tuberculosis in Other Places Than Sanatoria.—Dr. Charles L. Minor of Asheville thought the hygienic and dietetic treatment which are now universally recognized as a fundamental part of any and all rational treatment of tuberculosis could be applied as well outside of sanatoria as in. The essential features of home treatment were careful personal medical oversight, strict discipline and close supervision, thorough instruction, systematic and hygienic arrangement of the patient's life, example of other patients, nursing, proper housing and feeding, and suitable climatic conditions.

Dr. T. D. Coleman of Augusta, Ga., in a paper on the same subject, said this was a question of the greatest importance, because the greater number of tuberculous patients must be treated in their homes. He thought that as rigid discipline and as intelligent medical oversight might be had in the home as in the sanatorium, and that all of the indications for treatment might be carried out equally to the advantage of the patient.

Economic Housing of Consumptives, with Especial Reference to the Southwest.—Dr. P. M. Carrington of Fort Stanton dealt with the large number of consumptives attracted by the fame of climate resort in the Southwest. As a result of education regarding tuberculosis, phthisiophobia has developed among the people of that region, making it difficult for avowed consumptives to obtain accommodations in hotels and boarding houses. So that now it was necessary to teach prevention as well as communicability of the disease. The most recent tent dwelling was the tent house, which was inexpensive, perhaps $150 per bed, or even as low as $60 if no toilet was supplied. These tent houses could be grouped conveniently, were isolated, had a small fire risk, and were adaptable to any climate.

Sanatoria for the Well-to-Do.—Drs. C. F. Gardiner and A. H. Swan of Colorado Springs and Herbert M. King of Liberty, N. Y., presented this communication. In both rich and poor the principles of treatment were the same, but the methods of application differed. In the sanatoria for the rich the arrangement and construction must be such as to afford the greatest privacy and personal comfort consistent with the sanatorium methods, so that the cottage plan was preferable. Location, environment, and climatic features were greater desiderata. The application of carefully graded physical exercises was very much more difficult in the leisure class. The dietetic management also was more difficult, and the psychic features were the worst of all.

The Value of X-Ray Examinations in the Diagnosis of Early Tuberculosis.—Dr. Paul Krause of Jena said that after ten years of use he had come to the conclusion that the diagnostic value of the *x*-ray was very great. A fluoroscopic examination should be made in an absolutely black room, the tube being kept guarded in a lead-lined box. There should be noted the comparative density of the two apices, the enlargement of the glands at the root of the lung, the calcification of the first rib. And the examination should be repeated after several weeks. He could learn more from the fluoroscope than by the auscultatory percussion method. Plates were taken to give greater detail.

Tuberculosis in the Hospitals for the Insane.—Dr. Richard H. Hutchings of Ogdensburg said the death rate of the insane from tuberculosis was 16.6 per cent., as compared with 10 per cent. among the general population. The frequency of the disease among asylum patients depended to some extent upon the environment of the patients prior to admission and the conditions in the hospital.

such as overcrowding and poor ventilation. Measures for the prevention of tuberculosis included, beside the ordinary measures for cleanliness, a more critical examination of new patients, employing tuberculin if necessary, isolation of the infected persons, reduction of overcrowding, free ventilation, daily exercise and outdoor employment for both men and women, and sterilizing all garments and bedding before such were used by a second person.

The Indications and Contraindications of High Altitudes.—Dr. Exchaquet of Leysin said all patients able to cope with the cold air should be given the advantages of the high altitude. The only true contraindications were in late cases with reduced resistance and the cases of weak heart with rapid pulse. Asthma and emphysema might be contraindications if they were very marked. The tendency to congestion of the lung offered no contraindication. Hemorrhages at high altitudes he had seen very rarely, even in those who had been having hemorrhages before coming to him. Fever was not a contraindication, but rather the reverse, as the fever usually subsided in the higher levels. Laryngeal tuberculosis might be irritated at first by the dry air, but the ultimate result was very beneficial.

Mexico's Central High Plateau as Sanitary Stations for Tuberculosis.—Dr. E. Liceaga of Mexico thought that the reason more attention and value had not been given to altitude as a factor in the treatment of tuberculosis was on account of the low altitudes considered. Higher altitudes affected the growth of vegetation, minor organisms, and so reasonably might be expected to affect the tubercle bacillus, and, as a matter of fact, the severity of tuberculosis was in proportion to the altitude at which the group of patients lived. Yellow fever occurred only at altitudes below the level of 3,000 feet, and typhus fever was also affected by altitude. The City of Mexico was at a level of nearly 7,000 feet, and the death rate from tuberculosis was less than that of any forty cities of lower level in Europe and America that he cited. The climate, too, was most satisfactory, the range of temperature being very slight all the year through.

The Relation of High Altitudes to Tuberculosis.—Dr. V. Lopez of Mexico made the point that the high altitude decreased the blood pressure, thus avoiding the tendency to hemorrhage and increased the respiratory capacity and expansion of the lungs. The dryness of the air tended to decrease the exudation from the bronchi.

The Mercurial Treatment of Tuberculosis.—Dr. Wright of the U. S. Navy noted the pathological similarity of tuberculosis and syphilis, both being in the class of chronic granulomata. He found 35 per cent. of the cases improved under mercurial treatment. During the last year he had had opportunity to test this treatment in a series of tuberculous patients at one of the Western stations, and the mortality from tuberculosis had fallen from 11 per cent. in the first quarter to 4 per cent. in the second quarter, and 0.95 per cent. in this last quarter. Therefore, he considered mercury a strong antituberculous remedy, if not a specific.

Dr. Liceaga of Mexico said that he had been using mercury in tuberculosis for forty years, and from the excellent results of his clinical experience knew it to be distinctly beneficial. He used potassium iodide, also, but considered it dangerous in cases of hemorrhage.

Recognition of Pure Pneumothorax, without Exudate, in Pulmonary Tuberculosis.—Dr. Herman von Schroeter of Vienna said the objective symptoms of pneumothorax might be so indistinct that it was impossible to make a certain diagnosis without the spirometer or the radioscope. The spirometer showed a sudden decrease in lung capacity by just one-half; and the radioscope showed the absence of the lung from its normal place.

The Coagulability of the Blood in Pulmonary Tuberculosis.—Dr. Meyer Solis-Cohen of Philadelphia said the average time of coagulation was for normal people eight and two-third minutes, and for tuberculous patients five and one-sixth minutes. The coagulation time was practically the same for all stages of the disease, and was not affected by atmospheric conditions. In three cases tested before and after a hemorrhage the time before was about seven minutes and after about four minutes. Diarrhea and menstruation did not affect coagulation time. Pleural effusion, if serous, seemed to have no effect, but when purulent increased coagulation time. The efforts of calcium salts were not conclusive.

Dr. Woodcock of Leeds had found the coagulability decreased after calcium salts continued for a prolonged period.

The Improvement of Tuberculosis of the Lung Under the Influence of Artificial Pneumothorax.—Dr. Spengler of Davos considered the operation desirable in one-sided lesions, or in double lesions if one side was inactive. He followed the method of Murphy in the production of the pneumothorax.

Condition of the Teeth in Tuberculosis in Relation to Prognosis.—Dr. B. S. Paschal of Seattle considered the cross ridging and malformation of the teeth from interference with tooth formation before eruption as due practically to either syphilis or tuberculosis. These inoculations of childhood were the cause of later immunity, but repeated infection in childhood might cause an adaptation of the bacillus and the child to each other so that they could live together without any active disease being evident. If the child did not have the early inoculations, but first came in contact with the tubercle bacillus at a later date, his powers of resistance were diminished and the disease germ gained a better hold. Hence if the teeth were hard and perfect the infection would be greater.

SECTION OF SURGERY AND ORTHOPEDICS.

Fifth Day—Friday, October 2.

Tuberculosis of the Vas, Epididymis, and Testicle.—Dr. John B. Walker of New York read this paper. This condition was rare in infancy, and most common between the ages of 20 and 30. It usually occurred as a primary tuberculosis of the epididymis, and was not associated with pulmonary tuberculosis. Gonorrheal epididymitis was recognized as a causative agent, various observers giving it as a factor in from 5 to 35 per cent. of cases. Trauma was also a predisposing factor. The bacilli gained entrance most frequently through the respiratory or the gastro-intestinal tract, lodging in the mediastinal or intestinal lymphatic glands, whence they were carried through the circulation to the epididymis. The onset was generally gradual; there was a feeling of weight and discomfort in the testis, followed by tenderness, and later a dull, aching pain. A urethral discharge was generally present, at first slight frequency of urination; later, tenesmus; the urine contained a small amount of pus, blood, and mucus. The disease had to be differentiated from gonorrheal epdidymitis, syphilis, and neoplasms. The prognosis varied with the extent of the disease. Some cases remained local a long time. Removal of the testis often effected a cure, whether or not the prostate and seminal vesicles were affected. The general treatment was the same as in other forms of tuberculosis. Abscesses should be incised. When cases were recognized early, epididymectomy was the operation of choice. It should be performed in all cases of localized tuberculosis of the epididymis. It was important to preserve the testis wherever possible on account of its internal secretion. Following epididymectomy the testicle did not atrophy, and the patient retained his sexual desire. Orchidectomy should be limited to cases of extensive disease of the testis. In many cases even where the prostate and seminal vesicles were affected, epididymectomy or orchidectomy would be followed by a subsidence of the prostatic and vesicular symptoms. Slight tuberculosis of the testicle might be depended upon to heal

spontaneously after removal of the epididymis. Castration was especially objectionable when both testes were involved. At least a portion of one testicle should be left. Serious involvement of distant parts did not contraindicate operation, since it could be done under local anesthesia.

Dr. William E. Lower of Cleveland, O., said that some claimed the infection of the epididymis and testicle was always a descending one, others that it was always primarily in the epididymis, the infection spreading in the direction of the normal secretions. The same difference existed as to the proper method of treatment. Some insisted upon removal of the testis, epididymis, vas, prostate, and seminal vesicles; others advised the removal only of the diseased epididymis or testicle. Still another class advised a "let alone" method, or the use of some sort of injection treatment. The speaker believed that the disease was practically always of hematogenous origin, and that the infection ascended along the vas in the direction of the normal secretion. As to treatment, formerly he did a very radical operation, but now he simply removed the more diseased parts, and his results were better.

Surgical Tuberculosis.—Dr. E. H. Bradford of Boston read this paper. The treatment of tuberculosis was dependent for its ultimate result upon establishing an immunity which would protect from further tuberculous invasion. When the tissues invaded were placed under suitable conditions healing took place and the affected tissues became cicatrized. The detritus of diseased tissues was either thrown off or became encapsulated. In tissues within the reach of surgical interference the surgeon was to decide whether the healing process could be hastened by removing the affected tissue or the detritus. This depended upon the tissues affected and their anatomical situation. These considerations were particularly important in bone tuberculosis and tuberculosis of the joints, for the reason that bone was a tissue that cicatrized slowly, and the articulations were especially exposed to injury which was unfavorable to the healing of the tissues affected by tuberculosis. In joint tuberculosis it was especially important to see that the tissues were protected from trauma. The treatment of surgical tuberculosis consisted in operative interference and the promotion of healing by protecting the tissues, in addition to furnishing such measures as were useful in combating tuberculosis in general.

The Prevention, Diagnosis and Surgical Treatment of Tuberculous Sinuses and Abscess Cavities.—Dr. Emil G. Beck of Chicago read this paper. A 33 per cent. bismuth-vaselin paste was first used in connection with the *x*-ray, in diagnosing the extent of tuberculous and other sinuses. This led to the discovery that this paste had a marked curative effect upon such sinuses. On January 15, 1908, Dr. Beck had reported 14 cases in which the paste had been used. Since then he had collected 178 cases in which it had been used. He presented a table showing the results in 192 cases. Of these healing occurred in 123, or 64 per cent.; improvement in 55, or 28 per cent.; no improvement in 11, 6 per cent.; death in 3, or 1.5 per cent. Of these cases, 146 were tuberculous, 22 nontuberculous, and 24 doubtful. Fistulous tracts might be prevented by opening the pointing cold abscess by an incision ¾ cm. in length, evacuating the pus, and at once refilling the abscess cavity with a 10 per cent. bismuth-vaselin paste, and not sealing the opening. This prevented secondary infection, the danger of which formerly contraindicated the incision of tuberculous abscesses.

Fresh Air Combined with Hyperemic Treatment in the Management of Complicated Surgical Bone Tuberculosis in Adults.—Dr. Willy Meyer of New York read this paper. The beneficial influence of fresh air in surgical bone tuberculosis in children was generally recognized; not so in adults. In the latter, radical operation had been the usual treatment up to date, and would probably continue so wherever the saving of time was a factor to be considered, or where sufficient means were not at hand. The histories of three cases of complicated bone tuberculosis in adults were given to demonstrate how much could be accomplished even in usually intractable cases, especially if combined with proper and faithful hyperemic treatment in its various forms. The plea was made to set aside in the sanatoria now designed for patients suffering from pulmonary tuberculosis at least two wards, male and female, for the treatment of adult cases of surgical bone tuberculosis which, for various reasons, could not or would not be subjected to operation. Of course, the attending doctors and nurses of such wards should fully master the details of hyperemic treatment.

How the State of Minnesota Cares for Its Indigent Children Suffering from Tuberculosis of the Bones and Joints.—Dr. Arthur J. Gillette of St. Paul, Minn., read this paper. In 1897 the Legislature of the State of Minnesota first appropriated money for the State care of indigent crippled and deformed children. There being no precedent, the State was reluctant to take such a step. Since 1897 a number of States had made similar appropriations. At the present time it ought not to be a difficult matter to secure money from every State in the Union to treat and educate this class of sufferers. It was of special importance, for it was found that about three-fourths of these crippled and deformed children were suffering from tuberculosis of the bones and joints. Many of them had complications of tuberculosis of the lung, intestines, etc., and a very large percentage of them had abscesses and running sores, which not only contained bacilli of tuberculosis, but other infectious microorganisms. Many of these children attended public school, and no provision whatever was made to protect the well children in the schoolroom, or prevent contagion in their own families. It took at times a number of years to cure a child suffering from tuberculosis of the bones and joints, and the educational feature was a very important one. They must be educated, and they should have special instruction along a line of work which would be useful later, that they might be self-supporting. With the exception of a few States and a few large cities, there was no provision to prevent contagion, or treat persons suffering from tuberculosis of the bones and joints.

Tuberculosis of the Kidney.—Dr. Arthur Dean Bevan of Chicago read this paper. Infection practically always occurred through the blood. Though the kidney might be the first organ to give evidence of disease, tuberculosis there was usually secondary to some obscure lymphatic lesion. Ninety per cent. of cases were unilateral in the beginning. Later the disease might extend to other organs or the opposite kidney. There should be a distinct line drawn between urinary tuberculosis and genital tuberculosis. Urinary tuberculosis began in the kidney and extended, in the direction of the flow of the urine, to the ureter, bladder, etc., while genital tuberculosis began in the epididymis and extended to the vas, prostate, seminal vesicles, etc. Early diagnosis was the most important thing, and depended upon finding tubercle bacilli in the urine. A twenty-four hour specimen should be examined. The smegma bacillus should be excluded by obtaining the urine by catheter and by decolorizing with alcohol. Cystoscopy might show redness, swelling, and ulceration of the mouth of the ureter on the affected side. The ureters should be catheterized, and the freezing point of the blood determined. If it was normal, 0.55 to 0.57, or even as low as 0.59, nephrectomy could be safely done. The *x*-ray would differentiate from calculus. There were three methods of treatment, general hygienic, tuberculin, and surgical. The hygienic treatment was of great importance. The value of tuberculin treatment had not been determined. In unilateral tuberculosis nephrectomy was the operation of choice. In bilateral cases the treatment should be hygienic; possibly tuberculin might be used; and certain palliative operative procedures, as nephrotomy and drainage, as might be required.

Iodine Therapy in Surgical Tuberculosis.—Dr. Cesidio F. Gualano of Naples recommended the use of a 5 per cent. solution of iodine in an artificial serum with guaiacol. This might be injected hypodermically, intramuscularly, or intravenously. In most cases hypodermic injection was painful, and therefore intramuscular injection was preferred. The dose varied according to the age of the patient and the duration and intensity of the tuberculous process. The daily dose of one centigram might be increased to three, five, and more. In the past ten years he had cured thirty cases of surgical tuberculosis in this way. The histories of seven cases were given in detail. Other papers read were: "Treatment of Surgical Tuberculosis by High Altitudes and Sunlight," by Dr. Rollier of Leysin, Switzerland. "Tuberculosis of the Muscles, Fasciæ, and Tendons," by Dr. James F. Mitchell of Washington, D. C. "Tuberculosis of the Gall-Bladder, Pancreas, Stomach, and Liver," by Dr. L. W. Hotchkiss of New York. "Acute Forms of Abdominal Tuberculosis," by Dr. Daniel Eisendrath of Chicago. "Rational Spinal Support," by Dr. Henry W. Frauenthal of New York.

SECTION ON HYGIENIC, SOCIAL, INDUSTRIAL, AND ECONOMIC ASPECTS OF TUBERCULOSIS.

First Day—Tuesday, September 29.

Mr. Edward T. Devine of New York, President, in the Chair.

President's Address.—Mr. Edward T. Devine said that this was the first time that a section on these subjects had met in connection with a national tuberculosis association. The field they expected to cover was one that had been neglected by health boards and physicians, or if not neglected one that was considered as lying outside their province. The main work of this section should be the endeavor to secure immunity from tuberculosis by the improvement of the resisting powers of the individual by raising the standard of hygiene and sanitary environment. It was their work to educate the people and to force upon society its responsibility in respect to these conditions.

Economic Aspects of Tuberculosis.—This was the topic for discussion at this session.

The Cost of Tuberculosis.—Professor Irving Fisher, Yale University, said that the present death rate from tuberculosis would cause the death of 5,000,000 now living. The average age of death for the males would be 37.6 years; for females, 33.4 years, and the "expectation of life" lost was at least twenty-four years, of which at least 17 would fall in the working period. The average period of disability preceding death from tuberculosis exceeded three years, of which the latter half was the period of total disability. The money cost of tuberculosis, including capitalized earning power lost by death, exceeded $8,000 per death. The total cost in the United States exceeded $1,100,000,000. About two-fifths of this expense fell on others than the consumptive. The cost of treating patients at sanatoria was repaid many times over in lengthened working lives. He considered the erection of isolation hospitals for incurables as the most profitable method at present of reducing the cost of tuberculosis.

The Economic Loss to New York State in 1907 from Tuberculosis.—Professor Walter F. Wilcox, Cornell University, consulting statistician, New York State Department of Health, said that the economic loss to a community from tuberculosis was made up of several elements: First, the loss resulting from the diminished earnings and increased expense during the period of the onset of the disease and the death of the patient; secondly, the loss of net earnings between the actual date of death and the time when death would probably have occurred had the person not been attacked by tuberculosis; thirdly, the monetary loss to farmers and dairymen each year resulting from bovine tuberculosis. In New York State the first element had been roughly estimated at $11,184,750. It was probable that the prospective earnings of the 16,570 persons who died of tuberculosis in New York State in 1907 was $52,251,757. The annual loss of cattle must have been at least $1,500,000, and the total loss in money was not less than $65,000,000 a year. An infant would have its expectation of life at birth increased by about two and a half years if tuberculosis were to disappear and other conditions remain unchanged.

The Burden on Individuals and Families.—Mr. Sherman C. Kingsley, superintendent Chicago Relief and Aid Society, limited his remarks to the consideration of those in moderate circumstances, working people earning from $9.00 to $18.00 per week. This income left no margin for emergencies. They disregarded their physical ailments, and tuberculosis was, as a rule, far advanced when discovered among these people. This disease cut off the income and increased the necessary expenses. Such families in our large cities lived in an average of about three and a half rooms. The condition of twelve families where the father had tuberculosis showed a decrease of an average income from $12.66 per week before the disease to $4.16 per week after the man had been forced to give up work. In a recent examination of 150 families twenty-five to thirty per cent. of all the children in these families showed signs of infection. This disease forced children out of school at the earliest possible age, exhausted family recources and vitality and fastened itself on the weakened member. Some obvious needs suggested were more hospitals for advanced cases, more sanatoria for incipient cases, more funds to save fathers and mothers still in the incipient stages, a wide increase in tuberculosis clinics, day camps, and church classes as adjuncts to the home care of patients.

The Relation Between Tuberculosis and Mental Defect.—Dr. Martin W. Barr, chief physician to the Pennsylvania Training School for Feeble Minded Children, Elwin, Penna., asserted that tuberculosis was a potent factor in the production of mental degeneracy, and that this fact was confirmed in a comparison of two etiological tables compiled from the studies of over six thousand cases made, one in England and one in America. This opinion was further verified in the statistics of various asylums where family history revealed tuberculosis trouble as cause, either singly or associated with other fateful heredities. The prudential motives governing the isolation of tuberculosis in institutions, and the equal necessity for the sequestration and perpetual safe-guarding of imbeciles, was emphasized in this connection; as incapable of judgment, ignorant or regardless of consequences, these unfortunates could not but prove a double menace to society as active agents, however involuntary, in the dissemination or procreation of tuberculosis. That the tendency of both of these forms of degeneration was to deorganize and to lower the entire tone of the whole system as to minimize resisting power was patent to the most casual observer. Naturally, any close association of such conditions must insure to its victims a certainty of one evil or the other, or, as was frequently the case, a mingling of the two.

Effective Control in Small Towns and Rural Communities.—Mr. Homer Folks, secretary State Charities Aid Association of New York, described the work of this organization in New York State.

Standardization of Investigations.—Professor John R. Commons, University of Wisconsin, Madison, characterized tuberculosis as par excellence the disease of social environment. This disease was driving labor bureaus and health boards into cooperation, but this cooperation was not effective unless we had uniformity of nomenclature of diseases and occupations. These units could be standardized by adopting the score card used in grading live stock,

grains and agricultural products. The score card analyzed the several points of an animal and gave a value or weight to each point and the total gave the grade compared with the standard. The adoption of such a method would do as much for sociology as the standardization of units had done for the different branches of physical and chemical engineering.

The Influence of Overwork and Nervous Strain in Tuberculosis.—Dr. George Dock, of Ann Arbor, Mich., said that in order to understand why and how overwork and nervous strain were harmful they must understand: (a) the general nature of tuberculosis, (b) its effect on the body, (c) the possible modifying influences of overwork and nervous strain on these processes. The most frequent and characteristic action of tuberculosis was its wasting effect upon the body. Another constant feature was loss of strength. Many persons were able to keep up a fair degree of work notwithstanding the loss of strength. Stadler found among 670 dispensary patients 55.1 per cent. at work a year after the disease was discovered, and 46.6 per cent. after two years. The mind was also often affected, so that we saw morbid irritability and depression or sometimes their opposites, exaggerated hopefulness. Loss of memory, and their usual tendency to mental fatigue, were often added to other psychic changes. It was obvious that the tuberculous patient, at the best, was in the condition of a person overworking. Not infrequently he was overworking with insufficient food. The effects of overwork and infection on the previously healthy body had been known for some time, and it had been found by experiment that a lot of animals overworked on treadmills succumbed to pathogenic germs that were not so dangerous for control animals not made to work. Overworked persons or animals were much more susceptible to infection than others. The rôle of nervous strain could not be so easily demonstrated by experiment, but they knew from too abundant observations how overwork and nervous strain, especially in the form of worry and care, were combined in the tuberculous patient. This was important not only in the production of disease but still more so in the course of the disease. The latter they knew was usually chronic, with a strong tendency to recovery under favorable circumstances, but these the average tuberculous patient could not acquire. If the partly healed patient could not earn an income adequate to his needs his home conditions and diet became unsatisfactory and relapse followed. From the philanthropic standpoint it was needful to advise or rearrange methods of securing proper occupation for the partly healed tuberculous patient. We must recognize that the present methods offer a hygienic and financial danger to the whole population. To meet this need would require a great increase in our hospital facilities. It was also necessary that the family be cared for if the tuberculous patient was to be spared the effects of nervous strain. It might seem to some that these things did not come within the province of the tuberculosis problem, but the problem was social as well as medical, and society would have to assist in solving it.

The Cash Value of Factory Ventilation.—Professor C. E. A. Winslow, Massachusetts School of Technology, reported a study of the effect of improved ventilation upon the efficiency of factory operatives. The plan adopted was to find instances where marked improvement in ventilation was made without other material differences and to study statistics of attendance before and afterward. In one instance the average percentages of absences among 60 girls was cut in half. In three months the saving amounted to $195 for the employer, while but $75 was expended to secure proper ventilation. This might be an exceptional case, but the fact remained that improved sanitary conditions did bring a tangible result, sometimes a large one in proportion to the cost.

Tuberculosis and Working Conditions.—Mr. Frank Duffy, general secretary United Brotherhood of Carpenters and Joiners of America, stated that the records in the Death Claim Department of this organization showed that 37.3 per cent. of their members died of consumption during the past two years, and of this number over 50 per cent. were employed in mills, factories, etc., or had insufficient nourishment, or the disease was brought about by exposure, bringing on pneumonia, which later developed into tuberculosis. He assumed that consumption was a condition and not a disease, because primarily it was the condition which caused the disease.

The Economic Aspects of Tuberculosis in Milwaukee.—Dr. Thomas W. B. Crafer of Milwaukee stated that the death rate from tuberculosis in this city was much greater among the foreign population than among the native. The occupations which showed the highest death rates were those of unskilled laborers, factory employees, domestic and shop clerks in the order named. Of housewives who died of tuberculosis who had not worked in factories nor as domestics the average age at death was 34.9 years, while the average age at death of those who had worked in industries was but 27 years. Tuberculosis had been most fatal in the more congested parts of the city. It was a conservative estimate that 40 per cent. of all the families in this city having tuberculous members were absolutely incapable of affording proper conditions of housing, freedom from worry, nourishing food, and medical attendance.

Pulmonary Tuberculosis Among Printers.—Dr. James Alexander Miller of New York presented this paper, in which he concluded that tuberculosis was very prevalent among printers, and that this was due to unfavorable shop conditions, especially poor ventilation, overcrowding, dust, dirt, promiscuous spitting, and poor lighting. Secondly, it was due to the irregular habits of the printers themselves, especially alcoholism, careless habits of eating, needless exposure to drafts and insufficient outdoor exercise.

Legitimate Exercise of Police Power for the Protection of Health.—Dr. Henry B. Favill, Chicago, in behalf of the American Association for labor legislation, read his paper and concluded as follows: 1. Measures of regulation of industrial affairs in behalf of the laborers inevitably carried with them much of the controversy between capital and labor, and were difficult to institute. 2. It was becoming generally accepted that health was the essential factor in productiveness and prosperity, and hence in the advancement of civilization. It followed, therefore, that the State in pursuit of its primary function, must take cognizance of fundamental necessities. 3. The conditions under which labor shall be performed as related to health became matters of primary interest to the State, and upon that basis should be the subjects of decisive, mandatory legislation. 4. Inasmuch as all legislation was subject to judicial review as to what was constitutional, regard should be paid to the trend of judicial opinion. Thus far three things appeared as important: (*a*) That the subject should be clearly a health proposition. (*b*) That it be general and not class legislation. (*c*) That the contention be supported by reliable data. 5. Tuberculosis was the most imperative subject before them. Data upon this subject were meager and must be acquired through systematic research. To accomplish this, much "police" co-operation would be necessary. 6. Broadly speaking the reeducation of the masses as to the value of fresh air and the practicability of being subjected to it was a colossal undertaking, but of fundamental importance. 7. The importance of fresh air as a physiological stimulus, leading to individual vigor, must be emphasized. Its value as an atmospheric purifier was important though decidedly secondary. 8. The readjustment of industrial conditions to an adequate supply and distribution of fresh air was the one great thing to accomplish. The difficulties were so great as to be appal-

ling. The necessities were so clear as to be imperative. 9. Sanitarians and sociologists must combine to accomplish this reform. As it now appeared, nothing short of the broadest exercise of police jurisdiction would be effective. Subordinate health law naturally followed.

The Legitimate Exercise of the Police Power in Protecting the Life and Health of Employees.—Hon. David J. Brewer, associate justice of United States Supreme Court, discussed this subject. He said that it was the function of the police power to regulate the relations of one individual to another. The police power was directly for the individual, and only indirectly benefited that state. All the powers of this state had limitations. Taxation was only permitted for public purposes, and when one came to the police power the courts had said that when exercised by a municipality the ordinance must be reasonable; the courts struck down the ordinance if it was not reasonable. Each lower power had to act reasonably or a higher one stepped in to protect the people. The police power might inquire if the employer provided safe machinery, safe structure, and safe conditions for the employees, but the master did not guarantee absolute safety, only reasonable safety. The employer owes safe conditions for labor to the employee, and could be compelled by law to furnish them. The transportation companies were compelled to furnish safe conditions for their employees, and also for those who used the transportation. If the employee was worked beyond a certain point he was unfit to do his part in affording safety to those transported. In certain kinds of employment involving special risks to the employee the State could come in and limit the number of hours that the employee could work; but where there was no special risk the courts held that an able-bodied man could contract for as many hours' work as he wished. This was right under principles that guaranteed to every one the right to life, liberty, and the pursuit of happiness. The Oregon case which had tested the validity of the law limiting the number of hours that a woman was permitted to work had been decided rightly, because it was for the welfare of the race that the woman should not be overworked.

The Problem of Tuberculosis in Cuba.—Dr. J. Jacobsen, president of the Cuban League Against Tuberculosis, said that the problem of tuberculosis was the same generally in Cuba as in any other country, and the disease there was due to the same causes and presented the same clinical picture. Yet the presence of a great many tobacco manufactories gave a certain special character to the problem in Cuba, as these were doubtless the great source of tuberculosis. Another special character in Cuba, was that hitherto, at least, the private societies, the League among them, and private agencies had lacked the necessary resources to undertake prophylactic measures, and in order to be really effective they should be supported by and be under the control of the Government. On the other hand, the geographical conditions of the island easily permitted of accurate and extensive statistical work, which was a fundamental basis in the problem of tuberculosis. The author pointed out its importance and proposed, among other suggestions, a strong organization for the collection of statistics in Cuba. He referred to the hospitals, sanatoria, and dispensaries, and pled for a speedy organization of dispensaries in the provinces, at least one in every large city of the island. He concluded that the problem of tuberculosis affected all interests, and that the League for the Prevention of Tuberculosis had pointed out the general lines for the organization of public services against tuberculosis.

Prevalence and Control of Tuberculosis in the Philippine Islands.—Dr. Victor G. Heiser, chief quarantine officer and director of health of the Philippine Islands, was of the opinion that in that country intestinal parasites played an important part as regards the mortality and morbidity of tuberculosis. In 1904 tuberculosis was responsible for over 50 per cent. of the deaths in a prison whose inmates numbered 3,000. Since December 1, 1904, all tuberculous patients were isolated. During 1905 there was an increase in the number of deaths from tuberculosis, although there were fewer new cases. Sanitary regulations had been put into effect, and the death rate fell to 75 per thousand population. Eighty-four per cent. of these were found to be infected with intestinal parasites. When measures were instituted to eliminate these parasites the death rate fell to less than 20 per thousand of population. The greatest mortality from tuberculosis in the Philippines occurred in June and October, the wet months. About the same percentages prevailed among the general population as it did in the prison. During the past year the death rate from tuberculosis had fallen from 50 per cent. of the entire death rate to 13 per cent. The campaign against tuberculosis in the Philippines was hampered by the primitive mode of life of the natives. Two years ago an active campaign of education was begun. Overcrowding was prohibited by law. Land greed had increased the overcrowding since Manilla had come into the possession of the United States. He was convinced, however, that the elimination of the hook work would vastly aid in the solution of the tuberculosis problem in the Philippine Islands.

Work Done by the International Antituberculosis Association.—Dr. Helm of Berlin read this paper and concluded as follows: (1) The International Association against tuberculosis developed from the International Centra Bureau for the prevention of tuberculosis, which was founded in Berlin in 1902. It included all the countries of the world in which a systematic warfare against tuberculosis was carried on. At the present time the number included 22 states. It contained among its members the most eminent authorities on tuberculosis, and on practical methods of combating the disease in those countries; physicians, investigators, public officials, sociologists and philanthropists, who are active, honorary, or corresponding members. The total membership was about 800. (2) The object of the Association was to encourage those phases of the fight against tuberculosis which requires the cooperation of all the countries in the world. These included comparative studies of law and police regulations in regard to tuberculosis; notification, disinfection, segregation of advanced cases, with the taking charge of consumptives by insurance institutions, occupational hygiene, the care of the home, etc. The introduction of uniform methods of gathering tuberculosis statistics, investigations in regard to the spread of tuberculosis to other countries and races, and finally the scientific inquiry into the causes of tuberculosis (infection paths, heredity and predisposition, disposition, occasional causes), and of the methods of treatment. (3) The means by which these problems were to be solved were, in the first place, the annual conferences of the Association (usually a session of the Inner Council, and every third year a session of the General Council), where scientific and practical questions in regard to which circular letters may have been sent out were discussed. The publication of the monthly periodical *Tuberculosis*, which was now in its seventh year, with a circulation of 2,800 sent to every part of the world wherever there were people interested in tuberculosis; and finally, the work of the Business Bureau of the International Association from which information was distributed on request, on every subject relating to tuberculosis. (4) A report on the work of the International Association, its discoveries and conclusions, was sent to the governments of the various countries, and thus became available material for improving legislation bearing on tuberculosis, and the methods for carrying on the campaign.

The Duties of the General Government in the Restriction of Tuberculosis.—Dr. Victor C. Vaughan of Ann Arbor read this paper. He said that governments were

formed for the security of the property and lives of its citizens. The government protected the prorperty and lives of its citizens against foreign foes. At home it protected him against the lawless of his own country. The government maintained a navy for the protection of the property and lives of its citizens against possible foreign foes, and for the suppression of riot and rebellion within its own borders. In the United States the general government regulated interstate commerce and endeavored to protect the citizens of one State from frauds that might be attempted by those living or doing business in other States. All this was proper and wise, but in this enlightened age a government should do more than this. Science had shown that disease was one of the most destructive agents to both property and life, and that many diseases were preventable; consequently the government that did not put forth every possible effort to protect the property and lives of its citizens against disease was not doing its duty. Tuberculosis was highly destructive to both property and life, and the purpose in this paper was to point out some procedures that our general government should carry out in the suppression and extinction of tuberculosis. While the researches of Villemin and others had demonstrated beyond a doubt the infectious nature of tuberculosis, and the painstaking labors of Koch had resulted in the discovery of the active infecting agent, there was much yet to be done in a scientific way before this disease could be extinguished and success in this crusade against this disease, like success in all other great undertakings, depended upon exact knowledge of details. He briefly enumerated some of the things that, in his opinion, our general government should do. The relation of human to bovine, avian, and piscine tuberculosis, also the relation of the bacillus, deserved more exact and thorough study. The possibility of modifying the bacillus by passage through more or less resistant animals should be investigated. The influence of light, of restricted or abundant air supply, of exercise, of different kinds of food on the progress of the disease in tuberculous animals were matters of importance. The question of heredity in the transmission of tuberculosis was by no means finally settled, and its importance in attempting to stamp out the disease was great. Should the tuberculous individual beget or bear children, and if he or she did so, what was the effect on the course of the disease in the parent, and what the effect on the offspring? The facts, as far as they could be ascertained, should be learned and presented to the people. The problem of immunity and of arrest of the disease should be prosecuted most exhaustively. The influence of race, age, sex, and condition of life on susceptibility to infection and on the progress of the disease is something concerning which all possible information should be acquired. The chemistry of the bacillus and the cleavage products was an important matter. These bodies should be studied both chemically and toxicologically. This alone constituted a record that might occupy many investigators for years, and it could be carried out properly only by means of extensive and costly equipment. The disinfection of houses occupied by consumptives was a practical matter of great importance and the same was true of the means by which the traveler might best protect himself from infection. All these and many other problems, which must be solved if the race were to rid itself of this disease, could best be done by investigators working in laboratories built, equipped and sustained by the general government, and the government should enter into and carry on this work for the following reasons: (1) It was for the public welfare. (2) It would demand the time and attention of men who should be relieved of the necessity of doing anything else. (3) It would require such expenditures that it could be best done under special official regulations and at governmental expense.

A Comprehensive Program for the Prevention of Tuberculosis; the Relative Functions of Available Agencies.—Mr. Livingston Farrand of New York said that tuberculosis could be eradicated only by eliminating the centers of infection and by raising the resisting powers of the individual. The former depended upon adequate facilities for early diagnosis, for treatment of curable cases, and for the proper care of advanced cases, and upon restrictive sanitary measures. Increasing the resisting powers of the population depended upon a higher standard of living and a wider observance of sound hygiene. Local official authority was of more direct assistance than national or State agencies. Private agencies, as dispensaries, sanatoria, and hospitals, were necessary in arousing public interest and in educating the public until public authorities could be made to see and assume their duties in this field. Hospitals for advanced cases were a great present need in the United States.

The Function of Relief Agencies.—Mr. Francis H. McLean presented certain statistics showing the limited work done outside of large centers and showing how difficult it was to secure so rudimentary a thing as the registration of cases. He thought it was the function of relief agencies in smaller places to organize tuberculous work rather than to have separate associations. The function of such agencies should not vary with reference to agitation for the passage and enforcement of wise legislation. The trouble had been that smaller associations had attempted their own educational campaign, and had effected comparatively little, while they had not encouraged the healthy growth of State and local health boards.

The Unteachable Consumptive. Ellen N. La Motte of Baltimore said that it must be remembered that there was a class of consumptives that could not be educated, the class which was most prone to tuberculosis, and that in preventing tuberculosis it was not the occasional but the constant use of adequate precautions that could check its spread. In her experience with 1,160 cases from this class, only 143 were fairly careful; 719 careless and 289 grossly careless. Any community where such a class was known to exist was justified in adopting more radical measures than education as a method of checking the spread of tuberculosis.

Industrial Insurance in Relation to the Contest with Tuberculosis.— Prof. Charles Richmond Henderson of Chicago showed that present methods of meeting the cost of tuberculosis in the United States were entirely inadequate. The mutual benefit societies were unable to carry their invalids more than a few weeks. In Germany every workingman had sickness and invalid insurance, to whose funds he contributed when well and to whose funds he had a legal right without charity when he was sick. Consequently he kept himself under medical care and had the best possible chance of being restored to health. While he was helpless his illness was not aggravated by anxiety for his family.

The Antituberculous Dispensary in Lyons, France.— Drs. F. Arloing and Paul Courmont of Lyons, France, described this institution, which was modeled on the Calmette type, and was devoted chiefly to hygiene and prophylaxis. Every patient was subjected to a medical examination, the sputum examined, and his home inspected. The patient was attracted by the therapeutic feaeture of the institution, where he received both treatment and assistance, while prophylaxis, which was the real object of the undertaking, was carried out by providing the patient with a spit cup and giving him instructions in hygiene and by disinfecting his dwelling house under the supervision of the inspectors. The family wash was disinfected in a laundry which was organized like that in the Calmette dispensary. The patient was given all possible facilities for cleanliness in the hydrotherapeutic establishment.

The Relation of Tuberculosis to Crime and the Incarcerated Criminal.—Dr. Julius B. Ransome of New York thought that the fact that most prisoners came from infected areas of population would signify that crime and

tuberculosis were more or less closely allied. The tuberculous prisoner represented one of the greatest physical menaces to the general social order. The necessity for a law making mandatory the examination of every prisoner admitted to every penal institution was absolute. The history of the tuberculosis work at Clinton Prison illustrated the advantageous results possible from the special treatment of the tuberculous incarcerated criminal. There had been a decrease of 71 per cent. in the death rate from tuberculosis in the prisons of New York State in the last fifteen years. The penal institutions offered an opportunity for prolonged experiment and study which could not be found in any other field.

The Study of the Relation of Prostitution to Tuberculosis.—Dr. J. Willoughby Irwin of London contributed this communication, which was mainly statistical. Out of 218 women examined, 174 used tobacco, alcohol, opium, and cocaine, singly or all together. Of the 174, 72 were tuberculous. Thirty-two gave family histories of tuberculosis; 38 gave histories of disease that greatly predisposed to tuberculosis. The subject of pregnancy and miscarriage was gone into, and the percentage among the tuberculous and non-tuberculous was about the same. Forty-six of the tuberculous prostitutes did not have any history of contagion. Their living conditions were as a rule good. What slight information in regard to venereal diseases that could be obtained seemed to indicate that this class of diseases predisposed to tuberculosis, and if acquired after the tuberculosis hastened the progress of the latter.

Some of the Difficulties (Professional and Social) of the Early Recognition of Tuberculosis and Some Suggestions as to the Remedy.—Dr. E. O. Otis of Boston said that the early recognition of tuberculosis was not only of extreme importance to the patient, but equally so to the community, for, as Professor Grancher said, if it was treated and cured at an early stage it ceased to be contagious. It had been estimated that the ascertained mortality from consumption in any city was only one-tenth of the real number already seriously affected with the disease; hence a very considerable number remained undiscovered; and a very large number of these undiscovered cases must be in the early stage of the disease.

Institutional Care for the Early or Advanced Consumptive; Which is the More Important? Experiences and Conclusions of a Layman.—Mr. Jacob H. Schiff, President of the Montefiore Home for Chronic Invalids of New York, said that, as the result of almost a quarter of a century's experience as chief executive of a large private philanthropic institution which dealt with consumption in every stage of the disease among the dependent classes of the tenement population of New York City, he had become convinced that if the scourge was to be dealt with effectually one must plan more largely than hitherto and much more boldly. His observations and thoughts on the subject had led to the formulation of a few general principles for comprehensive action: (1) That the private hospitals and sanatoria exclude from admission advanced cases and incurable consumptive patients. (2) That the State make ample and adequate provision for the proper care of sufferers from advanced and incurable consumption, and that the isolation of phthisis sufferers in an advanced stage be made compulsory by law. (3) That ample provision be made in sanatoria and otherwise for the scientific treatment of the consumptive in the early and curable stage of the disease, both through private philanthropy and by the State. (4) That a thorough system be organized through which can be disclosed the existence of cases of weakened constitutions and anemic condition in children and young persons, and that proper provision be made for curing such conditions wherever they were found to exist.

Farm Colonies and Industrial Settlements.—Mrs. James E. Newcomb, President of the Stony Wold Sanatorium, New York State, said that of the patients discharged from this institution since its opening up to the present time, 97 had died, and the question was suggested, How many of them might have been saved? Would it not have been wise to have expended a few more dollars on them at the time of discharge? Could suitable employment have been found for them under proper climatic conditions? In an endeavor to answer these questions, they decided to start an industrial settlement or farm colony; discharged patients were called upon to do light work. Members of the patient's family could find employment there. A small beginning had already been made.

A Farm Colony Experiment.—Dr. Henry Barton Jacobs of Baltimore presented this paper as a preliminary report upon an experimental farm colony, which had been established by the Hospital for Consumptives of Maryland at the Eudowood Sanatorium. In spite of the unfavorable season which prevailed, the value of the crops raised would be a little over the expense of the experiment.

What is Necessary for the Comprehensive and Adequate Treatment of the Tuberculous Problem?—Mr. Victor G. Bloede of Baltimore discussed this proposition under the following five propositions: (1) The best method of practically organizing and conducting the fight and enlisting the sympathies and securing the coöperation of the various communities, and all classes of the public, in this great work; (2) the best method for discovering, treating, and controlling cases of tuberculosis, the home care and treatment of patients, and the best method of controlling the admission to hospital and sanatorium; (3) the primary importance, in a comprehensive plan for the handling of the problem, of the care of the advanced cases; (4) the treatment of the early and incipient cases in its relation to the whole subject; and (5) the important matter of the care of that large class of patients whom the disease had left in a condition preventing them from returning to their former avocations or doing hard or continuous work of any kind.

Fourth Day—Thursday, October 1.

Elementary Instruction as to Tuberculosis.—A. E. Winship of Boston said that if the pupils in the elementary grades were so overworked that there was not time to teach the prevention of tuberculosis, it was time to eliminate some of the rubbish from the present school program. As much disciplinary value could be obtained from the proper teaching of hygiene as from other subjects that were now taught in the schools.

The Body of the Bacillus; Which Shall be Emphasized in the Hygienic Education of the Public?—Dr. Howard S. Anders of Philadelphia said that anti-tuberculosis instruction of a well balanced type should receive as much time and care as anti-alcoholic instruction in the public schools, academies and colleges. He made reference to the historic swing of emphasis from the idea of heredity and debility to the germ menace; now backward to a degree, to more rational attention to the wide importance of various predisposing and direct causes of bodily susceptibility in domestic, social, industrial and commercial conditions. There was no reason or safety in neglecting the microbic factor in relation to sanitation, but it was probably better to teach with greater emphasis the importance of preserving vital resistance, or invigorating it, by improvement of living, working and traveling conditions. Sanitary prophylaxis was therefore a valuable part of education, but the preponderance of education should be directed along lines of sustaining and increasing bodily health and vigor.

Hygienic Instruction in Schools.—Dr. Henry Barton Jacobs of Baltimore stated that in order to control tuberculosis it would be necessary to rely in the past instance upon education. Hospitals, sanatoria, dispensaries, and camps might have great influence in alleviating or curing those infected with tuberculosis, but their great influence in checking the spread of the disease was found

in their educational influence. These institutions became schools in which hygiene was taught. The inmates and their friends belonged to the adult population, and it was to the men and women of the future that we wished to give this instruction. If the same kind of instruction could be given them we would be sending out into the world youths ready for the emergencies of life and with an understanding of how to avoid preventable diseases. Until the schools made provision for this kind of instruction we could not hope to cope successfully with tuberculosis and other infectious diseases.

A Proposition to Introduce a Public Health Week into the Public Schools.—Dr. CHARLES WARDELL STILES, U. S. Public Health and Marine Hospital Service, of Washington, said that, as the result of his investigations in the South, he proposed the introduction of a "Public Health Week" into the public schools, in order to teach the following three great hygienic principles to the children: (1) Do not spit on the floor, for this habit spreads tuberculosis and diphtheria; (2) do not pollute the soil, for this habit spreads typhoid fever, and ground itch, with its resulting hookworm disease; (3) protect against mosquitos, for mosquitos spread malaria, yellow fever, dengue, and elephant foot. This proposition was met with favor, and if certain legal points could be arranged, the plan would be put into active operation this coming year. The plan involved the issuance of popular circulars by the U. S. Public Health and Marine Hospital Service, which the State superintendents of instruction could adopt as text-books, to be used in the physiology classes during public health week.

The Social Significance and Educational Value of the Nurse in Tuberculosis Work.—Miss LILLIAN D. WALD, head worker, Henry Street Settlement, New York, reviewed the work since the first organization in America of the District or Visiting Nurses' Association in 1877. Social significance lay in the ability of the "soldiers" to care for the individual victims and to throw light upon the whole subject and the multiple questions involved.

Tuberculosis and Two Thousand Dollars a Year.—Dr. HELEN C. PUTNAM of Providence, R. I., Chairman of Committee to Investigate the Teaching of Hygiene in Public Schools, appointed by the American Academy of Medicine, said that many houses occupied by intelligent people with small incomes invited tuberculosis through unsanitary sites and flimsiness of structure, yet for them high rents were demanded. The only effective way of reaching these people was through regular educational institutions. This Congress should demand practical training in hygiene and sanitation in schools and colleges by competent instructors, and equally insist upon efficient industrial training. This Congress and its affiliated associations should have central committees on school and college instruction in hygiene and sanitation.

The Popular Lecture in the Crusade Against Tuberculosis.—Dr. S. ADOLPHUS KNOPF of New York said that, while the distribution of literature to enlighten the people in the prevention of tuberculosis was most valuable and indispensable, the spoken word, the popular lecture, by a competent physician, was equally important. The place for such a lecture should be a public hall, schoolhouse or church, easily accessible, well lighted and well ventilated. The lecture should be free to all, the cards of invitation attractive and the wording dignified. The public press should be invited to the lecture, but it was best to give an abstract of the address to the reporters present so as to avoid the appearance of false or misunderstood statements in the press. A well prepared lecture without manuscript was preferable to the reading from manuscript; but a well read and carefully prepared lecture was preferable to a rambling and disconnected extemporaneous talk. A popular lecture should, as a rule, not be longer than three-quarters of an hour; fifteen minutes should be allowed the audience to ask questions.

The Blue Star: A Simple and Practical Way to Interest People in Tuberculosis and to Raise Funds to Combat the Disease.—Miss CLARA E. DYAR of Detroit, Mich., gave an account of an effort to raise funds for the prevention and relief of tuberculosis by a voluntary association entitled the Blue Star. The work of this association had proved so effective as to suggest its introduction to the International Congress for use in similar efforts.

Report on the Teaching of Elementary Hygiene in the Training Colleges and Elementary Schools of Great Britain and Ireland.—Dr. G. A. HERON, Delegate of the Royal Society of Medicine of London, said that in England and Wales a great step had been gained in the cause of school education in hygiene. On August 1, 1908, ended the evil system which, till that date, allowed the study of hygiene to be optional with those who meant to become school teachers. When the students completed their course at the training school a part of the examination was a special paper on hygiene. In Scotland all the training colleges had courses of instruction in hygiene. In England, Ireland and Wales the teaching of hygiene had, until to-day, been behind the times, but this was not so in Scotland. Sound education in hygiene, given both to school children and to adults, was the chief means by which they could not only immensely lessen, but practically end, the existence of tuberculosis.

Tuberculosis and the Public Schools.—Dr. LUTHER H. GULICK, Director of Physical Training in the Public Schools, New York, presented this communication, in which he emphasized the importance of attacking the problem through the agency of the public schools. With the development of a democracy which depended upon the intelligence of all the citizens, the State had to adopt general education as a measure of self-protection. These were the reasons why the State must, through the same agencies, protect itself from these ravages of disease which were dependent upon ignorance with reference to the fundamental facts of life. How so to manage the home organization as to live most effectively had only recently come to be regarded as one of the basal elements in general education. It was, therefore, as yet not treated as a prominent topic in the curricula of our normal schools or colleges. In practically no normal school was it yet ranked with such sciences as phychology, education, history, and the like. The State, in order to protect itself, must bear as definite a relation to the health of its children as it did to their education. These two purposes must be administered in the main by a single department of our government, namely, the public school. Hence, it was inevitable that there should be established as part and parcel of our department of education, groups of medical experts who should see not only that the school was conducted without injury to the health of the school children, but that they were a positive factor in raising up for our republic that body of citizens which were not only intelligent, but which had that background of vitality and power, without which education, science, philosophy and art were relatively valueless.

Diagnosis and Treatment of Infantile Paralysis by Electricity.—Delherm advocates the use of electricity for purposes of diagnosis, prognosis, and therapeutics early in any case of infantile paralysis. The sooner this treatment is begun the better results we may expect to obtain, while no case of this disease fails to be benefited by it. The author begins this treatment as early as the fourth week, using the galvanic current applied to the spine without any interruptions, or passed through the limb by means of a waterbath. It stimulates the circulation by vasodilatation, raises the temperature of the limbs, and limits the atrophy which will inevitably occur. Later in the case the galvanism is applied with interruptions, three times a week, to the paralyzed muscles. The use of faradism is generally not advisable, either because the muscles do not respond to it, or because tetanization favors atrophy.—*Annales de Médecine et Chirurgie Infantiles.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the weeks ending October 3 and October 10, 1908:

	October 3		October 10	
	Cases	Deaths	Cases	Deaths
Tuberculosis Pulmonalis	481	153	597	156
Diphtheria	266	21	284	18
Measles	96	2	68	—
Scarlet Fever	102	4	146	4
Smallpox	—	—	—	—
Varicella	—	—	19	—
Typhoid Fever	100	19	108	12
Whooping Cough	21	2	33	5
Cerebrospinal Meningitis	7	5	3	1
Malarial Fever	—	—	—	—
Totals	1073	206	1258	196

Pyometra in Cancer of the Uterus.—André Lomon says that cancer of the uterus is the cause of pyometra in most cases, and that it occurs in old women who have long passed the menopause, as a result of the occlusion of the cervical canal by senile sclerosis. With a normal mucous membrane there would be no contained fluid, but the cancer causes metritis and the increased secretion is retained in the cavity. The condition may be latent and the diagnosis be made only at operation for the removal of the tumor. Or the condition may be intermittent and relieved at times by evacuation after a severe attack of uterine colic. The prognosis of the condition as such is not bad, the only complications to be feared being rupture of the collection into the peritoneal cavity. Treatment of the condition is by catheterization of the uterus, or forcible evacuation through a passage made through the resistant cervical tissue.—*La Tribune Médicale.*

Syphilis and Tuberculosis.—Auguste Guérin says that the treatment of puerperal fever, which he has tried in is often difficult. When both exist at the same time it is still more difficult. In the presence of tuberculosis we should pay great attention to leucoplakia, aortitis, and pupillary troubles. This triad will make the diagnosis easy. Clinically syphilis may simulate tuberculosis. We may have it under the form of laryngitis, bronchitis, and pleurisy, as well as other pulmonary forms of disease with all the classic symptoms of tuberculosis. Syphilis is a predisposing cause of tuberculosis. It prepares a proper soil for the tuberculous germ. Scrofula is a derivative of family syphilis and this may be the cause of the occurrence of adenoids and appendicitis. A patient affected by tuberculosis may receive his death blow by contracting syphilis, or with a slow form of tuberculosis he may be aided in its cure by the reception of syphilis. Tertiary syphilis is generally benign with tuberculosis. This results from the formation of arteriosclerosis as a result of the syphilis. It produces cavity formation in young persons which does not result from pure tuberculosis. Mercurial treatment is useless in acute tuberculosis and in the last stages. It is bad in ulcerations of the tongue. In many cases on the other hand it may be used without fear in form of inunction, injections of soluble salts, or by mouth. Insoluble salts should not be used for injection, nor should iodide of potassium be given. A full diet should be added to the treatment.—*Journal de Médecine de Bordeaux.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending October 2, 1908:

SMALLPOX—UNITED STATES.

			Cases	Deaths
California, San Francisco	Sept.	5–12	4	1
Indiana, Indianapolis	Sept.	14–20	1	..
Lafayette	Sept.	15–21	1	..
Kansas, Topeka	Sept.	13–19	1	..
Massachusetts, Lawrence	Sept.	13–19	1	..
Ohio, Cincinnati	Sept.	19–25	1	..
Tennessee, Nashville	Sept.	6–13	1	..
Utah, General	Aug.	1–31	9	..
Washington, Spokane	Sept.	6–12	1	..
Wisconsin, Milwaukee	Aug.	29–Sept. 12	4	..

SMALLPOX—FOREIGN.

Algeria: Algiers	Aug.	1–31	..	3
Cape Colony, East London	Apr.	1–15	5	..
Egypt, Cairo	Aug.	19–26	2	..
Grenada, Island of	Sept.	5–12	2	..
Italy, General	Aug.	29–Sept. 6	34	..
Palermo	Aug.	15–22	1	..
Piscinola, vicinity of Naples	Sept.	6–13	7	..
Norway, Christiana	Aug.	22–29	13	4
Peru, Callao	Aug.	31	..	Present
Russia, Moscow	Aug.	22–29	10	3
Straits Settlements, Penang	Aug.	1–8	1	..

YELLOW FEVER.

Mexico, Merida	Sept.	28–29	2	..
St. Vincent Island	Sept.	5–12	2	2

CHOLERA.

Austria, Tarnopol	Sept.	14	1	Imported
China, Hongkong	Aug.	1–15	4	5
Russia, General	Sept.	7–14	2,296	1,026
St. Petersburg	Sept.	14–28	508	203
Straits Settlements, Singapore	Aug.	1–8	..	2

PLAGUE.

China, Hongkong	Aug.	1–15	14	10
India, General	Aug.	8–15	1,167	825
Mauritius, Port Louis	May	1–31	1	1
Peru, General	Aug.	8–24	30	13
Callao	Aug.	8–24	2	2
Lima	Aug.	8–24	4	1
Venezuela, Caracas	Sept.	6	3	1
	In hospital 11 cases.			

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending October 9, 1908:

SMALLPOX—UNITED STATES.

			Cases	Deaths
California, Berkeley	Sept.	12–19	1	..
Indiana, Indianapolis	Sept.	13–20	1	..
La Fayette	Sept.	14–21	1	..
South Bend	Sept.	19–26	1	..
Kansas, Topeka	Sept.	12–19	1	..
New York, New York	Sept.	19–26	..	1
Ohio, Cincinnati	Sept.	18–25	1	..
Tennessee, Nashville	Sept.	19–26	1	..
Washington, Spokane	Sept.	5–19	2	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Aug.	8–22	12	6

SMALLPOX—FOREIGN.

Aden, Aden	Aug.	24–31	..	5
Brazil, Rio de Janeiro	Aug.	16–23	751	36
Santos	Aug.	15–22	16	3
Canada, Halifax	Sept.	12–19	1	..
Ceylon, Colombo	Aug.	8–15	3	1
Ecuador, Guayaquil	Aug.	15–29	..	9
Egypt, Cairo	Aug.	26–Sept. 2	3	1
India, Bombay	Aug.	18–25	..	4
Calcutta	Aug.	8–15	..	6
Italy, General	Sept.	6–13	5	..
Naples	Sept.	13–20	5	1
Piscinola	Sept.	13–20	11	1
Mexico, Aguascalientes	Aug.	13–20	..	1
Mexico City	July	25–Aug. 8	..	21
Norway, Christiana	Aug.	29–Sept. 5	24	2
Peru, Callao	Sept.	8	30	..
Russia, Warsaw	July	25–Aug. 8	..	14
Turkey, Bagdad	Aug.	22–29	22	6
Constantinople	Aug.	30–Sept. 6	..	8

YELLOW FEVER.

Brazil, Manaos	Aug.	22–29	..	1
Para	Sept.	5–12	..	1
Ecuador, Guayaquil	Aug.	16–22	1	1
Mexico, Vera Cruz	Oct.	2–7	5	..
Martinique, Fort de France	Sept.	5–12	5	1

CHOLERA—INSULAR.

Philippine Islands, Manila	Aug.	8–22	10	10
Provinces	Aug.	8–22	1,729	1,186

CHOLERA—FOREIGN.

China, Hankau	To Aug.	18	1,397	1,397
Hanyang	To Aug.	18	..	200
Hongkong	Aug.	15–22	3	3
Shanghai	Sept.	1	..	Present
Wuchang	To Aug.	18	..	2,140
India, Bombay	Aug.	18–25	..	1
Calcutta	Aug.	8–15	..	13
Madras	Aug.	15–21	..	79
Indo-China, Cholen	Aug.	8–15	4	4
Japan, Moji	Sept.	4	8	3
Russia, St. Petersburg	To Sept.	19	2,018	620

PLAGUE.

Azores, Fayal	To Sept.	21	9	4
Terceira	To Sept.	21	51	20
Brazil, Rio de Janeiro	Aug.	16–23	1	..
Chile, Iquique	Sept.	1–8	4	3
China, Hongkong	Aug.	15–22	3	23
(20 deaths, April to July, in Chinese hospital not previously reported)				
Ecuador, Guayaquil	Aug.	22–29	..	1
India, General	Aug.	15–22	1,576	1,015
Bombay	Aug.	18–25	..	26
Calcutta	Aug.	8–15	..	14
Rangoon	Aug.	8–15	..	35
Indo-China, Cholen	Aug.	8–15	13	13
Aaigon	Aug.	8–15	4	4
Japan, Awaji Island	Sept.	7	7	5
Kobe	Aug.	29–Sept. 5	4	1
Peru, General	Aug.	25–31	22	9
Callao	Aug.	2	1	..
Lima	Aug.	2	4	..
Trinidad	Sept.	30	1	1
Turkey in Asia, Bagdad	Aug.	22–29	1	1

NOTE.—Plague at Trieste, Austria, September 21, denied.

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Original Articles.

THORACIC PERIOSTEEDEMA OF ANGIONEUROTIC ORIGIN.

By HEINRICH STERN, M.D.,

NEW YORK.

The exploration of the thorax occasionally reveals a more or less pronounced and circumscribed swelling over one or more ribs, over the sternum, or more rarely over a costal cartilage. This swelling, unlike the superficial angioneurotic edema, appears to have its source in the periosteum or the perichondrium; it does not necessarily concur with any distinctly painful sensation in the involved area, and is of a fleeting nature. The swelling consists of a firm, doughy infiltration of the tissues in the immediate proximity of the osseous or cartilaginous structures of the thorax and is prone to recur at irregular intervals.

A short time ago, Max Herz described substantially the same syndrome as pseudoperiostitis angioneurotica,* apparently assuming, however, that it is an affection sui generis. Lublinski† has since published a case-history under the same caption. Herz speaks of an "affection" consisting of the tissue-infiltration in the immediate neighborhood of a bone, causing pain, sensitive to pressure, and following in the wake of angioneurotic cardiac paroxysms.

The nosological status of the syndrome, as given by Herz, is quite vague. In the first instance, it is unfortunate that we try to identify a pathological condition by a negative designation; a pseudoperiostitis is a false periostitis, which means that it is not at all a periostitis in the common acceptation of the term. We should always attempt to identify an abnormal, and for that matter also a normal, state by its positive and prominent phenomena. The condition before us is characterized by a circumscribed, fleeting edema which is connected with the periosteum. It is therefore a periosteedema on an angioneurotic basis. The term periosteedema is certainly more expressive of the pathological state than is the appellation pseudoperiostitis. Herz believes to have described an affection which was hitherto unrecognized. This is certainly not the case, for we know that angioneurotic edema may occur in the form of periosteal swelling surrounding the ribs and sternum. Angioneurotic periosteedema, however, is by no means confined to the bony structures of the thorax as we may encounter it connected with the bones of the head, the pelvis, or the extremities.

It must not be wondered at that Herz observed his pseudoperiostitis only in the thoracic skeleton and in conjunction with a cardiac neurosis, as his experience was gained in the diagnosticotherapeutic institute for cardiopaths in Vienna. Had his work brought him in closer contact with patients who were not cardiopaths, there is little doubt that he would entertain a somewhat different opinion concerning fleeting periosteal or perichondrial swelling.

While angioneurotic periosteal edema may supervene practically everywhere where there is periosteum, its occurrence on the thoracic bones neither depends upon a cardiac neurosis nor is it a concomitant of the latter in the great majority of instances. It seems to concur much more frequently with gastrointestinal disturbances, which may themselves be of angioneurotic production.

Thoracic periosteedema of a transitory character is not as uncommon a phenomenon as one may presume. As a matter of fact we are apt to overlook a slight swelling over the ribs or the sternum unless our attention is especially drawn to it by the patient or someone of his surroundings. At other times the patient is quite unaware of the swelling, and is certain that it was not present a few hours ago. Again, in other instances the infiltration does not exist at the time of examination, but the patient is positive that there was a swelling somewhere on the chest a short time before. As already remarked, a distinct pain is not always a concomitant of the phenomenon, and when it is present, it is often quite insignificant; the pain, as a general rule, however, is more pronounced than when skin and mucous membranes alone are involved. A painless or nearly painless evanescent tumefaction on the thorax necessarily escapes detection in a goodly proportion of instances.

While thoracic periosteedema of angioneurotic causation may not be particularly painful in itself, a pressure pain may invariably be elicited at the site of the affected bone during the period of infiltration. This pressure pain, which may be quite acute at times, can often be called forth when the externally visible infiltration has subsided. In some instances, the pressure pain can be evoked weeks and months after the disappearance of the swelling, a fact which points to the existence of a chronic, circumscribed periostitis. An affection of the costal periosteum can as a rule be readily localized by means of the pressure pain, a point which is of decided value in differential diagnosis.

Thoracic periosteedema of angioneurotic origin is invariably circumscribed and appears and disappears quickly, but not as suddenly as the angioneurotic edema of the more superficial structures. It tends to recurrence at irregular intervals but at the same location. Unlike the common angioneurotic edema which generally ensues before the thirtieth year it does not, as a rule, supervene until after this period of life. In my experience it has occurred much oftener in women than in men, and it invariably ensues in persons with neurotic tendencies. Once in a while two or more instances of angioneurotic periosteedema are encountered in one family. Irregular menstruation or the cessation of the catamenia seems to favor its production. While superficial angioneurotic edema is mostly multiple, there occurs usually but one swelling in thoracic

*Zentralblatt für innere Medizin, March 21, 1908.
†*Ibidem*, May 2, 1908.

angioneurotic periosteedema. I have seen but one case with multiple infiltrations, none of which, however, was larger than about two centimeters in diameter. The thoracic periosteedema may attain considerable size, it may involve two or more ribs, a portion of the sternum, and may be continuous over the interposed costal cartilage by the agency of the latter's perichondrium. Its usual dimensions vary from that of a longitudinally halved pigeon's egg to that of one-half of a good-sized apple. The circumscribed tumor is palpable in nearly every instance, that is, the swelling generally occurs where there is the least resistance, and this is on the external surface of the thorax. In other cases the edema may extend into the thoracic cavity, or may even be confined to it, and may give rise to "asthmatic" attacks, dyspnea, cough, cardiac irregularities, and a variety of disturbances of the intrathoracic equilibrium.

The temperature of the infiltrated area is usually somewhat raised, but hardly ever more than about two degrees Fahrenheit. In some instances, the surface temperature appears to be somewhat diminished. The fluctuations of the local temperature are of brief duration, being most pronounced during the productive stage of the infiltration. The local temperature alteration does not correspond to the extent of the area involved and does not reflect the degree of the swelling. Thoracic periosteedema, being a localized process, does not as a rule influence the general body temperature. If fever occurs at all it is of a very mild degree unless it be the expression of an accompanying affection.

The predilection of the swelling to appear and reappear as a periosteal edema, besides being due to an angioneurotic factor, must be founded in some structural abnormality of the bone. This may be the consequence of malnutrition, a rachitic condition, for instance, or it may be the immediate or mediate result of an injury. S. West has reported the histories of acute periosteal swellings in several young infants, which swellings, he opines, were probably rickety in nature.* While I have never seen in infants and children any periosteal swellings apart from those due to subperiosteal hemorrhages occurring not infrequently in infantile scurvy, and, of course, the cephalohematoma in the new-born, my cases having been almost invariably of the acute superficial variety, I could deduce early rachitis in at least fifty per cent. of the instances of thoracic periosteedema which have come under my observation. In some of my cases in which traumatism proved the direct cause of the fleeting periosteedema a clear history of rachitis could be obtained. Other instances of the phenomenon which I have seen were due either to an injury or to refrigeratory influences. A slight hurt of the thorax may give occasion to an evanescent periosteedema in individuals prone to angioneurotic disturbances. These are the cases which pass off unnoticed, as a rule, because neither patient nor physician pays sufficient attention to them. The phenomenon ensues more frequently in the cold season, and the greater frequency of it among women, I think, is due to their scanty attire of the chest, more especially at social functions, etc. Many an uneasiness and pain in the female chest arising the day after the dance are probably due to the periosteum and its infiltration and have nothing to do with "neuralgia," "pleurodynia," "muscular rheumatism," "pleuritis," etc. Were we to examine carefully all these cases we would certainly find slight localized edemas and pressure pains over a rib, a costal cartilage, or a portion of the sternum, in a large proportion of instances.

Thoracic periosteedema does not require much treatment, as a rule; its recognition, however, is not unimportant because it averts all kind of useless medication directed to affections which are not present, or which are but secondary to the periosteal anomaly. Periosteal disease is one of the principal mechanical factors of "neuralgia," for instance, therefore we should not treat the vague symptom "neuralgia," which is to no real purpose, but its underlying cause. Hot applications to the diseased spot, and when we have an active inflammatory process the continuous employment of the ice-bag will relieve the "neuralgia" much more readily than opiates, salicylates, or the coal-tar derivatives. Counterirritants have no place in the treatment of periosteedema, and massage, electricity, and vibration, are worse than useless. Bier's hyperemic treatment may be given a trial if the edematous swellings appear too frequently and cause discomfort. In two cases of oft-repeated and painful periosteedema I obtained excellent results, so far as diminution of the frequent recurrences and suppression of the pain were concerned, by means of continued dry cupping. If the pressure pain persists after the swelling has subsided it is best to treat the affected area like a fractured rib by strapping it with strips of zinc oxide adhesive plaster which should be applied from below upward and at the end of expiration.

Constitutional treatment should be instituted only when the patient is a confirmed neurotic. Mental rest is then always indicated. Hydrotherapeutic procedures may afford relief of the contributing neurotic condition. A sojourn in some other altitude may also tend to the amelioration of the systemic state and the localized angioneurotic phenomenon. Constitutional treatment may be called for when the subperiosteal infiltrations cause intrathoracic pressure-symptoms evidencing themselves by respiratory and cardiac disturbances. Powerful suction cups will be here of decided assistance, and the Bier hyperemic method (Stauungshyperemie), which I have had as yet no occasion to employ in such instances, ought to render excellent service. The latter, however, is a suggestion which I advance on purely theoretical grounds.

In the following I shall briefly mention some instances of thoracic periosteedema which have come under my observation.

Case I.—Mrs. M. B., 34 years old, mother of two children. Was referred to me on account of bradycardia and attacks of dyspnea. Seizures occurred about weekly, started at night, and lasted for almost two days. There was a feeling of oppression and some pain extending from the second to the fourth rib, and from the left sternal to the left mammillary line during the time of the attack. Patient exhibited neurotic stigmata and had been treated for "rheumatism" on account of fleeting swellings in the knees, calves, legs, hands, and face. The swellings were more pronounced at the time of menstruation, and not all the parts were edematous at one and the same time, as a rule. The physical examination revealed besides a slightly arhythmic heart, a circumscribed, dense, non-pitting infiltration extending from the second to the fourth left rib, having its maximum elevation in the left parasternal line at the inferior border of the third rib. There was a distinct pressure sensitiveness. Continued deep palpation and rather slight pressure upon the tumefaction called forth very shallow, jerky respiratory movements, increased dyspnea, and

British Medical Journal, 1888, Vol. I., p. 856.

arhythmia, and a good deal of anxiety. The general temperature was not augmented, but the surface of the infiltrated area felt decidedly warmer to the touch than the surrounding normal integument. At the time of a second examination, five days later, the tumefaction had entirely disappeared, but there still remained some painful periosteal spots upon pressure; the patient felt decidedly more at ease and did not any longer complain of intrathoracic oppression. In another five days the phenomenon, and with it the dyspnea and augmented arhythmia, had recurred.

This case shows that acute superficial edema and acute periosteedema may occur in one and the same person, and that there may have existed an evanescent, frequently recurring periosteal swelling, together with the external infiltration, on the inner side of the thorax which may have been the disturbing factor of the intrathoracic equilibrium. It is possible, however, that the visible periosteedema always occurred synchronously with a superficial fleeting edema of the bronchial mucosa, and that the dyspneic seizures, and presumably also the arhythmic behavior of the heart, were the result of pressure emanating from the left bronchus or its ramifications.

Case II.—Mrs. F. S., 36 years old, mother of five children. Was referred to me on account of diabetes mellitus and "rheumatism." She experienced swellings in the joints, the arms, legs, the face and chest, which would come and go. The first swelling occurred eleven years ago, shortly after childbirth. There never occurred any fever with the swellings, and the accompanying pains were not acute and were likened by the patient to "stiffened pressure." The patient was highly neurotic and exhibited a small amount of glucose in her urine. The sugar never amounted to more than 25 grams in the 24 hours. She had no polyuria, and it appears that she never had had any. She complained of no respiratory or cardiac difficulty. The examination of the chest showed a distinct, circumscribed infiltration over the sternum, which was not painful in itself but which was very sensitive on moderate pressure. The pressure pain extended somewhat to the right, traveling along the fifth rib. The patient stated that about half the time there was a swelling over the breastbone, and that she preferred to wear no corsets during that period.

This case confirms the observation made in Case I, that superficial angioneurotic edema may occur with thoracic periosteedema in the same person. This patient, a confirmed neurotic, was singularly free from respiratory or cardiac disturbances.

Case III.—H. G. H., 59 years old, banker, father of two children. Very good family and personal history. The patient had no neurotic tendencies but was subject to catarrhal conditions of the upper respiratory tract. He had had influenzal infections in two consecutive winters. The patient had been affected with some periosteal swellings in various locations at different times. On one occasion he had a very painful periostitis with extensive infiltration in one finger; on another occasion he had a periosteal inflammation of the posterior portions of the left fourth and fifth ribs extending to beneath the left scapula; on a third occasion the periosteum of the left third rib was infiltrated and caused a good deal of pain. The swellings in these instances disappeared together with the underlying cause, and have never recurred. However, the patient had from time to time another swelling which, apparently, had its seat in the periosteum, was circumscribed, painless, and not very sensitive to pressure. It was located over the left fifth, sixth, and seventh ribs, and extended from the left sternal line to about two centimeters beyond the left mammillary line, imparting to the entire area a quite prominent additional convexity. The swelling was evanescent but of longer duration than the other periosteedemas on an angioneurotic basis which I have encountered. The maximum infiltration generally lasted a few weeks, and might not reappear for a number of months, but the swelling never vanished completely.

This case is interesting for two reasons, first, because it evinces that we may find periosteedemas which are rather of a subacute than an acute nature; and, second, that there may be a tendency to periosteal disease in individuals developing periosteedema through angioneurotic influences.

Case IV.—Mrs. S. P., 34 years old, no children, was referred to me on account of "stomach disease." Ten years ago the patient underwent an operation for pyosalpinx. She complained now of pain around the heart, a bloated feeling in the same region and in the upper part of the stomach, and anorexia alternating with a voracious appetite. Pain and bloatedness would prevail for about four or five days at a time; she would feel pretty well for about the same length of time when the former symptoms would again supervene. Anorexia was present during the period of oppression, the appetite became ravenous the moment she felt better. A very thorough examination did not reveal any abnormal condition of the lungs, pleura, heart, or stomach; a test of the stomach contents showed no functional disturbance of the gastric organ. There was, however, a well circumscribed protrusion in the region of the left fourth, fifth, and sixth ribs which extended from the mammillary line to the left middle axillary line. This protrusion proved to be due to a very firm infiltration which was quite smooth over its surface, and which seemed to be derived from the periosteum of the three ribs. The dense consistency of the swelling prevented palpation of the fourth and fifth intercostal spaces. The edema itself did not cause any special pain in the protruding integument and its neighboring tissues; pressure upon it, however, elicited acute pains all over the involved area. The patient was under my observation for some time and I had occasion to watch the fluctuations of the periosteedema. Soon after the institution of treatment (application of heat, strapping, etc.) the swelling subsided and with it the subjective phenomena. For a period of nearly three months the patient felt more comfortable than she did at any time during the past ten years, and the swelling had not returned. The swelling recurs now from time to time; it is, however, much less pronounced than formerly and does not coincide with much pain, nor are the gastric symptoms present in the former degree.

The only remarkable feature of this case is the fact that the patient was under treatment for "stomach disease" for a period of ten years, and that during all this time no thorough examination of the cardiac and epigastric regions was made.

Case V.—Mrs. S. C., 36 years old, no children. The patient experienced latterly, shortly after menstruation, pain in the right ovary, precordial pain and a sense of weight in the chest, and attacks of cough, especially during the night. These phenomena gradually subsided as the menstrual period approached, but revived when this had passed. The ovarian pain was probably due to a post-menstrual congestive state which might bear some relation to a deep-seated angioneurotic edema. The chest was well developed, and there were no structural changes either in the lungs or in the heart. The uvula was

slightly edematous and the larynx appeared congested. There was a firm circumscribed elevation over the fourth rib just on the parasternal line. The swelling was about three centimeters in diameter and painful when pressed upon. It did not pit and appeared to spring from the periosteum. Observation demonstrated that the swelling was of a semi-fleeting character, that is to say, it never became entirely reduced, but that it diminished to a greater or lesser degree at about the second or third week after menstruation.

The little periosteedema, a negligible factor by itself, attains some importance as a diagnostic symptom. It throws light upon the intrathoracic condition after the catamenia because it points to the production of fleeting edemas in certain parts of the mucosa of the respiratory tract at that period. To these intrathoracic angioneurotic edemas may be ascribed the precordial pain, the sense of weight in the chest, and the coughing seizures.

Conclusions.—Thoracic periosteedema of angioneurotic origin occurs much more frequently than is generally supposed; it is closely related to the acute circumscribed superficial edema, with which it may be associated. It may be the external manifestation of periosteal swellings on the inner side of the thorax, or it may be the visible evidence of possible angioneurotic edemas of the mucosa of the respiratory tract disturbing the intrathoracic equilibrium. If rightly interpreted, it will always prove of diagnostic aid. The phenomenon, which is of a fleeting nature but tends to recurrence, appears oftener in women than in men, and seems to stand in some connection with the catamenia. A prognosis as to the period of its ultimate disappearance cannot be made, but the outlook concerning its gradual diminution and that of its concomitants is very encouraging. The phenomenon requires no treatment in the majority of instances; remedial measures, however, when indicated, invariably call forth temporary and, occasionally, also more lasting amelioration of the subjective and objective symptoms.

SOME FEATURES OF THE PRESENT CRUSADE AGAINST TUBERCULOSIS IN NEW YORK CITY.*

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THE importance of pulmonary tuberculosis as an economic and municipal problem has long been recognized, but its magnitude in the larger cities, and especially in New York, can best be emphasized by reference to a few recent statistics. We all know, in general terms, that tuberculosis claims annually more victims than any other one disease known to science, but that fact becomes at once more significant and more dramatic when it is expressed in numbers. Over one million deaths occur annually, in the civilized world, from tuberculosis; that is, about one in every seven deaths from any cause. Differently expressed, this means that somewhere in the world one human being dies of consumption every two minutes. In the United States, the number of deaths from consumption during the year 1907 was 150,000. In New York State about 14,000 deaths from tuberculosis are reported each year, one-tenth to one-eleventh of all deaths from every cause. In New York City, the annual number of deaths from consumption alone, exclusive of other, non-pulmonary, forms of tuberculosis, is 9,000; and in 1907, 19,725 new cases of consumption were reported to the Board of Health. Under existing conditions, the great majority of these new cases will eventually die of the disease, after infecting other thousands of their fellow-citizens.

Viewed from this standpoint alone, the outlook would seem well-nigh hopeless; but, happily, there is another aspect of the situation. Since the isolation of the tubercle bacillus by Koch in 1882, the scientific conception of the etiology and control of infectious diseases has been practically revolutionized, and the modern idea of dealing with these communicable diseases has been nowhere better expressed than by Pasteur in the sentence, "*C'est dans le pouvoir humain de faire disparaître du monde tous les maladies parasitaires.*" It is in the sanguine application of this principle that we are seeking, in New York City, to deal with the tremendous problem of tuberculosis, as it there presents itself.

In a recent article in the *New York State Medical Journal*, Dr. B. H. Waters, of the New York Health Department, calls attention to the fact that, in New York City, tuberculosis is essentially a disease of the tenements, of the crowded districts. It is there that the disease thrives and is propagated; and it is there, incidentally, that it is hardest to control. Among the wealthy or the well-to-do, patients can either be perfectly controlled in their own homes or sent promptly to one of the many sanatoria especially equipped for their care and cure. But among the poor, it is seldom possible to send away any considerable number. The majority must be treated in their own homes, in an environment peculiarly unsuited, in most instances, for the treatment essential either to the recovery of the individual, or to the protection of his family.

Our problem, then, in the control of this communicable and curable disease—for to deal with it effectively, we must recognize both its danger and its susceptibility to treatment— lies in our management of its source in the tenements; that is, in the care of the tuberculous poor.

Up to 1893, no systematic effort was made by the city to combat the spread of consumption. The high death rate and steadily increasing number of cases are accepted as a terrible, but inevitable, fact. In 1893, the first step was taken, in a law for the compulsory registration of all hospital and dispensary cases to the Board of Health; and one year later, in 1894, a further regulation was made compelling the registration of all cases of pulmonary tuberculosis. This measure met, at first, with considerable opposition, both from the laity, as represented by the press, and from the profession. It was asserted that the registration of cases would necessarily result in a certain measure of publicity for the patient, and a corresponding measure of ostracism by his neighbors. In practice, this was not found to be the case, and the regulation now meets with general acceptance and approval. It is, in fact, the essential first step in any successful attempt to combat the spread of the disease, since without a knowledge of the exact number and location of new cases no systematic effort to prevent the spread of the infection can be made. The next step of importance was taken the following year, 1895, when a special laboratory was established by the Board of Health for the free examination of sputum and for other diagnostic examinations not possible by the busy practitioner. By this means, the registration of cases is often obtained when a formal report might

*Read before the Jefferson County Medical Society, July 9, 1908.

be neglected, a positive sputum serving as its own report of a new case.

No further municipal move of importance was made, however, until May, 1894, when the first separate class for the treatment of pulmonary tuberculosis was established at the Dispensary of the New York Throat and Nose Hospital, under the direction of Dr. Bermingham. The idea of a special dispensary, or separate class, for the care of consumptives, was no novelty abroad, but it was a distinct innovation in New York City. Previous to that time, tuberculosis cases had been accepted in the general medical clinic of whatever dispensary they might happen to apply. There they had awaited their turn in the general waiting-room, without any precautions for the protection of other patients. Upon admission to the clinic, they had received such examination as could be given by the busy, overworked physicians in attendance; were diagnosed as consumptive—if they were sufficiently advanced cases to render diagnosis relatively easy—and were dismissed with a few hasty instructions in hygiene, and probably with one or more prescriptions—especially for cod-liver oil and the Stoke's expectorant mixture. This may appear to be a criticism of the physicians in question; but such an examination and method of treatment were all that was possible under the circumstances, and their futility was recognized and deplored by the physicians themselves more than by any possible critic.

With the formation of separate classes for the care of tuberculous cases, a new era was established. In a special class, it became possible, not only to make more careful and thorough examination of applicants, and thereby to recognize earlier and more hopeful cases, but also to devote to each patient the time necessary to teach him those rules of personal hygiene so important for his own improvement, and for the safety of his family and neighbors.

The first separate clinic was soon followed by others. Private institutions and city dispensaries adopted the new scheme with enthusiasm, recognizing its need and its value. Among the city hospitals, Gouverneur was the first to establish a separate Tuberculosis Clinic in October, 1903, followed by Bellevue Hospital in December of the same year. Harlem Hospital was added to the list in 1904. Meanwhile, Vanderbilt Clinic opened its class in January, 1903. The model Board of Health Clinic, planned and built under the direction of Dr. Hermann M. Biggs, with the assistance of Drs. Knopf, Billings, and Waters of the Health Department, was opened on March 1, 1904. More recently, New York Dispensary and New York Hospital, Presbyterian, Mt. Sinai, and the German Hospital, have joined the ranks, and there are now branches of the Board of Health Dispensary in Brooklyn and the Bronx.

The first evident effect of these separate clinics was the more thorough examination and the more efficient treatment of the cases themselves; but it became evident very shortly that the most essential feature of a really effective control of such patients, that is, their obedience to sanitary and hygienic regulations in their own homes, could only be taught and enforced by home supervision. Out of the recognition of this necessity arose the demand for the most valuable single adjunct we have in the clinics—the visiting nurse. However thorough and painstaking the physicians may be in their care of the cases, it is practically impossible for them to know if their instructions are heeded or their rules obeyed, without the report of the nurse. She visits the patients in their homes, advises them how to readjust the surroundings to meet their needs and our rules, reinforces the instructions given at the clinic, and, finally, reports regularly to the doctors the home conditions she has found. It thus becomes possible to know the exact environment which has to be dealt with in each individual case, and to take systematic measures to correct or improve it.

To appreciate why this question of environment assumes an importance in the treatment of tuberculosis greater than in that of any other disease, one has only to remember that it is in the home—and especially in the tenement home—that tuberculosis is acquired and transmitted, and from every neglected case of the disease one or more new cases will inevitably arise. Here, at its very source, is where the fight must be fought—and won. If we can once control the spread of tuberculosis in the tenements, we shall be able to stamp out the disease through the city.

Next to the adoption of separate classes, the most important step in the crusade has been the districting of the city. This scheme was an outgrowth, or by-product, of the work of a committee, organized in the spring of 1906 under the auspices of the Charity Organization Society, for the distribution of a fund contributed to the Society for relief of deserving cases among the tuberculous poor. The committee was composed of representatives from the Charity Organization Society and of physicians representing each of the various tuberculosis clinics then established. In the course of their work of investigation and relief, recently reported in full, this committee hit upon a device to simplify and harmonize the routine work of the various clinics, and to avoid delay and error in locating cases. This scheme consisted in dividing the city into districts with definite and arbitrary boundaries, each presided over by one of the special tuberculosis clinics. All tuberculous cases applying for treatment in any dispensary are referred to the special dispensary for the district in which they reside. By this method, the cases under regular observation and treatment at each tuberculosis clinic are limited to the residents of that district, and the work of the clinic and of the visiting nurse is thereby simplified and brought within practicable bounds. There are now eleven such districts in the city (that is, in Manhattan and the Bronx), controlled by eleven corresponding district clinics.

Another advantage of the district plan is that it has led to greater uniformity in methods employed by the different clinics in the care of their cases, and put a stop to patients seeking aid from several different sources, thus causing confusion and duplication of work. A uniform system of transferring cases, by special cards supplied to all the clinics, and a more systematic and satisfactory record of cases at the Board of Health, were further results of the scheme. The most recent result has been in a valuable addition to the organized forces enlisted in the work by the formation of a Women's Auxiliary for each clinic. The auxiliaries are composed of women who are connected with the social, religious or charitable organizations of the district, or who are willing to give time or funds to the work, and the auxiliaries represent what has been called "social service," that is, the effort to provide for individual cases such additional care, financial or otherwise, as they may need, beyond the advice, medicine or extra nourishment we are able to provide at the dispensary.

A final outcome of the admirable work of the Relief Committee is its recent organization, at the

completion of the work for which it was originally enlisted, into a permanent association—the Association of Tuberculosis Clinics of New York City. "This Association," to quote from the recent report of its President, Dr. James Miller, "is composed of active members, who are the representatives of the various clinics, and of associate members, who are selected as representing the different charitable, religious, and social societies and institutions in the city which are coming in contact with tuberculosis as a constant social problem." The purpose of the organization, to quote again from the report, "is to enlist the active coöperation of all these agencies in such a way that in each district of the city the tuberculosis clinic may become the center to which all workers among the poor will naturally turn for expert advice upon all questions and problems which may arise in regard to tuberculosis." By means of this central organization, the work of the separate clinics can be carried on in uniform and systematic coöperation, every district having representation on the Central Committee, and all deferring to its decisions in matters of common interest.

There are two comparatively recent factors among our available forces, to which I wish to call particular attention. I refer to the Day Camp and to the Church Classes.

The Day Camp is intended to supply a place where dispensary patients may get proper out-of-door treatment under medical supervision, during the summer months, when roofs and fire escapes are not available because of the heat, parks and recreation piers are crowded to their capacity, and the interior of the tenements is intolerable. The experiment was inaugurated in New York last year, by the Relief Committee of the Charity Organization Society, when an old ferryboat, the *Southfield*, condemned for active service, was secured from the city authorities, fitted up through private contributions with all that was essential for the purpose, and moored to a pier at the foot of west Sixteenth Street. A nurse was detailed for regular duty on the boat, and physicians from the various clinics volunteered for service. Patients were sent to the boat from all the clinics, each being given a card properly endorsed by the dispensary physician, and they were required to attend with regularity. The boat was open daily from 9 A.M. to 5 P.M., a noon meal being served on board, and extra nourishment also provided twice a day. The patients were weighed weekly by the nurse, daily morning and afternoon temperatures were taken and recorded, and sanatorium discipline was taught and maintained. A limited number of cots were provided for emergencies; but advanced cases, requiring much care, were not admitted to the boat. Steamer-chairs and hammocks were provided in abundance, and books and magazines for patients able to appreciate them.

This Day Camp proved so successful that the *Southfield* has been pressed into service again this year, and is moored now at a wharf in front of Bellevue Hospital, under the immediate supervision of the Bellevue Clinic; while a second old ferryboat has recently been secured for the Gouverneur Clinic through the efforts of the Gouverneur Auxiliary, and will be open for the reception of cases within a few days.*

The other new factor to which I alluded is the Church Class. This innovation in the treatment of tuberculosis among the poor is the outcome of the work of Dr. J. H. Pratt, who started the first such class in July, 1905, under the auspices of Emanuel Church, in Boston. In January, 1906, an associate of Dr. Pratt's, Dr. John B. Hawes, started the Suburban Tuberculosis Classes, of which there are now three or four, for the care of patients living at a greater distance from the city. Later in 1906, the first Church Class in New York was organized by Dr. W. L. Niles under the auspices of Christ Church. In the fall of 1907, two more Church Classes were added to the list, one at Montclair, N. J., under the direction of Dr. Stella S. Bradford, and the second New York Class, St. George's, of which Dr. Howard and I are in charge.

The work of these church classes should, in no way, be confused with that of the dispensary clinics, and a church class is to be regarded as among the additional resources of the district in which it is situated, rather than as a competitor, in any sense, of the district clinic. The church class approaches the problem from a totally different standpoint. The district clinic must receive all cases which are referred to it and do what it can for each. It can cure a few, arrest the progress of the disease—that is, prolong the life—of more, and care for many. It is the center of the educational crusade in the district, and the proper head of the district work. The church class, on the other hand, receives a very limited number of suitable, early cases, and, by means of the resources of the organization which supports it, that is, of the church under whose auspices it works, it aims to supply its selected cases with all they need for proper treatment in their own homes. In other words, the church class receives few patients for its special care, but it aims to *cure* those few, and to cure them at home.

It is evident how the church class fits into the district scheme. It is one additional agency in any district to be utilized in the fight, and an increase in the number of such classes is an unqualified benefit to the districts with which they cooperate.

Such being an outline of the crusade in general, it may be of interest to describe the actual work in one of the districts. The routine is practically the same in all, but I am qualified to speak from personal experience only of the work in the Gouverneur Clinic with which I have been associated for nearly five years.

The Gouverneur Tuberculosis Clinic was organized in October, 1903. We started as a subdivision of the general medical clinic and derived all our cases originally from that source. We began with an average of two cases a day. We have now an average of 20 cases a day, and keep about 125 cases under constant observation. From October, 1903, to July 1, 1908, we have had 1,246 applicants for admission to the clinic. Not all of these patients were tuberculous, and, indeed, so many cases with cough were referred to us for that symptom alone, that we have had to make the rule that no new case will be accepted unless sent by another district dispensary or after examination in the general medical clinic.

Among other diseases sent us as tuberculous, the most usual are chronic bronchitis and emphysema: acute bronchitis; nose and throat diseases with cough; chronic (sometimes acute) endocarditis; and a few scattering cases of pneumonia (masked or unresolved), typhoid fever with marked bronchitis, and other conditions having cough or temperature as symptoms.

*The Gouverneur Day Camp, the Ferryboat *Westfield*, moored at Pier 53, East River, was opened for patients on July 15.

Our routine is as simple as we can make it, under the conditions in which we work. The clinic is open three days a week, Monday, Wednesday, and Friday, from 2 to 4 P.M. There are three physicians in attendance and one visiting nurse. The patients are received into the general waiting room of the dispensary, but are assigned to special benches adjacent to the rooms reserved for our use. Each patient, on presenting himself at the dispensary, is provided with a numbered card and a piece of clean gauze. The card entitles him to admission in his turn. The gauze he must hold before his mouth if he should cough or sneeze while in the building. Cuspidors are provided in plenty, in case it should be necessary for any patient to expectorate; but unnecessary coughing is discouraged and, to a large extent, controlled. Patients with paroxysms of apparently uncontrollable coughing are often benefited by the request to leave the waiting room and sit in the open air, thereby losing their turn, until they can stop coughing. No patient is allowed to cough or sneeze without putting his gauze before his face, and our older patients are so well trained that it is no unusual sight to see one of them admonishing a newcomer who had neglected the rule.

This response to training is the more encouraging when one realizes the class of patients with which we are dealing in the Gouverneur district. The overwhelming majority of our cases are foreigners, chiefly Russian and Polish Jews—Polacks and Yids in the vernacular—with a few Italians, Germans, and Irish. Occasionally Armenians and Greeks are numbered among our patients, and we have, of course, a few of English and American birth or parentage. Most of these people—the adults, at least—are very ignorant, often unable to read or write in their own language, and very few of them speak English. Their degree of intelligence corresponds to their education, and this is a factor of great difficulty in teaching them even the rudiments of hygiene and prophylaxis. Only by patience and persistence can the rules necessary for their treatment be inculcated; but we are here assisted by their devotion to their families, and by their rather touching loyalty to us. Once convinced that our orders are intended for their own good and for the protection of their children, their blind and unreasoning observance of them is wonderful to contemplate.

Upon admission to the clinic, each patient is weighed, and has his temperature and pulse taken by the clinic nurse. This is entered upon his record, and the charts are piled in order awaiting the attention of the physicians. To each patient we endeavor to give as much individual attention as our time and the number of cases permit, realizing that the successful treatment of tuberculosis depends in so large a measure upon the detailed management of each case, rather than upon any routine method of medication or care. We grow to be very well acquainted with our older patients, those who have been with us many months, and the weekly conference bears more often the aspect of friendly advice and encouragement than of a merely professional consultation.

New cases naturally receive an even larger share of individual attention. A very complete history is taken and recorded upon a chart, uniform with that used in all the city clinics, and, after having his weight, temperature and pulse, and chest measurements recorded, the patient is subjected to a thorough physical examination, the results of which are written upon his chart both explicitly and graphically, symbols and abbreviations being used after the method suggested by Dr. Knopf and introduced by him at the Board of Health clinic. Many of the applicants present lesions sufficiently marked to offer no great difficulty in diagnosis—as you will remember that our cases are now sent us only from other district dispensaries or after examination in the medical clinic, and it is the rule among the tuberculosis clinics that doubtful cases must be kept under observation for one month before being sent elsewhere. Nevertheless, we inevitably receive a certain number of very early or merely suspicious cases, and, in spite of our rule to the contrary, we also accept a few cases for examination and diagnosis sent us by the Charity Organization Society, United Hebrew Charities, and the Nurses' Settlement, organizations to which we are constantly indebted for assistance in the extra-medical care of our people.

These very early cases present the most difficult problem, from a medical point of view, that we have to meet. They come with a suspicious family or personal history, some very suggestive symptom—as cough, slight elevation of temperature, loss of weight—few or no signs in the chest, and, of course, negative sputum. These are the very cases which, if tuberculous, and recognized promptly, afford the best prognosis, and yet these are the cases most difficult to recognize. Much has been written recently on the subject of the early recognition of pulmonary tuberculosis, and there is absolute unanimity of opinion as to its great importance both to the individual and to the community; but wide individual differences of opinion are expressed as to the best way to arrive at a positive diagnosis in these suspected cases. One authority is guided largely by the family history of the patient and the history of direct exposure; another, by previous personal history and apparent predisposition. All admit the importance of thorough and repeated physical examinations; but one depends chiefly upon information elicited by percussion, another upon auscultation either direct or with the stethoscope, another upon the *x*-ray, and so on. The most conservative clinicians probably depend upon the combined evidence derived from all these sources of information.

Speaking from my own more limited personal experience, I confess that I am obliged to depend upon all available data, both of history and of physical signs, and am governed finally by the weight of evidence. In other words, I do not dare depend upon my examination of the chest alone for a positive diagnosis in these very early cases. Of physical signs, as such, if I were asked to state those which seem to me the most reliable for early diagnosis, I should say a narrowing of the area of resonance at one apex in combination with a diminished expansion on that side of the chest. Râles in certain locations are pathognomonic, to be sure; but when râles can be made out, the process can hardly be called incipient.

In any given case, a complete family and personal history, a careful search for a history of direct exposure, a period of close observation of the patient—with daily temperature record, when possible, and weekly record of weight—repeated examination of the sputum, and, finally, painstaking and repeated examinations of the chest, making use of all the accredited methods, will provide the desired data, either positive or negative, in the majority of instances. But occasionally, even these means prove inadequate, and under such circumstances we can employ one, or all, of the three standard tuberculin tests.

The ophthalmic, or conjunctival, tuberculin test was proposed by Wolff-Eisner and Calmette, working independently, in the spring of 1907, and the cutaneous, or vaccination, test, by von Pirquet, at about the same time. Since the original reports, both tests have been tried extensively in this country and abroad, at laboratories and sanatoria; but they have been used systematically in the tuberculosis clinics in New York only within the last six or seven months. We have been making routine examinations with these tests at Gouverneur since December, 1907, and will soon have the data in about 100 cases.

It is too early to make dogmatic assertions about the precise value of these tests, but the consensus of present opinion and data seems to signify that the ophthalmic reaction is a very reliable indication of an active tuberculous focus—not necessarily in the lungs, of course—while the cutaneous reaction, which is more reliable in children than in adults, suggests a latent, encapsulated, or arrested process. Neither test can be depended upon in advanced pulmonary cases, but in these cases no diagnostic test is necessary.

The technique of these tests is most simple. We use for the ophthalmic test a 1 per cent. solution of the alcoholic precipitate, and for the cutaneous test a 25 per cent. aqueous dilution of Koch's old tuberculin, both sterilized. Both these preparations are made at the laboratories of the New York Board of Health under the supervision of Dr. W. H. Park, and are supplied to us through his courtesy. In making the Calmette test, a drop of the solution is instilled into one eye of the patient, a sterilized pipette being used. The reaction should appear within 24 hours and persists about the same length of time. It consists, in mild reactions, of an injection of the caruncle of the inoculated eye, and in more severe reactions of a more or less severe conjunctivitis. I have personally never seen a serious form of conjunctival reaction from this test, but one such case occurred last winter in the wards of Gouverneur Hospital. The patient, however, gave a history of previous attacks of conjunctivitis, and may, therefore, have been locally predisposed. When one test is negative, and the case is otherwise suspicious, we occasionally repeat the test, always using the other eye for the second instillation, as we have observed that a repetition of the test in the same eye almost invariably gives a reaction, even with nontuberculous cases.

The cutaneous test is made on the anterior aspect of the forearm. After a sufficient surface has been thoroughly cleansed, a small area is scarified with a sterile needle, exactly as for an ordinary vaccination. Two inches below this area, one drop of the test solution is placed on the skin, or upon a bit of sterile cotton laid on the skin, and a second scarification is made through the solution. These two areas are then dressed separately, with sterile gauze and adhesive straps, to prevent the tuberculin vaccination from contaminating the control—and a bandage is applied over both. This reaction does not become positive before the second to the fourth day, and persists a week or more. It consists in a small, red, inflammatory area at the site of vaccination, surrounded by a white edematous areola. It varies from a reaction barely discernible, by touch or inspection, from the control, to a reaction which can be seen across the room.

We have had no experience at Gouverneur with the tuberculin injections for the reason that they require more control of the patients, and more intelligent coöperation on their part, than we can secure there. A temperature observation every four hours for several days before the first injection, and one every two hours afterwards, preferably taken by rectum, are essential to reliable data from the injection. So far as the work is being done elsewhere in New York, the results would seem to indicate that under proper control and observation the test is without danger to the patient and exceedingly delicate and reliable for purposes of diagnosis. As a therapeutic measure, it is, under our present technique, of but little acknowledged value for pulmonary tuberculosis, but is giving good results, in expert hands, in the treatment of tuberculosis of the genitourinary tract and of bones.

Once the diagnosis is established, if the patient is eligible for our clinic—that is, a resident in the Gouverneur district—he is placed upon the list of those cases under regular observation, of which, as I have said, we have about 125 on an average. When it is understood that our district is the most densely populated of any area of equal size in the world, that it includes the famous "lung block," said to produce more cases of consumption than any city block in the United States, and that there are on the records of the Board of Health over 1,000 cases of tuberculosis in residents of the district, few of whom are in the care of private physicians or under any medical supervision whatever, the character of our portion of the city crusade becomes more evident. If—or, rather, when—we succeed in bringing into the Gouverneur clinic all those known cases not under other medical care, as well as the unreported and unsuspected cases which should be detected by a systematic examination of the families of positive cases—adults as well as children—the city will have to provide us with larger quarters and more assistants, since we are already working up to our limit of time and space. Indeed, the consistent growth of the work in any section of the city will necessitate the establishment of more special dispensaries or clinics and the further subdivision of the present districts, all of which are now too large, either in area or in population, to be adequately supervised by one dispensary.

I have spoken of the importance of examination of the families of our patients, but up to the present time we have been able to undertake this precaution with the children only. A routine examination of the sputum of infants at the Babies' Hospital within the past two years has developed an astonishing number of unsuspected cases of tuberculosis, and this, together with the effort to prevent the spread of the infection among the families of our patients, has led to the routine examination of all children of tuberculous patients, the records being filed upon uniform cards supplied to all the clinics. At Gouverneur, the fashion of large families has made this feature of the work a laborious one, one hundred and twenty-five adult patients representing about 300 children for examination. We can only accomplish this by limiting ourselves strictly to the children of positive cases, and having them brought singly for examination.

Of the treatment given our regular patients, a few words will suffice. It differs in no essential respect from that employed by all the special workers in this field. The earliest cases are always sent, if possible, to the best available sanatorium, for that initial training in the habit of living which can best be taught under sanatorium supervision. Upon their discharge, they are referred back to us for further observation and control. Our advanced and destitute cases are also placed, as promptly as pos-

sible, in a suitable hospital, both for their own care and for the protection of others. These are the patients, practically hopeless in prognosis, who are the greatest source of danger to their families and neighbors: for a person in an advanced stage of pulmonary tuberculosis is usually too weak or too ill to know or care how he disposes of his sputum, and he often expectorates millions of tubercle bacilli a day.

It is a regrettable fact that the hospital and sanatorium facilities in and around New York City, for either advanced or early cases of tuberculosis, are utterly inadequate to the demands made upon them. I refer, of course, to the charitable institutions, since we are dealing with the city's poor. We aim to place most of our early, and all of our advanced, cases in suitable institutions where they can be properly segregated, and receive the care best adapted to their respective conditions. Practically we are able so to dispose of only a small proportion of our patients. All the second stage, or moderately advanced, cases—we follow the classification adopted by the National Association for the Study and Prevention of Tuberculosis—all of any stage, whom we are unable to send away for any reason, and all those patients who have been at sanatoria and are sent back to us, are under our immediate care. They are required to report every week at the Dispensary, where they receive advice, instruction, and such medication as may be indicated.

We are obliged to employ medication to a greater extent than is desirable or necessary from the purely therapeutic point of view, since the low average of intelligence among our patients necessitates the use of drugs in control of the symptoms for which they seek relief. Tonics, laxatives, various formulæ for the relief of cough, hemoptysis or night-sweats, and occasional sedatives, diuretics, and intestinal antiseptics, make up the list of our usual remedies. A dozen formulæ, of the simplest nature, would practically comprise them all. We are, of course, occasionally obliged to treat adventitious symptoms or intercurrent diseases.

The chief feature of our treatment lies in the persistent training in daily hygiene, and our insistence upon the three chief factors in all successful management of the disease—oxygen, feeding, rest. In addition to our verbal instructions, we give printed circulars, in the different languages, which are supplied to us by the Board of Health, to all patients able to read or comprehend them. In this way, the educational part of the work is carried on in the homes of the patients, and each of our cases becomes a focus in the tenements for the further dissemination of simple and accurate information about consumption, its cause, its prevention, and its cure.

The Board of Health renders us invaluable assistance in many ways, three of which seem to me of primary importance in the general crusade—the registration of new cases, the examination of sputum, and the disinfection of premises occupied by tuberculous cases. As soon as a case has been diagnosed as positive, it is reported by our nurse to the Board of Health; and upon the death or transfer of any of our cases, the Board of Health promptly and thoroughly disinfects the room, or rooms, occupied by the patient. By the assistance of the Board of Health, too, an unmanageable patient can be forcibly committed to a suitable hospital. To other refractory, but less dangerous cases, we can refuse treatment and the additional nourishment, in the form of milk and eggs, of which we can supply a limited amount of selected cases.

Of the results of such treatment, under the conditions which I have described, I would say, in general terms, that within nearly five years we have received and treated over 1,200 pulmonary cases, the majority of which were tuberculous, and most of them moderately or far advanced. That these patients were derived, for the most part, from the poorest and most unintelligent class in the city, and are living in the worst possible environment for the successful treatment of the disease. We have been able to send a certain number of them to suitable sanatoria, to the country, or back to their homes in Europe. We have cared for the great majority in their own homes, the tenements of the most congested district of the world, meeting the individual conditions as best we could, and, by verbal instruction, printed information, and home supervision, constantly teaching and reiterating the lessons of personal hygiene and prophylaxis. We have been able to report a dozen or more "cured" and "apparently cured"—following, again, the classification of the National Association—among the patients who have been two or more years under our observation, and we have a very considerable number of "arrested" cases whose symptoms are under control and whose physical signs are not progressive. It is fair to state that a majority of our cases improve under treatment, as might be expected from the improvement in their mode of life. A certain number of advanced or susceptible cases, usually among the alcoholics, are steadily and rapidly progressive, terminating fatally within a few weeks or months. We illustrate, at Gouverneur, what I have already said of the special clinics in general. We treat many cases; we cure a few, arrest the progress of the disease in many, and teach them all.

In conclusion, I would earnestly call your attention to the fact that whereas we are, in New York City, dealing with a problem of tremendous size and vast civic importance, no community, however small or however ideally situated, is wholly free from the universal scourge of tuberculosis; and however few and isolated the cases, each is a danger to that community. From a single such neglected spark may spread a vast conflagration. One single case of consumption, in city or country, is one case too many. If we are wise in our day and generation, if we heed the fearful lessons of the carelessness or the ignorance of the past, we will undertake, in every county of the State, and in every town and hamlet, to adopt, and adapt, the methods for the extermination of tuberculosis now employed with such signal success in New York City.

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EUPYREXIA.*

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MADRID.

The aim of this clinical study is to increase our knowledge, as yet slight, regarding pretuberculosis, with which natural immunity comes into such close relation.

I call this pretuberculous fever "eupyrexia," this word meaning good fever, by antonomasia, that is, the best of all fevers, a disease almost exclusively belonging to youth and children. The inquiry into this affection is very interesting since it gives us a clear account of the generation of tuberculosis, and also because it is the base upon which we establish the scientific principles regarding the prophylaxis of this disease.

*Paper read in Section 1 of the Sixth International Congress on Tuberculosis, October 1, 1908.

This is an infection in which we must consider accurately the two factors: the internal, that is the state of the constitutive cells of the body, and the external, the medium in which the cells live. In regard to the eupyrexia, the two factors are: (1) a deficiency of the constitutive oxygen of the cells of the body; this deficiency I denominate hypoxygenia; and (2) a superabundant proliferation in the body of the saprophytic tuberculous bacteria, which I call Ferran's bacilli.

Hypoxygenia, that is, the lack of reoxygenation in the organism, may be either primary or secondary. Primary hypoxygenia is a general asthenia due to imperfect breathing and an insufficient intake of oxygen, so that there is an imperfect compensation of the oxygen we constantly lose. Secondary hypoxygenia may be either general or local; the former is at times caused by chronic infections like lues, or chronic intoxications like alcoholism, sometimes by primary anemia resulting from poor alimentation; and also it may be produced by a dyscrasia especially when the individuals are narrow-chested (dolichosomatous). Local hypoxygenia may be produced by traumatism and also by an idiosyncrasy; this is generally inherited from ancestors suffering from sclerotic diseases, among which nicotinism, besides the disease before mentioned, is one of the most important. In secondary hypoxygenia, the want of oxygen in the system is the result of the tissues having lost some of their power of reoxygenation on account of their presclerotic state. Complex hypoxygenia is that in which the primary and secondary forms are combined in the same subject.

Sufferers from chronic hypoxygenia are predisposed to pretuberculous affections, one of which is eupyrexia; but germs are indispensable to the development of tuberculosis. These germs, which are Ferran's bacilli, are non-acid-fast, are somewhat similar to the *B. coli communis,* and can be transformed into Koch's bacilli and *vice versa.* Besides, they determine by inoculation tuberculous processes. As Koch's bacilli can scarcely live outside the pathological tissues or in places exposed to air and sunlight, while Ferran's bacilli are almost everywhere, to these we must impute the beginning of pretuberculosis and consequently of eupyrexia.

Once Ferran's bacilli invade the tissues they produce an infection, which, like all infections, is a real fecundation (and not merely the sowing of a seed as is generally believed). The pretuberculous infection begins by nervous alterations; then if the stimulus of Ferran's germs continues hyperemia is determined; afterwards the congestion, instead of remaining local, may become general and pretuberculous fever or eupyrexia is produced. In addition to this the local process may advance further, developing into an inflammatory process and later on, special granulations—which I call euphymia (that is good growth)—may be formed. To sum up, there are five degrees of pretuberculous affections: Neuroses, hyperemias, fevers, inflammations, and granulations. Moreover, there are complex pretuberculous affections in which two or more of the elemental ones, which I have just mentioned, are united. To understand what is pretuberculosis and the place euphymia has in the process, we have to consider that the five different affections we have mentioned are like five correlative degrees of the same process, and that everyone of the first four pretuberculous affections may either prevent or cure the following ones. That is to say, pretuberculous neuroses, hyperemias, fevers, and inflammations may be preventive processes of the pretuberculous granulations, and may be their curative process once they have appeared. For this reason, the first four pretuberculous affections I call "antiphymias"; the eupyrexia being an antiphymic fever capable of preventing or of curing pretuberculous granulations, and even phymatosis really tuberculous, that is, having already Koch's bacilli. Again, Ferran's bacilli, by provoking pretuberculosis, are usually the natural cure for hypoxygenia, but in case of the latter being too intense, and the tissue being greatly degenerated, instead of hypoxygenia being resolved the process becomes tuberculosis properly co-called; because the degenerated tissues feed Ferran's bacilli with noxious products which change them into Koch's bacilli. We consider true tuberculosis only that condition in which we find both tuberculous tissues and Koch's bacilli.

Eupyrexia is a very important and frequent disease, especially in young people, and is manifest in different forms, but the principal may be reduced to four: (1) Pseudotyphic eupyrexia, which is the most typical. Belonging to this variety are many of the cases hitherto diagnosed as intestinal infections, without specifying the cause; also many other fevers qualified as attenuated typhoids, and a great number of catarrhs of the digestive organs considered as grippal. (2) Pseudorheumatic eupyrexia, to which belong many of the cases generally qualified as rheumatic fevers since, in my opinion, young people who are growing rapidly, when they suffer from long and irregular fever with pains in their limbs, without noticeable local swelling generally suffer from eupyrexia. (3) Pseudopneumonic eupyrexia, which is marked by symptoms of congestion of the respiratory organs like bronchitis, transitory pneumonia, and, when it lasts long, sometimes has the appearance of an incipient consumption. (4) Pseudopaludic eupyrexia, to which belong almost all paroxysmal fevers which are not malarial and are neither septic nor pyemic. I will add a few details regarding the diagnosis of the typical or pseudotyphic variety, which generally begins with one or more ephemeral pyrexial attacks similar to those produced by moderate malaria; then follows a remittent fever increasing gradually like typhoid, but the general state of the patient, even after many weeks, does not present the characteristic symptoms of typhoid, this being the principal difference, that in euphymia the patients have neither the appearance nor the feeling of being ill.

With this and the antecedents, we can often reach a differential diagnosis; but it is not infrequent to see cases which are not diagnosed until a long time after having been cured, and the diagnosis is then established by some other pretuberculous or tuberculous manifestations presenting themselves. Surely, before long, with the advance of serum-diagnosis, with the establishment of the opsonic index and other similar tests, we shall be able to recognize pretuberculosis from its beginning.

In pretuberculosis, as in all pathological processes, we must differentiate the bad effect of the causes of the disease from the good vital reaction of the organism. Regarding eupyrexia, hypoxygenia is the bad process, while the fever or general reaction provoked by Ferran's bacilli is the eubiotic or curative process. Unless this distinction be clearly understood, one will fall into the error of attacking every symptom the patient presents; and from the failure of the practitioner to make this distinction arises the frequent abuse of sedative therapeutics in neuroses, hyperemia, fever, inflammation, and new growths, although all these are nothing but the different degrees of the curative process. Eupyrexia

in particular produces most beneficial results. Hence we must respect the fever, considering all antithermics contraindicated. We must further consider that, as Ferran's bacilli are the stimulants of vital reaction in pretuberculosis, we must not attack such germs, because, then, we unarm nature of her most valuable therapeutical recourse.

The only efficacious treatment is to combat hypoxygenia, our efforts being directed especially to its prevention. The method must be different according to whether the hypoxygenia is primary, secondary, or complex. For all alike, pure air is the best treatment, but the results are very different, being more marked in primary hypoxygenia.

Besides the chief indication, there are some vital ones, like those which arise from collapse and hemorrhages, which are to be treated as in any other disease. We must say the same regarding the repair of loss of substance and the restoration of the strength of the patient; nevertheless it is well to advise not to follow the old saying, "starve a fever"; on the contrary, when the first week of the fever has passed (during which it will be well to restrict the diet somewhat), we must give as much and as nutritious food as the patient can digest, so that the calories, which the fever consumes, may be made up. But it often happens that the digestive organs cannot do as much work as is necessary; then, we must prescribe some preparations to help the metabolism, so that the bacilli become less virulent and the sufferer may resist the disease. For this purpose we may prescribe the phenol derivates, the arsenicals, one of the colloidal forms of silver, and organic preparations such as tuberculin, always taking care to use them in small doses, as in eupyrexia they merely produce a stimulating effect upon the cells.

We must keep in mind that there is not, nor ever will be, a specific against eupyrexia; that the remedies proposed, and all those that may be recommended in the future, will be no more than palliatives, and that we must only employ resources which favor the vitality of the cells, without attacking Ferran's bacilli.

Spain offers to the pretuberculous the most favorable climates to be found anywhere. In summer, on heights like Panticosa and seaside places like La Toga; and in winter, the mountains around Malaga, Almeria, and Alicante.

The definite prognosis of eupyrexia, that is, that judgment regarding the results of treatment, confirms, at least for the present, our assertion as to the limited influence of the therapeutic means at our disposal. The prognosis is uncertain, since the fever is seldom influenced by medical treatment. I do not pretend to have done more in attending eupyretic patients than to increase their resisting powers.

In conclusion: Our first aim in eupyrexia must be to prevent hypoxygenia; but, once this is produced, eupyrexia is its best natural or spontaneous curative process. Hence we must help the development of eupyrexia in those suffering from hypoxygenia, for which pure air is the best recourse. Whether he breathes or does not breathe sufficient pure air may determine whether the individual suffers from eupyrexia or from consumption. Consequently, in addition to the direct preventive influence of atmospheric air, recognized by all as a means against tuberculosis, we have described here another preventive effect which, although indirect, is of great value, and is exercised by means of the pretuberculous process which I denominate eupyrexia. This knowledge regarding eupyrexia gives rise to an optimistic conception of pretuberculosis, since, in my opinion, most cases of pretuberculosis, chiefly the eupyrexias, are substutive processes, which act favorably on asthenic states, thus preventing the danger of cachexia and producing this natural immunity.

EARLY MEDICAL SCHOOLS AND LEGAL REGULATION.*

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At this first semi-annual meeting of the medical faculty, since it is to be the custom to present a subject connected with medical education at each meeting, it seems not inappropriate to begin with some account of the first medical school of which we have any definite knowledge. The phase of its history that shall occupy us is the uplift of professional status and dignity that it brought about in the course of time. The first formal school of medicine was at Salerno, and probably came into existence during the ninth century. We do not know as much about this as we would like to, though we have many of the books written by its most famous professor, Constantine Africanus. We know in addition the rather startling fact that there were women professors, for women's diseases, and that these were distinguished in their specialty. We have certain works written by several of them, and especially the text book of Trotula, who taught in the eleventh century. The idea thus suggested of co-education near ten centuries ago, and of women physicians in good standing, is extremely interesting.

The surprising thing is how much about medicine that we are apt to consider quite modern was anticipated a thousand years ago at Salerno. For this we have not the authority of vague tradition, but the actual works written by professors of Salerno. We are not interested, however, so much in the question of medical science as of medical education. As a consequence of the high standard of medical education reached at the University of Salerno a corresponding evolution in professional dignity took place, and the rights of physicians were secured by legal regulations that are extremely interesting because they represent the securing by these colleagues of ours seven hundred years ago of legal regulations such as we have been striving for for the better part of a century, and have only succeeded in attaining in recent years. As a matter of fact it is not too much to say that we have not yet reached quite the standard of professional education which was required by law in the early part of the thirteenth century in the country of which Salerno was the representative medical university.

The only way to make this statement very clear is by presenting the documents in the case. The most important of these is the famous law of Frederick II., who was the King of the two Sicilies, as the southern part of Italy and the Island of Sicily were called, and who afterward became the German Emperor. This law, often referred to by medical historians, has only recently been published in its entirety by Robert Ritter von Töply, the well known Viennese historian of medicine. In this, Emperor Frederick lays down very definitely three propositions that are almost startling in their modernness. First the student of medicine must have

*Paper read before the first semi-annual meeting of the Medical Faculty of Fordham University School of Medicine, December, 1907.

three years preliminary study in a university. Second he must study medicine for five years, and then practise only under the direction of a physician for a full year before beginning to practice himself. If he wishes to practise surgery he must study anatomy for a year in addition to this. Third he must exercise great care with regard to the drugs that he prescribes and see that the druggist supplies them in all their purity. Various regulations are added for the druggist, making this the first pure drug law.

Of course Frederick would not have issued such a law only that the conditions of the time and the professional status already secured by physicians had not only justified, but demanded it. Usually such a law is the result of the long-continued efforts of well-known medical men to secure rights for themselves and their colleagues. It seems not unlikely that Frederick, who was a magnificent scholar with the widest possible interests, had been closely in touch with a number of distinguished physicians in his kingdom, and allowed them to draft a law regulating all the practice of medicine and of pharmacy, and then had formally issued it, or else had used their suggestions for drawing it up. With this in view it is easy to understand the paragraphs of the law which show such a startling anticipation of the attainment of what physicians have been trying to secure for the last twenty-five years, and which we have not entirely succeeded in obtaining even yet.

Frederick's law opens with a paragraph in which he declares his interest in the health of his subjects, and how much that is dependent on the proper medical education of their physicians. This reads much more like the preamble of a set of resolutions passed by some modern medical society in order to tempt a State Legislature to give them a proper law regulating the practice of medicine, than the first paragraph of a legal regulation of medicine in the first half of the thirteenth century. "While we are bent on making regulations for the common weal of our loyal subjects we keep ever under our observation the health of the individual. In consideration of the serious damage and the irreparable suffering which may occur as a consequence of the inexperience of physicians, we decree that no one in future who claims the title of physician, shall exercise the art of healing, or dare to treat the ailing, except such as have beforehand in our University of Salerno passed a public examination under a regular teacher of medicine and been given a certificate, not only by the professors of medicine, but also by one of our civil officials, which declares his trustworthiness of character and sufficiency of knowledge. This document must be presented to us, or in our absence from the kingdom, to the person who remains behind in our stead in the kingdom, and must be followed by the obtaining of a license to practise medicine either from us or from our representative aforesaid. Violation of this law is to be punished by confiscation of goods and a year in prison for all those who in future dare to practise medicine without such permission from our authority."

Frederick then proceeds to lay down the terms of the requirements for medical education. The most interesting feature of these is the fact that a student had to have a preliminary education of a noteworthy amount before being allowed to enter upon the study of medicine. Besides this he must practise under a physician for a year before taking up independent practice for himself. The latter part of the requirements that he shall have devoted special attention to anatomy if he wishes to practise surgery is an open contradiction to much of what has been said about the neglect of anatomy during the Middle Ages. Here in a formal document, however, is the best evidence for interest in this study in this time.

"Since the students cannot be expected to learn medical science unless they have previously been grounded in logic, we further decree that no one be allowed to take up the study of medical science without beforehand having devoted at least three full years to the study of logic.*

After three years devoted to these studies he (the student) may, if he will, proceed to the study of medicine, provided always that during the prescribed time he devotes himself also to surgery, which is a part of medicine. After this, and not before, he will be given the license to practice, provided he has passed an examination, in legal form, as well as obtained a certificate from his teacher as to his studies in the preceding time. After having spent five years of study he shall not practise medicine until he has, during a full year, devoted himself to medical practice with the advice and under the direction of an experienced physician. In the medical schools the professors shall, during these five years, devote themselves to the recognized books, both those of Hippocrates, as well as those of Galen, and shall teach not only theoretical, but also practical medicine.

"We also decree as a measure intended for the furtherance of public health that no surgeon shall be allowed to practise unless he has a written certificate, which he must present to the professor in the medical faculty, stating that he has spent at least a year at that part of medicine which is necessary as a guide to the practice of surgery, and that, above all, he has learned the anatomy of the human body at the medical school, and is fully equipped in this department of medicine, without which neither operations of any kind can be undertaken without success nor the injured be properly treated."

Other paragraphs of this famous law are concerned with the legal requirement that the physician must wait upon the poor whenever summoned, without charge, and it announces what the maximum charge shall be. Considering the buying power of money the legal fees were about what they are at the present time. That is a man was allowed to charge from ½ tarrene to one tarrene, equivalent to about one to three dollars in our money, unless he went out of town, when he was allowed also to add his expenses and nearly to double his fee. There was a very curious element in the legal regulation of the fees, however, inasmuch as a physician was required to charge by the day, and not by the visit, and he must decide how many visits the patient needed each day. Under ordinary circumstances it was declared that he must see a patient twice a day.

In the light of recent developments in legislation, State and national, perhaps the most generally interesting feature of the law is that which makes it the first pure drug law of which we have any record. Every physician was required to take an oath that whenever it came to his knowledge that any apothecary had for sale drugs that were less than normal strength he should report the matter to the court. Other paragraphs relating to drugs run as follows:

"In every province of our kingdom which is under our legal authority, we decree that two prudent and trustworthy men, whose names must be

*Under logic at this time was included the study of many of the subjects that are now taken up in the arts departments of our universities. Huxley declared the college education of this time better than our own.

sent to our court, shall be appointed and bound by formal oath, under whose inspection electuaries and syrups and other medicines be prepared according to law and only be sold after such inspection. In Salerno in particular we decree that this inspectorship shall be limited to those who have taken their degree as masters in physics.

"Stations for the preparation of medicines may not be located anywhere but only in certain communities of our kingdom as we prescribe below.

"We decree also that the growers of plants meant for medical purpose shall be bound by a solemn oath that they shall prepare their medicines conscientiously according to the rules of their art, and so far as it is humanly possible that they shall prepare them in the presence of the inspectors. Violations of this law shall be punished by the confiscation of their movable goods. If the inspectors, however, to whose fidelity to duty the keeping of the regulations is committed, should allow any fraud in the matters that are entrusted to them, they shall be condemned to punishment by death."

There is scarcely a feature of our modern progress in the regulation of medical education and professional practice that is not contained in this law of the early part of the thirteenth century. It is amazing, of course, to find it, and yet it shows only what is a very common occurrence in history, that supposed progress is really only a reestablishment of conditions that obtained long ago. The most interesting thing in history, indeed, and quite the most difficult to understand is how men having gained certain advantages for which they have long striven then allow themselves to lose them because of a certain complacency that comes over them and keeps them from devoting as much attention to maintaining what they have gained as they did to gaining. It is a surprise to be told that probably the Suez Canal, or at least a waterway connecting the Mediterranean with the Red Sea, was opened long ago, remained open for several centuries, and then was allowed to fill up. It is only a striking symbol, however, of what happens with regard to many human advantages. It seems impossible that we should ever again lose what we have gained in the matter of medical education and regulation and yet the lesson of history illustrates the possibility of it and shows that only diligent attention to the maintenance of rights will conserve them.

INTERPRETATION OF BLOOD EXAMINATIONS.

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Incorrect interpretations of hematological results have been sufficient to retard and discredit hematological work. There are many factors which tend to prevent blood examination from assuming its proper place among routine clinical procedures. The unsettled state in which hematology finds itself at present is due to the few years that have been given to its careful study and to the fact that at the present time instruction in hematological technique and interpretation is insufficient for practical application.

The mixed nomenclature is also a factor in preventing many practitioners from following the literature of the subject. Men trained in the classification of Ehrlich become confused when reading of differential counts wherein the nomenclature employed is that of Cabot or Da Costa or Wood. There is a lack of harmony because various observers have hit upon different characteristics of the leucocytes to be utilized for purposes of classification. The hematologists themselves should unite in determining upon a uniform nomenclature. The variety of instruments of precision, the differences in technique of staining, and the dogmatic statements regarding the value of each, place the general practitioner in a quandary and do not simplify blood work nor arouse any great enthusiasm for it.

For clinical work it suffices to group all the lymphocytes under one head. Whether they are called lymphocytes or mononuclears is of no practical importance. The myelocytes are mononuclear but characterized by distinctive granulation. The relative variations of the lymphocytes are contrasted usually with the percentage variations of the polynuclear neutrophilic leucocytes. It is this contrast which possesses immense practical diagnostic and prognostic value. The varieties of the polynuclear leucocytes are the neutrophile, the eosinophile, and the basophile. Every practitioner should be able to differentiate the above five types of leucocytes.

Another valuable point which is widely overlooked is the value of knowing what are the relative percentages of leucocytes during the first ten years of life. The statement that some case of abscess failed to show an increase of neutrophiles is especially common when cases of children are reported. To give an example of this error I shall quote from a recent article by a most excellent and careful otologist on "the clinical value of the differential blood count in operative otology." "In three cases there was nothing to explain a high temperature and marked prostration except the presence of a discharge from the patient's ear. There were no other symptoms or physical signs. The ages of these patients were respectively six months, fourteen months, and two years. . . . In this series of three cases the lowest polynuclear proportion was 42.4 per cent., and the highest 56.8 per cent., and from this the natural deduction would be absence of sepsis, but in relation to this low polynuclear proportion was a marked decrease in the number of white cells usually found. The white cells as found were respectively 7,000, 9,000, and 11,000 in round numbers. . . . In talking with Dr. Sondern about the lack of confirmatory evidence as shown by the differential blood count, he advised operation, saying that when the resistance of the patient was steadily decreasing, as shown by the small number of white cells, it was just as important to operate, if not more so, than where the polynuclear percentage was high. Following his advice I operated and found an abundance of pus in the mastoid process in each of these cases. For several days following these operations, a differential count was made, the result being a rather rapid increase in the white cells, showing an increased resistance of the patient, but no material change in the polynuclear percentage took place until after the fourth day, when there was a drop of several points *below what is usually estimated as the normal standard* (italics mine). Particularly was this noticeable in *one case where the polynuclear proportion prior to operation was 42.4 per cent. In this case five days after the operation a differential count showed a polynuclear proportion of 36.6 per cent. The age of this patient was 14 months. Why such a discrepancy existed* in these last cases I am unable to explain, unless it be that owing to their low body resistance, the usual rapid absorption of pus

did not take place." There is no discrepancy here. The normal polynuclear percentage at fourteen months is 36 per cent., and 42.4 per cent. at this age indicates an increase of the polynuclears.

Too much stress cannot be placed upon the necessity of being familiar with the normal variations in percentages of lymphocytes and polynuclear neutrophiles at various ages. The table of averages in normal children I have found to be as follows, agreeing very closely with the results of Karniski and Carstagen.

Age.	Polynuclear Neutrophiles.	Lymphocytes.
1	35%	53%
2	38%	51%
3	42%	47%
4	47%	41%
5	52%	39%
6	52%	37%
7	53%	35%
8	54%	33%
9	55%	31%
10	60%	30%

The interpretation of the appearance of myelocytes requires careful discrimination. The significance of myelocytes in children is far less serious than in adults.

From the viewpoint of interpretation, the relation between the total leucocyte count and the relative percentage of polynuclear neutrophiles is of the utmost importance. In general terms, the percentage of polynuclear neutrophiles is the relative index of intensity of infection. The total leucocyte count is an index of individual reaction to infection. Thus a high leucocyte count (40,000) with low polynuclear percentage (70 per cent.) is less serious than a low total leucocyte count (9,000) with a high polynuclear percentage (95 per cent.). This is especially valuable in the interpretation of blood examinations in surgery.

But even this close relation must not be abstractly considered. Hematology offers a wonderful diagnostic agent but not *per se* a diagnosis. The only exception to this is in conditions like malaria, filariasis, etc., wherein a parasite is manifest only in the blood. The greatest error and most serious drawback to hematological work among general practitioners has been their expectation of a short cut to diagnosis through blood examination. A complete blood examintion does not make a diagnosis. It does, however, yield most valuable information regarding the effect the pathological process has upon the blood. In other words blood examination determines an important symptom. Blood examination only elicits symptoms. The symptom must be interpreted in the light of the entire clinical history and not as an isolated fact.

The gastrologist does not diagnose gastric ulcer from hyperacidity of the gastric juice. The mere presence of sugar in a specimen of urine does not make certain a diagnosis of diabetes mellitus. The presence of albumin in the urine does not establish a dignosis but offers a none the less valuable symptom. The entire history of the case is necessary for the diagnosis. Frequent analyses may be necessary. Blood examinations may require repetition. Their interpretation can be correct only when they are considered a part of the history of the case.

Corroborative symptoms are very important. The Widal reaction is not essential to a diagnosis of typhoid fever, but its presence is corroborative. The temperature course may suggest typhoid fever. The blood picture of a leucopenia and lymphocytosis may suggest typhoid fever. The presence of the three symptoms makes the diagnosis certain. The diazo reaction in the urine still strengthens the correctness of the diagnosis. But the diagnosis of typhoid fever cannot be made from any single one of these tests. Nor will one examination for each of them, when negative, determine the nonexistence of typhoid fever. The diazo reaction may be present in tuberculosis or measles. The leucopenia and lymphocytosis may exist in grippe or even in diphtheria. The sum total of symptoms establishes the clinical identity of a disease. Clinical hematology is a necessary adjunct in determining symptoms.

Considerable attention has been given to diagnosis from stained blood smears. Again must caution be observed lest a wrong interpretation arise. Differential counting of leucocytes establishes a symptom which may strengthen or weaken a tentative diagnosis. Lymphocytosis is present in pertussis, but finding a lymphocytosis does not mean the presence of pertussis. The rest of the clinical history is essential. Eosinophilia is a most prominent symptom of trichiniasis but eosinophilia is not diagnostic of trichiniasis any more than it is of bronchial asthma or urticaria. Hemorrhage is often accompanied by basophilia, but a diagnosis of hemorrhage would not be made merely from basophilia. Punctate basophilia is common and intense in plumbism, but it is frequently found in rachitic anemia.

No diagnosis, save of parasites, should be based simply upon a blood examination. Even the declaration of an anemia as a primary pernicious anemia is impossible from a blood examination. An anemia of the pernicious type is a safe statement. The pernicious type of anemia may follow rachitis, or typhoid fever, or infection by *Bothriocephalus latus*, or syphilis. These pernicious anemia types are clearly secondary and may clear up entirely. Many anemias may be at present cryptogenetic, but it is very doubtful if any are primary. The term "primary anemia" will become obsolete with the advance of etiological study.

The diagnosis of leukemia from the examination of a blood smear is not always possible. A leukemic type of blood picture may exist in diphtheria and even after a fracture (Simon). The whole clinical history determines the correct diagnosis.

Hodgkin's disease is another example of the necessity of this point of view. If a diagnosis were made by an examination of the blood, the patient with Hodgkin's disease would be normal as the blood picture is unchanged. In other words Hodgkin's disease presents no hematological symptom. The rest of the clinical picture is very similar to that of leukemia but the latter has hematological symptoms. Hodgkin's disease should not be classified among diseases of the blood. During the course of the disease a varying degree of anemia may occur, no more characteristic however than the secondary anemia arising in the course of sarcomata.

Let hematology be considered a clinical adjunct as urine analysis and interpreted as rationally. When the general practitioner recognizes the true position of blood examination and appreciates the necessity of careful interpretation of his hematological findings, the value of blood examination will be enhanced and its range of usefulness widened.

2493 Broadway.

Hyperchlorhydria.—Gompertz uses the following:

℞. Sodii bicarbonatis
Calcii carbonatis
Mag. pond.....āā ℥ss.
M. S.: A teaspoonful after meals.

If diarrhea exists instead of constipation, bismuth subnitrate is substituted for the magnesia.

—*Yale Medical Journal.*

A CONTRIBUTION TO THE SUBJECT OF SYPHILITIC PROPHYLAXIS BY THE USE OF CALOMEL OINTMENT; REPORT OF A CASE.

By ABR. L. WOLBARST, M.D.,

NEW YORK.

ATTENDING GENITOURINARY SURGEON, BETH ISRAEL HOSPITAL AND WEST SIDE GERMAN DISPENSARIES; PROFESSOR OF GENITOURINARY DISEASES, NEW YORK SCHOOL OF CLINICAL MEDICINE.

In May, 1906, Metchnikoff reported to the Academy of Medicine of Paris, that he and Roux had at last succeeded in discovering what they felt sure was a prophylactic against syphilitic infection. This announcement was made in the paper entitled "Some New Facts Concerning Experimental Syphilis," and the principal feature of interest in the paper was the report of the experimental inoculation of a medical student with syphilitic virus fresh from an indurated chancre. This was followed an hour later by the application of calomel ointment (calomel 1 part, lanolin 3 parts) to the site of the inoculation, carefully rubbed in for five minutes.

Control experiments made with the same virus at the same time upon one chimpanzee and four monkeys (Java macaques), gave undoubted proof of the specific virulence of the virus. The chimpanzee and two of the monkeys were inoculated simultaneously with the student, but were not treated with the ointment. Of these, the chimpanzee died several days later of pneumonia, without showing any effects of the inoculation, and the monkeys developed a typical syphilitic lesion seventeen days after the experiment. Two monkeys were treated with the ointment. In one of them it was rubbed in for five minutes, one hour after the inoculation. This monkey showed no signs of syphilitic infection forty-one days after the experiment; in the other, the ointment was applied twenty hours after the inoculation, and at the end of 39 days a primary lesion of undoubted character developed. These control experiments showed that in monkeys at least, the ointment, if applied an hour after inoculation, prevented infection.

The student was under careful observation from February 1, the date of the inoculation, till May 31, on which date Dr. Roux, after a most thorough examination, declared that there were not the slightest traces of syphilis to be found, and that therefore the experimental application of the calomel ointment as a prophylactic measure in man was to be regarded as successfully demonstrated.

A careful study of the details of the experiment leaves much to be desired before its results can be accepted as positive proof. For instance, we have no way of telling what would have been the result if the same virus had been inoculated in another human being, without the ointment being applied. Would he have developed syphilis? It is manifestly unsatisfactory, to place implicit confidence in the result of an experiment made on man, the control being made on monkeys. Nevertheless, until such control can be made on man, we shall have to be content with the monkey control.

Secondly, how are we to know that the student who was inoculated would have developed syphilis if the ointment had not been employed? We see every day in our practice men who for years have had sex relations with lewd women who must surely be syphilitic (and gonorrheic, as well), yet they seem to bear a strong immunity against the infection. How do we know that this student does not enjoy immunity against syphilitic inoculation?

In spite of these unanswerable questions that suggest themselves, we are surely justified in feeling that the experiments of Metchnikoff and Roux have brought us considerably nearer than we have ever been to a means of preventing syphilitic infection.

When, therefore, an opportunity presented itself some months ago to apply the experiment in actual practice, I seized the opportunity, and herewith present a report of the same. The conditions under which the experiment was made were as nearly ideal as it is possible to have them in practice, though the result can hardly be said to be altogether convincing.

About five o'clock of the morning of May 2, 1908, I was awakened by a man who demanded immediate advice and treatment. The patient, A., was a young man, 22, single; previous health good, and positively of a negative venereal history, which a general examination confirmed. It appears that A. and a friend, B., had spent the night with a woman, who, they discovered later by her own admission, was suffering from active syphilis. Both men had copulated with the woman several times during the night, and the chances of infection were as good as they could possibly be.

A. wanted me to do something for him; he was engaged to be married and threatened suicide if the disease showed itself. His friend B. had hurried away to catch a train for the West. I told A. that I knew of nothing that would surely prevent infection, but I would apply an ointment that might possibly do so. At the worst it would do him no harm. Thus within six hours after his first exposure he had applied the calomel ointment (30 per cent. strength in lanolin), rubbed in for five minutes wherever there was any possibility of inoculation. I directed him to repeat the inoculation every four hours, until he had used up all the ointment (30 grams). I also advised him to bring the woman to me for confirmation of the diagnosis. I saw her several hours later, and found the apposing surfaces of the labia majora covered with isolated and coalescing papules, some of them as large as a cent. Around the anus was a group of condylomata lata, typical in appearance, and on the tongue and buccal membrane were specific ulcerations that could not be mistaken for anything else.

For three weeks A. reported to me ever other day, with negative result. On June 3 (32 days after exposure) he brought with him his friend B., who had just returned from the road. B. exhibited a typical indurated chancre on the coronal sulcus, which was followed in a few weeks by an unmistakable papular eruption, which, together with the primary lesion, soon disappeared under mercurial treatment. A. has visited me at least twice every week throughout this period of more than four months, and he is apparently as free from syphilis as he ever was.

Of course this report is intended as a simple contribution to the interesting and useful subject of prophylaxis, not as a confirmation of Metchnikoff and Roux's experimental work, though it might be considered as such. We have here these ideal conditions: Simultaneous and repeated exposure by two young men, to the same syphilitic virus. One man receives prophylactic treatment six hours after exposure and escapes the disease; the other is not treated, and develops typical lesions which in due time respond to antisyphilitic measures, thus acting as a control to the first.

Question 1. Would A. have been infected as B. was if the ointment had not been used?

Question 2. Would A. have been infected if the ointment had been used twenty-four hours after exposure?

105 East Nineteenth Street.

A NEW, SIMPLE, AND READY METHOD OF DROPPING ETHER FROM THE ORIGINAL CAN.*

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The drop method of administering ether is to-day interesting a greater number of surgeons and anesthetists than ever before. Numerous dropping bottles, as well as dropping devices to be inserted into the can, have been contrived, but I believe that valid objections can be raised against all of them to which the method about to be described is not open. One objection to a special bottle is that it is not advisable to remove a good ether, for use as an anesthetic, from the original tin to another container, lest thereby it absorb moisture or become contaminated otherwise. An objection to any particular contrivance to be attached to the can is that such is an extra piece of apparatus, which may not be at hand or may be out of order when it is wanted, while, further, both special bottles and droppers are a continual extra expense.

Fig. 1.

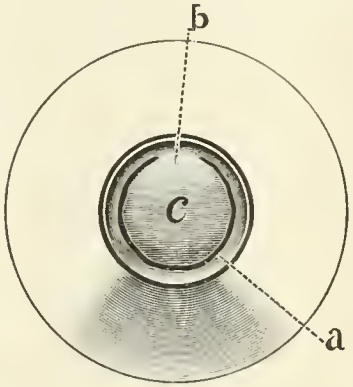

Fig. 2.

My method of dropping ether requires no special apparatus, therefore it involves no extra cost. Moreover, I have found it is at all times easy to manage and fulfilling perfectly the end desired. Furthermore, I believe it to be original with me, for by a careful searching of libraries I cannot find it either pictured or described; and the opinion of those who ought to know about such things and whom I have consulted is that it is a new idea.

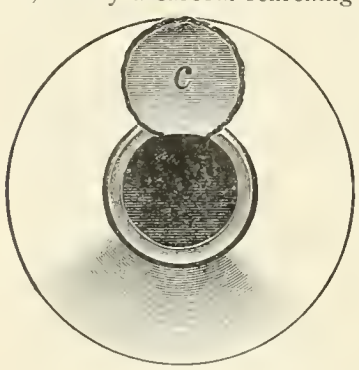

Fig. 3.

This new way of dropping ether is as follows:

1. Make a circular incision through the soft metal cap (Fig. 1, *c*) of the can, as close to the edge of the neck as possible. Extend this about four-fifths of the way around (Fig. 2, *a*), leaving the flat or center portion of the cap (*c*) attached to the neck for the remaining one-fourth or less of its circumference (*b*).

2. Turn this flap (*c*) back, taking care not to detach it or to crack its connection with the outer rim of the cap still attached to the neck (see Fig. 3). The danger of separation is not great, but as this flap will possibly be of use for a second anesthesia, all unnecessary to and fro movement should be avoided.

3. Insert a small pledget of absorbent cotton which has been twisted previously into a sort of wick into the neck and as far up into one angle of the incision as possible, and then turn down the flap (*c*) to its original position (see Fig. 4). This will then hold the wick (*d*) tight in the neck.

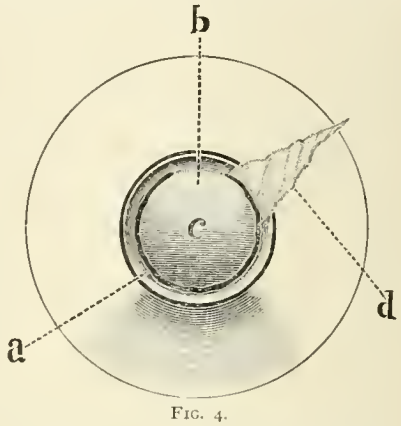

Fig. 4.

4. The can of ether is now ready for use, and if it be tilted, holding it so that the detached side of the flap is uppermost (Fig. 5), drops of ether will fall from the end of the wick, rapidly or slowly according as the can is tilted much or little. The size of the drops also can be regulated by manipulation of the wick. If the cotton be twisted to a fine point, the drops will be small. If the end of the wick be made blunt, the drops will be large. If, moreover, it is desirable to pour ether from the can, the top need not be disturbed; simply rotate the can so as to bring the middle part of the incision downward, *i.e.* the part not plugged by the wick, and when the can is tilted ether will flow out freely.

Fig. 5.

5. If, after using, some ether remained in the can, the flap (*c*) can be folded back again as in Fig. 3 and a cork put into the neck, which will perfectly prevent the escape of ether from the can, yet leave the soft metal flap in a condition for use in a subsequent induction of anesthesia (See Fig. 6).

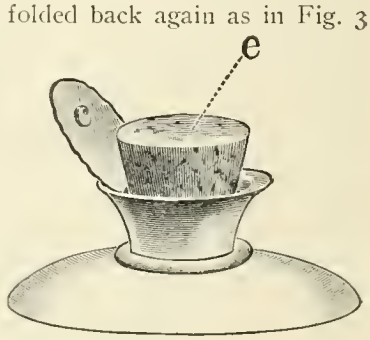

Fig. 6.

The advantages of this method of dropping ether are availability, simplicity, and cleanliness. It costs nothing, it leaves the purity and strength of the ether undisturbed, and, if it is properly managed, it will not be possible to deluge the mask or the patient's face.

1925 Seventh Ave.

*Demonstrated at the meeting of the Harlem Medical Association, June 3, 1908.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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HUNTINGTON'S CHOREA.

THE Germans have a very laudable custom of honoring men who have won distinction in scientific or practical medical work by issuing special publications, the so-called *Festschrifte,* to which the pupils of the worker to be honored or other authors contribute special articles. Here in America similar publications have been appearing within recent years, one notable one having been issued in honor of Dr. Welch of Johns Hopkins University. The second number of *Neurographs,* a new periodical devoted to neurological studies, answers a similar purpose by considering the work of Dr. George Huntington formerly of Long Island, who in 1872 brought the subject of hereditary chorea of adults to the attention of the medical world. Dr. Huntington comes from a family of physicians, both his grandfather and father having practised medicine in Easthampton, Long Island. It was their observations of the peculiar nervous disease which existed in that neighborhood that helped the young physician, only one year after his graduation from a medical college, to write a classic description of the disease which has since become known as Huntington's chorea. This account is worth quoting *in extenso*: "The *hereditary* chorea, as I shall call it, is confined to certain and fortunately a *few* families, and has been transmitted to them, an heirloom from generations away back in the dim past. It is spoken of by those in whose veins the seeds of the disease are known to exist, with a kind of horror, and not at all alluded to except through dire necessity, when it is mentioned as 'that disorder.' It is attended generally by all the symptoms of common chorea, only in aggravated degree, hardly ever manifesting itself until adult or middle life, and then coming on gradually but surely, increasing by degrees, and occupying years in development, until the hapless sufferer is but a quivering wreck of his former self." Dr. Huntington then describes the three marked characteristics of the disease; its peculiar hereditary nature, for if it ever skips a generation it never manifests itself in another; the tendency to insanity of suicidal nature that often attacks the victims of the disease; and finally, its coming on only in adult life, without ever showing any manifestations of its presence before the age of thirty or forty years.

The statements as to frequency of this peculiar disease are quite varied. Thus M. Allen Starr states that he has never observed a case. On the other hand Adolph Strümpell, in an article reprinted in this issue of *Neurographs,* writes that he has seen about half a dozen cases; Sinkler reported several cases in 1889 and again in 1892; while Hamilton collected and reported twenty-seven cases of the disorder in the *American Journal of Insanity* for 1908. The affection has received much attention since Huntington's paper, being a fascinating one for study, not only from the scientific interest it has for the medical profession, but also because of the fatal and tragic character of its transmission in the families affected, an "heirloom from generations away back in the dim past." To anyone, therefore, inclined to look into the history and nature of this affection that approaches so nearly the character of the "evils" of olden days, the "Huntington number" of the *Neurographs,* with the bibliography compiled by the editor, Dr. William Browning, will prove of great value and interest. To the busy man of the profession, toiling, perhaps, far away from great centers of medical teaching, Dr. Huntington's work, in the small Long Island town, must prove a source of personal inspiration in the study of the material afforded him by his practice.

THE SANITATION OF MINES.

THERE are certain diseases which are peculiarly prevalent among miners. The affection known as miners' phthisis is one of these, while ankylostomiasis is another troublesome and not infrequently deadly malady to which the man who works underground is subject. The latter complaint is due to a large extent to defective and inadequate sanitary arrangements, as proved by the fact that it is in mines in which the conditions are unhygienic that ankylostomiasis chiefly flourishes. Uncinariasis, the term now preferred to ankylostomiasis, was first clearly described by Dubini in 1843, and is stated by Sandwith to have been mentioned by the old Egyptian writers three or four thousand years ago. The disease was afterwards found among the tunnel workers of St. Gothard, since which time it has beeen generally recognized as a leading cause of tropical anemia, and of miners', brick-workers', and tunnel-workers' anemia.

Cases have occurred, indeed far more often than has been believed, in our Southern States, and the parasite has been and is still largely responsible for the many instances of anemia happening among a certain section of the southern white population. Uncinariasis was first made definitely known to the American medical public by the report on anemia in Porto Rico published by the Porto Rico Commission, just after the Spanish-American war. It has been found in the mines of Pennsylvania and is fairly common in the Philippines. Oliver, an English physician who is one of the greatest authorities on diseases incidental to miners, has stated that the miners of Westphalia suffer greatly from the inroads of the hook-worm, while Haldane has shown that the anemia of the Cornish miners was due to the same cause.

Dr. Frank Shufflebotham read a paper dealing with the sanitation of mines before the Industrial Hygiene Section of the Royal British Institute of Public Health, at Buxton, on July 21. Among other interesting points bearing upon the disease he drew attention to the fact that only a certain

percentage of those infected with the parasite show symptoms. This is of great importance because they are just as great a menace as those whose symptoms are marked. A high temperature is favorable to the spread of uncinariasis, while moisture is an essential factor for the development of the ova and the growth of the larvæ, and lack of sanitary arrangements aids in its dissemination.

Typhoid fever is another disease which can be and is frequently spread in mines by the want of efficient sanitary methods. Dr. Shufflebotham suggests that there should be proper conveniences at the pit bottom and at convenient points near the main roadways where large numbers of men work. By the evidence given a short time ago in England before the Royal Commission on Mines it was shown that in some districts there was an entire lack of sanitary arrangements underground, and Dr. Shufflebotham is of the opinion that it should be made compulsory for all mine owners to make suitable sanitary provisions at each colliery.

It has been said that uncinariasis is not prevalent to any extent in the coal mines of this country, but it is probably more common than is generally believed. It would be interesting also to collect figures in regard to the frequency of typhoid fever occurring in American mines. There can be no doubt that unless proper closet provision is provided mines will lend themselves favorably to the propagation of that disease. At any rate, it must be in the best interests of health that sanitary arrangements in mines should be as perfect as possible.

THE PATHOGENESIS OF CIRRHOSIS OF THE LIVER.

While it is generally admitted that cirrhosis of the liver is caused by the toxic character of the portal blood, the nature of the toxin being different in the various types of the disease, there are several features of the pathological anatomy of a cirrhotic liver which the acceptance of this hypothesis leaves unexplained. The essence of the disease consists, of course, in the well known diminution of the highly specialized liver cells and the increase of the connective tissue of the organ; the latter phenomenon which was long held to be the primary factor of the disease by reason of the compression it exercised upon the secreting cells of the liver, is now generally regarded as a secondary event, the connective tissue simply proliferating after the secreting cells have been injured or have disappeared, the term "replacement fibrosis" very well expressing the process that takes place. The strange part of the cirrhotic process consists in the very unequal distribution of the fibrosis throughout the organ, large islands of liver tissue being perfectly preserved and evidence of hyperplasia and hypertrophy being present, parallel with the total loss of all functionating epithelium in other areas.

This is the problem considered by Dr. Ribbert in the *Deutsche medizinische Wochenschrift* for September 24, 1908. The fact that uniform degeneration of the liver substance takes place in phosphorus poisoning and similar conditions speaks against any differences in the susceptibility of the various portions of the liver to toxins and, therefore, it must be supposed that in cirrhosis the toxins do not reach all parts of the organ uniformly. Of course a bacterial origin of cirrhosis could explain these differences in the amount of injury to the organ, for infectious processes very seldom involve an organ uniformly. In some cirrhoses, such as those of syphilis, for instance, the unequal distribution of the lesions is explained by the microbic nature of the process, but the great majority of cirrhotic processes are toxic in origin and other explanations are required. The simple experiment of passing variously colored fluids through the veins composing the portal system gives the clue to the explanation, for it is found that the various streams mix but little while on the way to the liver. Any toxin dissolved in the blood of the veins is accordingly unevenly distributed throughout the organ, the angular branching of the portal vein serving to keep the streams apart on reaching the liver. Now, it is probably true that the toxic substances in the portal blood are derived from the upper gastrointestinal tract where absorption is most active; the spleen is in itself a detoxicating organ while in the colon absorption is not so active as in the small intestine, although of course cases may occur in which the blood reaching the liver from the spleen or the pancreas may contain toxic substances. In the majority of cases, however, the distribution of the cirrhotic process is about the same as the distribution of variously colored solutions passed to the liver through those branches of the portal vein which drain the upper gastrointestinal canal. The ultimate nature of the process, that is, the specific toxins causing the disease must be sought by a careful comparison of the various areas affected in the different types of cirrhosis with what is known of the formation or absorption of toxins in the parts of the gastrointestinal system drained by the branches of the portal vein which supply these areas.

GIFTS AND ENDOWMENTS.

The gift of Mr. Frederick Cooper Hewitt to the Post-Graduate Hospital is conspicuous for something more than mere size. Too often has it occurred in the past that donors to educational institutions holding in mind some fixed hobby or extensive project have restricted and hampered the usefulness of the bequest, and virtually have bound hand and foot those who are responsible for its preservation and adaptation. Not so Mr. Hewitt. The $2,000,000 is given to the institution subject only to the condition that it be formally accepted and used to further the interests of medical science.

One of the chief difficulties experienced by college presidents and boards of trustees is that of manipulating the amounts of money at hand so that a given department shall be developed equally with every other. In a great university, any university one is tempted to say, funds are constantly being proffered, and of necessity accepted, which instead of lightening the burden of debt really increase it. For instance, the department of law already well equipped may be offered a sum of money to found a chair of this or that special subject, while the departments of medicine or theology go begging and have a struggle to hold up their heads and main-

tain their existence. It is obvious that such a gift can work little benefit to the institution in question, inasmuch as the new department is not needed, and hence is likely to be slighted both by the incumbent occupying the chair and by the students. With all due respect to the multimillionaire who is willing to bestow his wealth upon institutions of learning, his peculiarities as to the distribution of his alms sometimes approach the ridiculous. For example, a gentleman offered a well-known university in a neighboring State $200,000 for the erection of a huge gateway upon a certain spot on the campus, provided the gates should always be kept closed. As the site demanded was a valuable one for dormitory purposes the trustees were obliged to decline the gift with thanks and wait for a wiser and more considerate head to furnish funds for the dormitory.

But to come back to the more immediate question of the medical school, there is no institution, speaking generally, which is in greater need of certain fixed endowments. The medical school of largest possibilities must be located in a great city where the cost of location and erection of suitable buildings is tremendous. But this is not all—there is the equipment of laboratories with electrical and chemical apparatus; there are the sums needed for insurance, coal, light, attendants, teaching staff, all of which makes the annual aggregate sum that must be provided very great indeed. Fees received from students do not at all provide for these expenditures. The medical school is in consequence always in need of help from its affiliated university, which is in turn very often hard pressed for the maintenance of its purely academic curriculum. It is quite obvious, therefore, that gifts which cannot be used to defray current expenses are likely to prove cumbersome if not unwelcome.

Diagnosis of Tuberculous Bronchopneumonia in Children.

Tuberculous bronchopneumonia is a disease that is engrafted upon simple bronchopneumonia, developing secondarily as a result of the presence of tuberculous tracheobronchial glands. The earliest lesions are those of the tracheobronchial glands, but the occurrence of a simple bronchopneumonia is a signal for the transference of the tubercle bacilli from these glands to the pulmonary substance, and the continuance of the acute malady under a new form which renders the usually good prognosis absolutely bad. For this reason the diagnosis and the differentiation from simple bronchopneumonia becomes of importance. G. Mouriquand, writing in the *Gazette des Hôpitaux* for August 1, 1908, discusses the differentiation of this condition. Of physical examination methods inspection, palpation, and percussion give no information whatever. It is only by auscultation that we obtain the peculiar physical sign of this disease which is the occurrence of crepitant or subcrepitant râles in any portion of the pulmonary tissue. Any other râles may be the result of simple bronchitis or pneumonia. The dyspnea and cyanosis now have a special character. Instead of an urgent dyspnea there are substituted a rapid respiration and a dyspnea that is well borne by the little patient. The glands of the neck and axillæ become painlessly enlarged, so as to resemble small peas rolling under the finger. Laboratory methods give no added information. The condition of the patient grows steadily worse, cachexia becoming marked, and death ensues after a time from generalized tuberculosis. Had the patient been suffering from simple bronchopneumonia the dyspnea would have been gradually relieved, the temperature would have fallen, and the lungs would have gradually cleared of all signs with the return of good health.

Serum Treatment of Lobar Pneumonia.

There have been attempts made for some years to treat lobar pneumonia by means of sera, but we can have, seemingly, no specific serum against the disease, since there are several different organisms which may cause it. We recognize, however, that from each arises a condition of intoxication that affects the nervous system, heart, kidneys, and other organs. This universal toxemia must be prevented by some means. The greater or lesser diffusion of the anatomopathological process does not depend alone upon the number and virulence of the bacilli, but upon the extent of intoxication of the bulbomedullary nervous centers. We must reduce this intoxication and increase the powers of defense against the toxins. Talamon has proposed to neutralize these poisons by the use of antidiphtheritic serum, which increases the phagocytic power of the organism and increases the formation of antibodies. In pneumonia caused by pure diplococci the use of antipneumococcic serum is of value, and when there are mixed infections with streptococci present, antistreptococcus serum of the polyvalent variety may be used. To be of value any of these sera must be used in the first days of the disease, before intoxication of profound degree has taken place. E. Farroni, writing in the *Gazzetta Medica di Roma*, for August 15, 1908, gives the results of his experience in the treatment of this disease by sera. He finds that the temperature is reduced, the severity of the disease is lessened, the heart action is bettered, the sensorium becomes clearer, and the whole course of the disease is shortened. There are no bad effects from any of these sera, and none of them affects the kidneys badly. His choice of sera is influenced by the form of germ that is found to exist in the given case. He advocates a resort to orrhotherapy in all cases of pneumonia as being more rational than the old-fashioned course of heart stimulants and expectorants.

Pharyngeal Neuroses.

Pharyngeal paresthesia is a symptom that may cause an entire misconception of a patient's physical condition. A trivial lesion of the pharynx, or no lesion at all, combined with a nervous predisposition may bring about a diagnosis of tuberculosis of the throat. In some cases the presence of paresthesia, causing difficulty in swallowing, ends in a refusal of food by the patient, or a severe dry cough, emaciation, and bad general condition result which simulate tuberculosis. There is present a sensation of a foreign body in the throat, of obstruction, or of pain. Maurice Boulay and H. le Marchadour, writing in the *Tribune Médicale*, of September 5, 1908, assert that there may be a true hallucination of a sensorial nature referred to the pharynx, a peripheral projection of a purely mental image. In other cases, as a result of the vitiation or the exaggeration of a slight sensation in the throat there is a real pharyngeal illusion. The nervous predisposition may be hereditary or acquired, but it is always present. The

suffering that the patient experiences is out of all proportion to the lesion that may be found in the throat, which is often a very small ulceration. This neurosis may be slight in form or so severe as really to endanger life from refusal to take food. In these cases the element of fear and anxiety plays a prominent part. The treatment of this unfortunate condition is mainly mental and suggestive. To tell these patients that there is no basis for their sufferings is worse than useless. We must acknowledge their reality at the same time that we give them the best hopes of an entire and early cure.

News of the Week.

First Harvey Society Lecture.—Prof. A. Calmette, Director of the Pasteur Institute of Lille, France, will deliver the first lecture of the course at 8:30 p. m. on Saturday, October 24, at the Academy of Medicine. The subject of the lecture will be, "Intestinal Infection and Immunity in Tuberculosis." Dr. Calmette will speak in French, but printed translations of the lecture will be available for those who may desire them.

Public Health Exhibits.—The Public Health and Marine-Hospital Service has announced plans for an interesting exhibit of modern hospital apparatus, methods of treatment, and laboratory appliances, at the Alaska-Yukon-Pacific Exposition, which will be held in Seattle in 1909. The exhibit will include a model operating room, thoroughly equipped, with wax figures placed as if an operation were in progress, and a hospital section showing a record room and model ward. The laboratory section will contain apparatus, glassware, sterilizers, microscopes, microphotographic apparatus, etc., for general laboratory work, and will include a traveling laboratory, two of such outfits being constantly held in readiness by the Service for field work, and for use in the event of outbreaks of epidemic disease in various parts of the country. A model of the Marine Hospital Sanatorium for tuberculosis at Fort Stanton, New Mexico, will be shown; and the quarantine section will include a model of a detention camp, and of a quarantine station. A complete *x*-ray apparatus will also be exhibited.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for the month of August, 1908, shows a steady improvement in the sanitary conditions. Comparing the past three years the figures are as follows: August, 1906, number of whites, 5,269, number of deaths, 8, death rate, 18.22 per thousand; August, 1907, number of whites, 11,733, number of deaths, 17, death rate, 17.38; August, 1908, number of whites, 12,607, number of deaths, 10, death rate, 9.52. Among the negro employees the decrease in the death rate is even more striking, and forms the most noteworthy item in the report. The figures are as follows: August, 1906, 24,286 employees, 145 deaths, death rate per thousand, 71.60; August, 1907, 27,710 employees, 76 deaths, death rate, 31.76; August, 1908, 31,618 employees, 32 deaths, death rate, 12.14. The exceptionally high death rate for August, 1906, was largely due to a severe epidemic of pneumonia among the negroes; in August, 1905, the rate was 35.93. The sick rate is considered to be the best measure of the average effectiveness of the force so far as they are affected by the health conditions. In 1906, among every thousand of employees 42.67 were sick every day; in 1907, 29.02 and in 1908, 25.24. There have been no cases of yellow fever or of plague originating on the Isthmus in the past two years. In 1906, there were 9 deaths from typhoid fever among employees; in 1907, 7 deaths; and in 1908, no deaths. The decrease in deaths from dysentery was also marked. In 1906 there were 10, in 1907, 6, and in 1908, 2.

Tuberculosis Exhibit Prizes.—The award of prizes for the best exhibits at the International Congress on Tuberculosis at Washington, was announced on October 11. Germany received a gold medal for the best exhibit sent by any country exclusive of the United States, illustrating effective organization for the restriction of tuberculosis. Silver medals in this class were presented to Sweden and Great Britain. New York won a gold medal for the best State exhibit, silver medals going to Massachusetts and Pennsylvania. The gold medal for the best exhibit showing the most efficient laws and ordinances in force on June 1, 1908, for the prevention of tuberculosis in a municipality was awarded to New York City, Saranac Lake ranking second, and Chicago third. The best exhibit of State laws and ordinances was made by Wisconsin, which received the gold medal. Maryland and New York received silver medals. A prize of $1,000 for the best evidence of effective work in the prevention and relief of tuberculosis by any voluntary association since the last Congress, was divided between the Women's National Health Association of Ireland, and the Committee on Tuberculosis of the Charity Organization Society of New York City. The Henry Phipps dispensary of Baltimore received a prize of $1,000 for the best exhibit of a dispensary for the treatment of tuberculosis. Gold medals in this competition were voted to the Manhattan tuberculosis dispensary of the New York Department of Health and to the dispensary of the Henry Phipps Institute of Philadelphia, and a silver medal went to the dispensary, Clemmente Ferreira of San Paulo, Brazil. The Brompton Hospital of London won the $1,000 prize for the best exhibit of a hospital for the treatment of advanced cases. A special gold medal was awarded to the United States Bureau of Animal Industry for the best pathological exhibit, and the exhibit from England also received a gold medal. The exhibit from Massachusetts showing devices to improve sanitary conditions in factories was given a silver medal, and a special gold medal was presented to the United States Government Printing Office for sanitary cuspidors and other appliances. Gold medals were also awarded to the New York State Charities Aid Association, for effective work in organization, to the Sea Breeze Hospital, to the Colorado Fuel and Iron Company, for its hospital and welfare department, and to the Children's School Farm League of New York. The New York State Committee received a silver medal for its exhibit illustrating the production of clean milk, and honorable mention was made of the Nathan Strauss exhibit. Arthur C. Chapman of West Orange, N. J., a sufferer from tuberculosis, also received honorable mention for a model of a shack built by himself, in which he had lived in his backyard, with considerable improvement in his condition, and by which he desired to show what a poor man could do to help himself to recovery.

The Legal Standing of an Osteopath.—That an osteopath may sign a death certificate and that the Department of Health must register osteopaths as physicians, is the decision handed down by the Court of Appeals on October 13, in the case of Charles F. Bandel of Brooklyn, former president of the New York State Osteopathic Society. Dr. Bandel signed a death certificate of one of his patients and the Department of Health refused to file

it, with the result that a coroner was called in to the case. Dr. Bandel thereupon obtained a preemptory writ of mandamus from the Supreme Court ordering the Department to accept the certificate. The case was carried through the Appellate Division to the Court of Appeals, the decision in each court being against the Department of Health.

Hospital in Hotel.—An emergency surgical hospital, the first of its kind in the city, has been opened in a basement room of the Waldorf-Astoria, New York, near an all-night drug store. A complete outfit for emergency surgery has been installed, and Dr. C. T. Adams and Dr. Robert Adams have been placed in charge.

Death Rate in New York.—The weekly mortality tables for the five boroughs of Greater New York for the week ending October 10, show that the death rate is lowest in the more thickly populated portions. Thus in Manhattan, the death rate was 13.67 per thousand for this week, while in Richmond the mortality was 19.05. For the corresponding week in 1907, the rate was 15.84 in Manhattan, and 27.95 in Richmond. For the entire city the rate was 14.43 for 1908, and 16.36 for 1907. The bulletin shows a marked increase in the number of cases of scarlet fever and diphtheria.

The New York City Training School for Female Nurses held its thirty-third annual commencement on October 17 at the Nurses' Home on Blackwell's Island. Diplomas and prizes were presented to thirty-nine nurses, who represented nearly as many countries and States.

Typhoid Bacilli Carrier.—An epidemic of typhoid fever in Georgetown, S. C., has been traced to a woman who runs a dairy farm in Maryland, and who suffered an attack of typhoid fever eighteen years ago. Although in perfect health, as in other of these strange cases of "bacilli carriers," she was found to be infected with the germs to an extraordinary degree. Thirty cases have thus far appeared, and of these twenty-six used milk supplied by this dairy.

Measures to Guard Against Contagion.—On October 9, the Chief of Police of Chicago issued a general order directing the commanding officers to instruct their men that the warning cards of the Health Department were not to be torn down, and also that infected children were to be kept off the streets. This order was issued largely on account of complaints made to inspectors of the health department that the police were not giving sufficient support to the employees of the Health Department in enforcing quarantine in contagious diseases.

Public Care of the Insane.—Dr. Adolph Meyer, in an address delivered at the Conference of State Charities, of Illinois, outlined a program of asylum reforms, internal and external, which the State Board of Charities will profitably use as a basis for its own campaign for adequate legislative appropriations and enabling measures. He insisted on high standards, on efficient organization, on prevention, as well as intelligent after-care of patients, and on co-operation with the State and its appointees of the medical profession and public-spirited citizens.

Lake Forest Hospital Formed.—Application was recently made for a certificate of incorporation for the Lake Forest (Ill.) Hospital. Already a fund for the erection of the building is in the hands of the Board. Real estate valued at $2,500 was bequeathed to the hospital by J. B. Farwell; $3,000 was appropriated by the city; $2,500 was realized by the annual horse show, and $820 from the Lake Forest Day Celebration of the Woman's Club.

Charitable Gifts.—The Presbyterian Hospital of New York has just received a gift of one million dollars from its president, Mr. John S. Kennedy, on the occasion of the fiftieth celebration of his marriage. Mr. Kennedy has previously made large donations to the work of the hospital, in which he has been interested for many years. It is understood that his latest gift is to be used for construction purposes.

By the will of the late Mrs. Hartman Kuhn of Philadelphia, Harvard University receives $175,000 to endow a department of biological chemistry, in memory of the testator's son. The Massachusetts General Hospital also receives $10,000 to establish a clinic laboratory.

Suit for Large Fee.—A homeopathic physician of Philadelphia has entered suit against a Pittsburg steel magnate for the collection of a bill for $20,000 for special services rendered at the rate of $500 a visit. The physician was summoned from time to time to make visits to his wealthy patient at short notice wherever he might be.

Special Clinics for School Children.—The Throat, Nose and Lung Hospital has established special clinics for school children at 3:30 p. m. daily. This hour has been fixed so that school duties may not be interferred with.

Death of a Centenarian.—Miss Sarah Morse, who celebrated her one hundredth birthday on September 29, died at the Methodist Home in Brooklyn, on October 11. She was born in Albany, but had passed most of her life in Brooklyn, where she supported herself by sewing up to the time of her admission to the Home eighteen years ago.

Dr. Henry A. Christian was elected Dean of the Faculty of the Harvard Medical School, on October 14. Dr. Christian is professor of the theory and practice of medicine, and is a graduate of Johns Hopkins Medical School. He is but thirty-two years old.

Dr. C. Ward Crampton was elected Director of Physical Training on October 14, by the Board of Education of New York, to succeed Dr. Luther H. Gulick who recently resigned to accept a position with the Sage Foundation. Dr. Cramptom has been connected with the physical training work in the public schools since its inception, and has for some time served as assistant director. He was graduated from the College of Physicians and Surgeons in 1900

Street Car Accidents.—The report of the Public Service Commission for September permits for the first time of a comparison with the report of last year, the Commission having completed in August its first year of work. The report shows a decrease in the number of those killed by street car accidents from 63, in 1907, to 34 in 1908. The number of less serious accidents has, however, increased from 216 to 310. By far the largest number of injuries are caused when alighting from cars.

The New York Pathological Society.—At a regular meeting of the Society on October 14, the president, Dr. E. Libman, read a paper prepared by Dr. Wolff-Eisner of Germany, which the author had been prevented by illness from presenting at the International Congress on Tuberculosis, on "Theoretical and Practical Considerations Concerning the Significance of the Conjunctival Reaction (Ophthalmo-Tuberculin Test)." Dr. Wolff-Eisner, who was present, also addressed the Society, and the paper was discussed by Dr. P. Courmont of France. A

number of interesting specimens and cases were also presented to the Society. At the next meeting, on November 11, Dr. W. T. Longcope of Philadelphia, is to be the guest of the Society, and in December it is planned to hold a combination meeting with the Surgical Society.

The Manitoba Medical Association held its first meeting for the purposes of organization on October 8, at Winnipeg, at which nearly one hundred physicians were present. The following officers for the new society were elected for the ensuing year: *President,* Dr. J. R. Jones, Winnipeg; *Vice-President,* Dr. J. A. McDonald, Brandon; *Second Vice-President,* Dr. J. R. McRae, Neepawa; *Secretary,* Dr. Jasper Halpenny, Winnipeg; *Treasurer,* Dr. R. W. Kenny, Winnipeg; *Executive Committee,* Dr. Hicks, Griswold; Dr. Ross, Selkirk; Dr. Keele, Portage la Prairie; Dr. Speechley, Crystal City; Dr. Harrington, Dauphin; *Auditors,* Dr. Blanchard and Dr. Moody, Winnipeg.

The Holyoke (Mass.) Medical Society at its annual meeting on October 6, elected the following officers: *President,* Dr. G. L. Gabler; *Vice-President,* Dr. T. E. Cavanaugh; *Secretary and Treasurer,* Dr. I. H. Farr; *Executive Committee,* Drs. J. H. Potts, G. L. Taylor and J. J. Carroll.

Medical Reserve Corps, U. S. A.—Commissions have been issued to the following Philadelphians as first lieutenants: Drs. John B. Deaver, Francis D. Patterson, J. Chalmers da Costa, Edward Martin, John G. Clark, Hobart A. Hare, George E. de Schweinitz, J. William White, Charles B. Pensrose. The commissions carry no salary, but they render the recipient available for instant service in case of war.

The Eastern Medical Society of the City of New York has completed arrangements for a dinner and reception to be held on Thanksgiving night, November 26, at the Hotel Astor. The society has an active membership of over five hundred.

The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics will hold its eighth annual meeting at Indianapolis, Ind., on November 10 to 11, 1908. The president of the Association is Dr. H. M. Weeks of Skillman, N. J., and the secretary, Dr. J. F. Muson of Sonyea, N. Y. The objects of the Association are to promote the general welfare of sufferers from epilepsy, to stimulate the study of the causes and methods of cure of the disease, to assist in establishing a proper system of care for epileptics, and to advocate the care of epileptics in institutions designed to meet their special needs. As this is the first time the Association has met in the West, it is hoped that there will be a large attendance.

American Association of Railway Surgeons.—At the annual meeting of this Association, held in Chicago, October 14, 15 and 16, the following officers were elected for the ensuing year: *President,* Dr. J. R. Hollowbush, Rock Island, Ill.; *Vice-Presidents,* Dr. Benjamin Thompson, Tama, Ia.; Dr. G. W. Thompson, Winamac, Ind.; Dr. Oscar Le Seure, Detroit, Mich.; *Secretary-Treasurer,* Dr. H. B. Jennings, Council Bluffs, Ia.; *Editor,* Dr. Louis J. Mitchell, Chicago.

The Late Dr. Holt.—The following resolutions have been adopted by the American Electro-Therapeutic Association:

Whereas, Death has removed from our numbers Dr. John D. Holt of Berlin, N. H., an energetic and industrious physician, beloved by all who knew him, be it

Resolved, That we extend our profound sympathies to his wife and family in their bereavement in which the Association participates, and

Resolved, That a copy of this resolution be sent to the family of the deceased, and also for publication in the Official Organ of the Association, in the Medical Record and in the *Journal of the American Medical Association.*

(Signed.) Edward C. Titus, M.D.,
President.
J. W. Travell, M.D.,
Secretary.

Obituary Notes.—Dr. James S. King of Brooklyn, N. Y., died on October 9, at his home, aged 54 years. Dr. King was graduated from the Long Island College Hospital in 1878, and was one of the founders of the Bushwick Hospital, a member of the Brooklyn Pathological Society, and surgeon of the Naval Reserves.

Dr. Francis Alfred Gile of Bloomfield, N. J., for twenty-five years a leading practitioner of the Oranges, died on October 12, at his home, from heart failure following a severe attack of kidney trouble, aged 63 years. Dr. Gile was graduated from the New York Homeopathic College in 1875, having previously served throughout the Civil War in the 165th New Hampshire regiment. He was a member of the State Homeopathic Society and of the American Institute of Homeopathy.

Dr. John Eberle West of Jersey City, N. J., died on October 14, of dilatation of the heart, aged 65 years. Dr. West was graduated from the Ohio Medical College in 1867, and had practiced for forty years. He was president of the Hudson County, New Jersey, Board of Health and Vital Statistics, and a member of the Board of Pensioners.

Dr. Charles Franklin Rand of Washington died at his home on October 13, at the age of 63. Dr. Rand answered the first call for troops when the Civil War broke out, distinguished himself in several battles, received a medal of honor, and was promoted to a captaincy. After the war he studied medicine at the Georgetown Medical College.

Dr. John E. Parsons of Ayer, Mass., died at his home on October 9, aged 72 years. Dr. Parsons was a graduate of the Harvard Medical School, and served as a surgeon during the Civil War.

Dr. George A. Elliott of New York, a graduate of the New York University Medical School in the class of 1892, and visiting physician to the Fordham Hospital, died on October 15, at Glen Cove, L. I., aged 41 years. Dr. Elliott was for several years connected with the New York Department of Health.

Dr. Herbert Russell of New York died on October 14, aged 37 years. Dr. Russell was graduated from the Long Island College Hospital in 1896.

Dr. Howard B. Neiman died at Philadelphia on October 15, at the age of 24 years, as the result of ingestion of aconitin in mistake for a cough mixture. He was graduated from Jefferson Medical College in the class of 1906, and for two years had been resident physician in the Philadelphia Home for Incurables.

Dr. H. W. Bartscher of St. Louis, Mo., died on September 28, after a stroke of apoplexy while testifying in the Probate Court, aged 49 years. He was a graduate of the St. Louis Medical College, and had also studied abroad for several years.

Dr. George R. Fisher of Olneyville, R. I., died on September 30, after having been in ill health for more than a year, aged 55 years. Dr. Fisher was graduated from New York University Medical College in 1875, and served for sixteen months as interne at Bellevue Hospital, New York.

Correspondence.

MEDICINE IN VENICE.

To the Editor of The Medical Record.

Sir:—You receive interesting letters from various important medical centers of the world. A letter from Venice will have this distinction, that it comes from a place renowned in history, but quite without any medical past—or present. Venice used to be a great place for plagues, but these were treated as visitations, to be removed by prayer, not sanitation. Vesalius lived here a little while, and the Venetian press printed many of the medical books written by the men of Padua. This is its medical past, or all I can learn of it. Venice cultivated commerce and art—not science. Venice is a city of nearly 200,000 people, but it has no medical school, no public medical library, few laboratories, and no effective medical organization like our academies and county societies. It has but one hospital—the Ospedale Civile. I must qualify all this a little. Venice sends her students to Padua, which is only an hour away, and there is still at this university the medical school, with good men attached. The city has a Health Department, and Dr. Monti, in charge, has a laboratory and is a good bacteriologist, sanitarian, and pathologist. In the Ospedale Civile there is also a laboratory with a competent pathologist, Dr. Jona, and the hospital has a medical library. In the famous Bibliothek of St. Mark there are also some old medical books. The Venetians are great sticklers for isolation and disinfection when they wake up and find the case. So they have set aside an island in the lagoon for contagious diseases, including tuberculosis and typhoid. And up to a short time ago if one were "denounced" to the authorities as having either of these maladies off he was sent to this place. Recently there has been organized an English, or cosmopolitan hospital, under English management and support, and certain of the milder infections can be taken there. But the Italian seems to prefer to neglect or ignore infection until it is no longer possible to do so, and then to attack it with a mixture of the ferocity of the past and the science of the present. The result is that the medical men are not inclined to report infections like typhoid and tuberculosis—at least this is my information.

The city hospital already referred to occupies the old guild house of San Marco and the Dominican monastery. It has a beautiful façade and a magnificent carved ceiling in one of the great wards. It has some excellent physicians and surgeons attached, but its general management seems along lines of about thirty years ago. It has no system of trained nurses, the wards are mostly of enormous size, and overfilled with beds lined up in many rows.

History blanks hung on the wall by each bed. I looked at some. The notes were as meager as those in certain New York hosiptals when the interne thinks he is overworked. Though the wards are crowded, the ceilings are so high that the air space is probably not so small as seems at first sight. Everything looks very clean and orderly, despite the lack of nurses. Apparently the Italians do not take to nursing, partly perhaps on account of the expense; but the young women will not go into it and the people and doctors do not appreciate its value. When ill they get their medicine and food and take it or not, as may be, leaving the rest to the saints. The traveler, however, who falls by the way can usually get trained nurses through the local medical men.

Among the Italian physicians Professor Vitelli, formerly pathologist at the University of Bologna, and now physician to the City Hospital, is perhaps the leading consultant, and he is a very competent man, of sound judgment, and an excellent diagnostician. Professor Giordano is, I am told, the leading surgeon, and a very skillful one.

One of the famous physicians of Venice, Dr. Fritz Keppler, died last spring. He was known to many Americans and was an unusual and interesting personality. He was very active and successful professionally both as surgeon and physician. He had a private polyclinic and did an enormous amount of work for the poor, by whom he was greatly beloved. He held no public hospital positions. This city, I am assured, is in the hands—and feet and teeth of the clericals—every material interest except the hotel business seems to be controlled by them. Dr. Keppler was fond of letters and the arts and left a wonderful library of some 20,000 volumes which I have had the privilege of examining. It is equally rich in the most modern and most ancient medical treatises, besides a collection of the classics.

During the last months of his long final illness he devoted his time to writing an essay on "Copa," a Latin poem ascribed to Virgil.

The only English physician here is Dr. Van Someren, a skillful man, of sound medical training and wide experience. He has done laboratory work in connection with the subject of nutrition and metabolism, and is working at problems of this kind now.

Dr. Heppich, who is an English speaking German, is a young man with the best kind of German university training. He was an assistant in surgery and gynecology at Marburg, but he is also thoroughly trained in internal medicine and is a good clinical pathologist.

I am writing of these things at some length, partly perhaps because I have received so much kindness here, but also because Venice in summer is almost an American city; much more than half the visitors at the hotels seem to be from the United States. If one falls ill in a hotel in Europe, as some know, the chances are that he gets a native doctor who has to pay the management or the portier a percentage; and the patient may or may not get skilled service. The hotel managements of Europe like to have what they term "a good hotel doctor," which means some one who orders expensive rooms and plenty of service, a not too quick recovery entailing suitable fees. This is no exaggeration of the actual state of things. It may not be any worse in Europe than in America, and it does not apply here in the very best hotels, perhaps. As for the Italian physicians, I can best quote what Vellari says in his book entitled "Italian Life in Town and Country" (1902): "The profession whose members stand highest for respectability and skill is that of medicine. Medical tuition in Italian universities is inadequate and unsatisfactory; the number of medical degrees is enormous (over 1,000 per annum) and out of all proportion to the needs of the population; the remuneration for medical and surgical attendance is very small; yet, in spite of all these disadvantages, Italian medical men are among the best in Europe."

It will be seen that if Venice is no medical center it has good doctors and sufficient resources in private hospitals to take care of the sick and injured wayfarer. The nurses have to be imported as a rule, but it is possible to get very good ones.

Venice has been in the past a plague-smitten city. This was due partly to the fact that the commerce and travel of the East and West passed through it, and partly to the malarial surroundings and the bad habits of life, including the use of wells. Venice is surrounded by small islands and mud-flats. The salt water of the Mediterranean was mixed with the fresh water of three not very large rivers which emptied here. It was a fine place for the anopheles. When the Venetians had a plague they did not clean up or look to the material conditions, but they held processions, prayed to one of the saints, and when the plague died out they built a church in his honor. This, however, was not quite all. Eventually the city fathers got the idea that the fresh water was not a good thing to mix with the salt, and they finally turned aside the rivers emptying here, so that Venice now is surrounded and washed out twice a day with real and very salt sea water. There is now no malaria in Venice, although there are mosquitos. The city is supplied with excellent water from the mountains and the wells are mostly shut up, and there is no typhoid. The city is quite a healthy one (18 per 1,000 mortality annually); the people are lazy and look well-fed. They must have excellent eyes. I have not seen a Venetian child with glasses on, and here in the whole city there are only two opticians' shops. It is no place for an oculist, apparently, though who knows that its present decadence is not due to an unrecognized eye-strain, and that, if properly glassed, Venice would rise to some of its former glories? For Venice is not rising now. To be sure, she is rich and makes money, and her commerce is increasing, but this is all due to the Germans, who hold Northern Italy in the hollows of their hands. The Venetian is content to loaf about San Marco and talk gossip over his 5 cents worth of coffee. He has no originality in his art; his craftsmanship is that of blowing glass into silly shapes and blooming colors, in making the same, some lovely lace, and carving forever and ever the little stone angels, the winged lions, and cupids, and saints. There is no spirit of the renaissance here yet. He sings and jabbers all night; he works as little as he can, and always with a sort of sigh and a protest. He is a terrible drinker, but is not quarrelsome in his cups. Venice is said to have more alcoholism than any other city in Italy, yet in crimes of violence it ranks lowest (Vellari).

The drawbacks to Venice in summer are said to be these: the noise, the heat, and the mosquitos. A very fine polemic might be held over the question of noise. The Sixth avenue of New York during a working day has a greater output of noise than all Venice in a year. But the noises of Venice are in staccato; there are interruptions of relative silence. The church bells begin it at 5 o'clock A.M. or earlier, and from that time on they call to mass and strike the hours. At the same time the gondoliers begin to gibe and explain to each other across the canal and the "tongue-fights" beloved by Venetians pierce the ear. The penny steamers whistle, the morning cannon goes off, and so the day begins.

At night the music and talking and shouting and arguing continue into late hours. So that for practical purposes and to sensitive persons Venice may be called noisy at night. One, however, can get to like the bells and not to mind the screaming.

The heat of Venice is not so bad as that of New York, and is easily bearable if one keeps quiet in the midday and afternoon. The Lido is accessible in twenty minutes, and the bathing if not exciting at least cools one off. There is no surf, the water is shallow and warm, *i.e.* 22 degrees to 24 degrees C. The evenings are cool and life begins then to be enjoyable, even on the hottest days. The Venetian talks much of his sirocco, but it is only what we would call a cool sea breeze—a little humid. These are the experiences of perhaps an extra cool summer. The warm, soft air and outdoor life relax the nerves and help to sleep. Venice is a good place for the tired out person who wants rest and sleep—a delightful atmosphere and always something of interest to look upon.

Venice, if not a medical center, gets many important medical men as her guests. Visiting here recently was Dr. H. E. Plimmer, F.R.S., of London, who with Dr. Bateman has been studying experimentally the therapeutics of the "sleeping sickness." This disease has begun to attack the whites of Africa and will prove a serious menace to colonial development unless it can be controlled. Heretofore atoxyl has been the most efficient remedy, but Drs. Plimmer and Bateman, whose report was laid before the Royal Society in August, have had some remarkably encouraging results with antimony in the form of lithium antimonyl tartrate. This killed the trypanosomes in about one-half of the inoculated rats, and in all the inoculated dogs. Some trials of the metal (not yet formally reported) on human beings have been even more successful, the parasite in the blood having been apparently killed and a long remission, if not cure, effected. If antimony turns out to be so effective a therapeutic agent, we may have a return of the metal to favor. It had a tremendous vogue three hundred years ago.

The only original medical work produced in this city so far as I can learn is that of Mr. Horace Fletcher, the exponent of moderate eating and careful mastication. Mr. Fletcher has been lecturing in the United States in the last year, and his views are possibly known to medical men. He believes in a low proteid diet, and thinks that by masticating and insalivating the carbohydrates they are tolerated and support the system without poisoning it. I have seen several interesting cases in which as a result of "Fletcherizing" the sugars and cereals were digested and enjoyed, where before they were not borne at all. Mr. Fletcher's book, "The Art of Eating Little," has just been translated into Italian and has attracted much favorable criticism in the Italian press. Dr. Van Someren has carried out the method here under careful clinical conditions. There are certainly people whose metabolism responds to light, low proteid diet, and who are better and happier for it. How essential the mastication and insalivation, the use of the "food gate" and the stimulus of the food instinct are, may perhaps yet have to be worked out by further experiment. At any rate, it is an American who began working here in Venice at problems in diet and nutrition which have already led to certain practical results; even if the work succeeds only in ameliorating the prodigious proteid excess of the European *table d'hôte*, the traveler's life at least will be safer and more comfortable.

The Italian does not know what is meant by a hospital for the insane. There institutions are not hospitals in the native mind, but "manicomii," or madhouses. Venice has two—one for men and one for women—occupying small islands near the city. I visited the manicomio for men on San Servero. Dr. Perugia, the physician in charge, was at great pains to show me every detail of his establishment. The buildings, formerly a church and dormitory, occupy the whole island of several acres, they furnish many open courts and gardens for the patient, but no soil to cultivate and not much space for work or play. The wards were scrupulously clean, the attendants looked intelligent, but were all of the "orderly" type. The institution is apparently well supplied with money, and is very intelligently organized. There is a wonderful equipment of baths of every possible kind, including the continuous bath; there are a pathological and anthropological laboratory, a photographic outfit, and a system of history-taking, which seemed most admirable. A photograph of the patient goes with each record. The classification and grouping of patients is on most modern lines, except that the institution has to treat both acute and chronic cases on the same island. Altogether, Venice seems to take care of her insane in a more advanced way than of her sane sick. Perhaps it is because she has so many; I was told it was the craziest city in Italy. In the two asylums there is a population of about 1,200. Alcoholic forms of insanity are extremely frequent.

Crazy or not, the Venetians are a kindly people, and the city is progressing in wealth and material importance. It claims also artistic eminence, priority over Milan in music and over Munich in painting. I trust its medical interests will grow also; and I would not belittle what exists, for every resource is put at the service of the stranger. With an increase in the wealth and activity of the University of Padua, Venice ought to become, cooperating with its neighbor, a city of importance in learning and in the sciences.

Although Venice is lacking in opportunities for medical study and research, it is but just to say that in certain departments of medical art this city is far in advance of any in America. An enterprising company has installed here at the Lido an institute of mechanical therapeutics. It is under the patronage of the medical men of Venice, Bologna, and Padua, and it is equipped with every device known to our art for applying mechanics and chemistry to therapeutics. There is, first of all, a very complete Lander institute, occupying a large room by itself. Then in numerous adjoining rooms, all on the same floor, are apparatus for electric therapy, radiotherapy, magnetotherapy, vibrotherapy. In connection with this are hydriatric rooms in which are given every kind of baths, from the simple tub to the Wolf blue-light, carbonic acid, fango-mud, and the quadro electric. Among the more interesting things are the Leduc current and the monopolar current of Rumpf, of which Dr. Ravenna, in charge, spoke highly. There is the "cura Finsen" and an admirable apparatus for using the *x*-rays and a great variety of electric hot-air baths. Naturally, there are rooms for massage; there are rooms for inhalations, injections, suspensions, and the Frenkel reeducation therapy; blood and urine examinations are all made. The fees range from 2 to 5 francs. Two or three medical men are in charge. An inspection of this institute for kinetotherapy and a recollection of the resources of New York make one feel that ours is in some ways still a backward and provincial town. Perhaps for a time a little less money on our laboratories and more on our therapeutics would not be unwise.

CHARLES L. DANA.

VENICE, October 1, 1908.

OUR LONDON LETTER.

(From Our Special Correspondent.)

OPENING OF THE SCHOOLS—ADDRESS BY RUDYARD KIPLING—PLAGUE RESEARCH IN INDIA—REPORT ON MALARIA IN MAURITIUS—OBITUARY.

LONDON, October 2, 1908.

THE opening of the medical schools has been celebrated, yesterday and to-day, by dinners, conversazioni, and introductory addresses. At Charing Cross Hospital the occasion was commemorated by the delivery of the Huxley lecture by Sir Patrick Manson. At Kings College Professor Macalister gave a review of the progress of medical science during the last fifty years and of the effects of the theory of evolution. At St. Mary's Sir John Broadbent pointed out that, while advance in surgery meant a wider field for the surgeon, the reverse is the case with the work of the physician. At St. George's Dr. Slater dealt with the importance of the laboratory in modern medicine.

Mr. Rudyard Kipling distributed the prizes at the Middlesex Hospital and delighted his audience with a characteristic speech. He remarked that it might have escaped their professional observation that there were only two classes of mankind—doctors and patients. He

had felt a delicacy in confessing he belonged to the latter ever since a doctor told him that all patients were great liars where their own symptoms were concerned. The average patient might regard the doctor as the noncombatant does the troops who fought for him. He had to address the army which is always fighting against death. It was unfortunate that death was bound to win in the long run. This fight is one of the most important things in the world and you who carry it on, he said, must be among the most important people. The world certainly insists on this. It long ago decided you have no leisure that any one need respect. Nothing but extreme illness can excuse you in its eyes for refusing help to anyone who thinks he needs you at any hour of the day or night. Nobody will care whether you are in your bed or in your bath—at church or a theater. What vitality you have accumulated in your leisure will be dragged out of you again. In time of plague, pestilence, fire, battle, famine, murder, and sudden death it is required of you to go on your duty at once and stay till your strength fails or your conscience relieves you, whichever be the longer period. These are some of your obligations and not likely to grow lighter. Have you heard of any eight-hour bill for doctors? Do you know of any change in public opinion that will allow you to refuse to attend a patient who does not mean to pay? Have you heard any outcry against people who can well afford to pay but prefer to cadge around a free hospital and get advice, glass eyes, and cork legs for nothing? I have not. It is required of you to save others at all moments. It is nowhere laid down that you must save yourselves.

You have been and always will be exposed to the contempt of the gifted amateur, the gent who knows by intuition everything that has cost you years of study. You have also been and always will be exposed to the attacks of those persons who consider their own undisciplined emotions more important than the world's most bitter agonies—the people who would hamper and limit and cripple research because they fear that it may be accompanied by a little pain and suffering. Such people have been against you from the beginning, ever since the earliest Egyptians erected images in honor of cats and dogs on the banks of the Nile. But your work will go on. You remain perhaps the only class that dares tell the world that no man can get more out of a machine than he puts into it, and that if the fathers have eaten forbidden fruit the children's teeth will be set on edge. In a day when few things are called by their right names you are joining a profession in which it pays to tell the truth. Realizing these things, I need not task your patience by talking about the high ideals and lofty ethics of that profession—so I will wish you enough work to do and strength to do the work.

Why disinfectants have proved of so little value against the spread of plague has been a cause of anxiety to sanitarians. It would appear that some of the reasons have at length been satisfactorily demonstrated. The Plague Research Commission found that rooms retained their infection after most thorough treatment with mercury perchloride. Light is thrown on the reason of resistance to this agent by a report of Captain Liston, I.M.S., of the Bombay Bacteriological Laboratory, which records the results of a research by Captain T. H. Gloster, I.M.S. Aerial infection may be put on one side as a cause of epidemics, and so may the excreta, since if they contain bacilli these are rapidly destroyed in India. This destruction may be brought about by disinfection, but even in a moist state the excrete are speedily dealt with by the saprophytic bacteria, which rapidly develop and multiply in such conditions. It is the rat, or rather the rat's flea, with which we have to contend. In the body of this flea the plague bacilli are inaccessible to the natural disinfectants. In the insect's stomach they find their food—the blood of its host. On the death of the flea they perish by desiccation or from the saprophytic bacteria. The flea sucks the infection from a rat attacked by plague. To stamp out plague, therefore, we need to destroy all infected rats and their fleas. But the habits of rats render it very difficult to exterminate them. A gaseous disinfectant would seem to promise success, provided it could be forced into the secret lairs of the rats. Attempts have been begun in this direction. Meantime the study of liquid disinfectants has not been neglected. The Plague Research Commission showed that rooms cannot be successfully disinfected by mercury perchloride—1 in 750. But Captain Gloster's experiments prove that an emulsion of kerosene oil is an effective disinfectant against plague. Rooms which were infected and in which a succession of guinea-pigs put there for the experiment all died were afterwards thoroughly washed with the emulsion, and guinea-pigs put there after this washing lived. Accordingly Captain Liston strongly recommends kerosene oil emulsion as an easy method of disinfection. The emulsion is made with 3 parts of soap dissolved in 15 of boiling water. To this solution the kerosene oil, gently warmed, is added, gradually up to 100 parts, shaking and stirring well. Kerosene seems to be remarkably pernicious to fleas, for it kills them in as weak a dilution as 1 in 1,000, while they seem to be indifferent to a bath of mercury perchloride.

Professor Ronald Ross has presented to the Colonial Office his report on malaria in Mauritius, which colony he visited at the desire of the Colonial Secretary. His observations and recommendations are as clearly put as usual, and his report is likely to be useful in tropical countries. People who can avoid it are advised not to live in malarious districts, and when they cannot recognized precautions should not be neglected. Mosquito nets must be regularly used and the smallest hole at once be repaired. It is especially advisable to protect a room or a veranda for use during the day or evening. Punkas and fans not only drive away insects, but keep the body cool. Where there is great danger he recommends quinine to be taken, 5 grains before breakfast daily and a double dose on Sundays.

In dealing with public prevention Dr. Ross remarks that as a broad general rule malaria causes from one-fourth to one-half the total sickness in the tropics. It can always be reduced or even extirpated. Large marshes must be drained, deepened, or filled up. A permanent organization must be established for dealing with the breeding places of anopheles and for distributing quinine, especially to infected children. Such a campaign would get rid of other diseases as well as malaria and improve any tropical locality. The heavy losses of the colony caused by malaria are pointed out on the estimate of Dr. Bolton. In these are included not only the sickness and death, but the loss of labor, wages, etc.

Professor R. Ross outlines a "general plan of campaign," which, he says, should not be confined to a few localities, but be extended to all the populous parts of the colony, and the cost would not be very great. Minor campaigns, he thinks, fritter away considerable sums without producing a marked effect on the total amount of sickness. This campaign should be begun simultaneously and vigorously throughout the land, before the beginning of the malaria season. The chief object is to deliver as heavy a blow as possible upon the disease at the commencement of the malaria season, in the assurance that every case cured and every infection thereby prevented will save many more infections later on. He recommends periodical examination of children in the schools, as well as on the estates, and the continuous treatment of all those who may be found suffering from enlarged spleen; continuous house-to-house distribution of quinine, where necessary, and treatment of fever patients on the estates; continuous performance of minor works where required, in towns, villages, and indeed all populous areas, by malarial gangs engaged for the purpose; similar efforts on the estates; and further the appointment of a malarial authority for the island.

By the death of Sir Arthur Macan, which took place on Sunday, Ireland loses one of her most distinguished members of the profession. He was president of the Royal College of Physicians in 1904, was ex-master of the Rotunda Hospital, King's professor of midwifery, T.C.D. and gynecologist to Sir Patrick Dun's Hospital. He was a Dublin graduate in arts and medicine, 1868, became F.R.C.P., 1877. He has been president of the Gynecological Society, of the Obstetric Section of the International Congress at Berlin, and held many other posts of renown. He translated Heller's article on "Intestinal Parasites" for Ziemssen's Cyclopedia, and contributed various articles to the journals on obstetrical and gynecological subjects, chiefly to the *Dublin Medical Journal.*

Diet of Nursing Women.—L. Bouchacourt regulates the diet of nursing women in such a way as to produce the most milk and of the best quality. The diet must be abundant and of good quality, but vegetable matters should predominate, meats being less important as milk formers. Oils are also valuable. The vegetables that give the best results are lentils, peas, beans, beets, chicory, parsley, cottonseed oil cakes, and carrots. Cod-liver oil is also valuable. Plenty of milk, butter, and cheese should be given daily. Plenty of liquids are also important, and the author believes that light beers, ales, and cider have galactogogue properties.—*Journal de Médecine de Paris.*

Progress of Medical Science.

Boston Medicol and Surgical Journal, October 8, 1908.

The Relation of Carcinoma of the Corpus Uteri to Fibroids.—The conclusions of J. T. Williams are as follows: (1) There is a distinct relationship between carcinoma of the corpus uteri and fibromyomata. (2) This relationship probably lies in certain common etiological conditions. (3) The predisposition of fibroids to become complicated with cancer does not constitute an indication for their routine removal as soon as discovered, providing the patient can be kept under close observation. (4) Any marked increase in the loss of blood from a fibroid, or the appearance of any vaginal discharge in the intervals between the hemorrhages should be regarded as suggestive of the development of carcinoma. (5) In a fibroid where either of these symptoms is present an immediate curettage should be performed in order that the condition of the endometrium may be examined, even if a radical operation has been decided upon. (6) Every uterus removed for fibroids should be immediately opened by an assistant and the endometrium inspected to guard against possible oversight of a malignant process. (7) In all cases of fibroids complicated by adenocarcinoma of the corpus a complete removal of the uterus including the cervix is the operation of choice.

Tumors of Adrenal Origin with Particular Reference to Hypernephroma of the Kidney.—After some reference to the anatomy and physiology of the adrenal bodies, H. C. Moffitt reports nine cases, adding a full bibliography of the subject. It is extremely difficult to make any clinical distinction between such growths and renal hypernephroma. Some of the most important diagnostic points in the latter condition are thus given: (1) Hematuria, a common symptom and often the first. Its exact character and origin must be determined by cystoscopy. (2) Pain is an early symptom and may for a long time preclude any other manifestation. It may vary much in character and exact location. (3) The tumor varies greatly in size and in rapidity of growth. It may be present for years without giving trouble and may suddenly assume a malignant character. In addition to the pain it causes, it frequently produces pressure symptoms. Varicocele is often present, usually on the left side. Its peculiarities are appearance late in life, usually without pain, rapid onset, persistence when the patient lies down, but disappearance when the patient is put in the knee-chest position so as to remove pressure of the tumor from the veins. (4) Metastases frequently occur in the lungs, liver, and bones. Pulsating bone tumors should always arouse suspicion of metastases from either adrenals or thyroids. (5) Pigmentation has been observed in only a few cases. (6) Trophic changes are often in evidence in the shape of abnormal genital development or general overgrowth in childhood. (7) The urine may remain normal for years, in spite of the presence of a renal tumor. Polyuria is not uncommon. Albuminuria may be present. (8) *X*-ray plates are of great value in differentiating hematuria due to stone, although it must be remembered that stone and tumor may coexist and that calcification in a tumor may simulate stone. Results of operation for this class of growths have thus far been disheartening.

New York Medical Journal, October 10, 1908.

Conservatism in Surgery of the Hands.—A plea for conservatism in all surgical procedures on the hand is made by J. A. Hofheimer, who notes that beginners are apt to overdo matters, particularly if the case is not seen until several days after the injury, by which time cellulitis or lymphangitis may have occurred. A series of six cases is reported, illustrating the benefits of conservative measures. Healing may require longer under these circumstances than when amputations are done, but the results more than justify the delay. The author says that very often the ambition or necessity of the patient compel him to resume work early, and he is not willing to submit to a prolonged period of invalidism, but the surgeon's duty is not to be limited by the patient's desire. After an injury the crushing, bruising, or frequent infection causes a temporary destruction of the parts; these have to be cut off and a healthy growth encouraged. In amputation the tissues to be operated on can be selected and primary union obtained. This advantage often leads to errors of judgment, but immediate brilliant results are not to be compared with the advantages of more remote preservation of function. When there is the slightest chance of saving a part of the human economy, endeavor should be made in that direction. Utility of a member is important to a wage earner, but a small part of a finger is better than none at all.

The Stomach and Intestinal Gases.—An elaborate tabulated paper on this subject is presented by S. Basch, who describes an apparatus for the collection and analysis of these gases. In a general way they were aspirated into a pear-shaped bottle. In the stomach we find (1) oxygen and nitrogen from air swallowed with or independently of, food and drink. (2) Nitrogen, carbonic acid gas, sulphuretted hydrogen, ammonia, and other gases contained in food, drink, medicated liquids, and mineral waters, and (3) gases originating within the stomach itself, from fermentative processes, such as carbon dioxide, hydrogen, and ammonia. The author gives his results with analyses of the gases taken from the stomachs of three patients who were suffering from, respectively, cancer, benign stenosis of the pylorus, and a perigastric abscess communicating with the stomach. Gases in the intestine (1) may enter from the stomach, (2) nitrogen and carbon dioxide may diffuse in from the blood, but (3) most of them are formed in the bowel through fermentation, bacterial decomposition, and in the upper bowel through chemical composition of the alkaline carbonates of the intestinal secretions by the acid chyme and fatty acids. Almost none are formed in the large bowel except in cases of hyperperistalsis without obstruction. Here the contents are rushed through so rapidly that gas formation is practically uniform throughout the entire bowel. Carbohydrates yield hydrogen, carbon dioxide, and other hydrocarbons. Proteids yield less carbonic acid gas, but in addition, hydrogen, marsh gas, nitrogen, ammonia, and sulphuretted hydrogen. Much of the gas does not pass out through the anus, but is diffused into the blood and leaves the body through the lungs.

The Mechanicobiological Standpoint in Medical Problems.—A series of papers on this general topic is introduced by J. Wright with a contribution on the physical processes in immunity and infection, the writer referring freely to his own previous writings and those of others on this and kindred topics. It has been shown that dust, saponified oil globules, and bacteria (under certain conditions) pass through the epithelium of both the tonsils and intestines. This probably arises from the difference between the potentials of surface tension of the epithelial cell on the one hand and that of the dust or bacteria on the other. One kind of matter is harmless, and the other often harmful. Evolution has consequently stepped in by natural selection or otherwise. The author reviews recent literature in the field of investigation. In general it would appear that the action of one body upon another at a distance through the medium of bodily or other currents bears a striking analogy to those interactions of one electrified body upon another at a distance through the medium of electric currents in the ether. The difference in the terms of the equations and in the results of their functions seem solely due to the differences in the physical properties for water or other real fluids and those of ether as theoretically formulated by physical science. The "pulsating molecule of life," a struggle with syntax to subordinate complex phenomena to our finite comprehension, the radiation of lines of force from the centrosome and the various phenomena here referred to, by those attempts at correlation assume a significant influence. It seems apparent, then, that to the changes constantly wrought in fluid protoplasm we must apply not only the laws of electrodynamics, but the laws of hydrodynamics. Variations in these laws, or rather variations in the conditions under which they manifest themselves, probably explain why *e.g.*, it comes about that various bacteria constantly found on tonsillar and other surfaces are at times harmless and again harmful. The author notes that in watching under the microscope for evidence that such bodies as carmine granules enter the epithelial cells in their path to the deeper lymph channels he was unable to see that they did so. In fact phagocytoses during quiescent conditions of the tonsil did not seem to take place in the superficial regions of the tonsil. It would seem that the forces which take the granules beneath the surface are those with which we are familiar under the name of capillary attraction, but the author regards the question as more complex than this.

Journal of the American Medical Association, October 10, 1908.

Idiopathic Multiple Hemorrhagic Sarcoma.—Dr. Lieberthal reports a case in detail, including microscopic examination of the excised morbid tissue. Very few cases of this disease have been reported from this country, and most of them in patients of foreign birth. The patient in the present case was a native American. The disease begins on the hands and feet in the form of reddish brown or bluish red, rather firm, soft or spongy nodules, nodes or plaques or diffuse swellings. By the development of dis-

crete formations it advances along the legs and arms and gradually reaches the trunk, face, and mucous membranes. Some of the lesions may atrophy, wholly or in part, leaving pigmented depressions. Ulceration is rare, but the lesions, especially on the limbs, are generally painful. Horny growths have been developed in a number of cases. Usually the subcutaneous structures escape, but they have been found involved in some cases. Microscopic examination shows numerous cavities in the corium lined with endothelium and, between these, accumulations of small spindle cells in bundle or streak-like formation or in irregular masses. The sarcomatous nature of the disorder, held by Kaposi has been questioned, largely on account of the possible spontaneous involution of the lesions. Lieberthal refers, as regards this point, to the memoir of Fano, in which the views of various high authorities are given, which to a certain degree mitigate the sharp differences between sarcoma proper and idopathic, multiple hemorrhagic sarcoma. The cause of the disorder is unknown.

Nasal Duct Strictures.—H. Moulton advocates the use of lead styles in the treatment of nasal duct strictures, especially such as are resistant to other methods of treatment. The advantages of the material are, that it is cheap, easily obtained, pliable, and readily shaped by the surgeon; comfortable to the patient, and not acted on by the secretions as are aluminum and silver in the course of time. He finds the fuse wire used by electricians the best adapted for this purpose. It contains a little antimony, which is rather an advantage than otherwise; can be obtained in different sizes, the best being those of 1, 1.5, and 2 mm. diameter; or the wire can be compared directly with the lacrymal probe. He gives directions as to the fitting and insertion of the style which are important, care being needed that it fits the canal without causing tension. After the first few hours the patient is unconscious of its presence and the secretions readily find their way down along its side. It is well to remove the style every three or four weeks and see that all is well, but he has frequently allowed it to remain a month or longer, and in one case it remained over six months with good result. As a rule, after a style has been worn a month or two, he takes it out for a week. Then, if syringing is at all difficult, he reinserts it for another month. The very old cases of tight stricture require the longer time for a cure. In no case is appropriate nasal or other treatment that may be required to be neglected. In his hands this treatment has been so uniformly successful that he hopes it will be more generally tried by other ophthalmologists. He does not claim to be the originator of the method, or advise it as a universal one, but thinks that it will be found effective in a large proportion of obstinate cases.

Breast Milk Feeding.—Effa V. Davis, from a careful study of 100 cases in the first two weeks of the puerperium in hospital practice, including observation and regulation of the mother's diet, regular weighings of infants and analysis of breast milk, comes to substantially the following conclusions: 1. The system of estimating the quantity of breast milk by weight is a decided aid in making a feeding schedule for the newborn infant. 2. Both mother and child must be considered in deducing any thoroughly useful rules. 3. The early secretion from the mother's breast is useful in sustaining the child, and infants should be encouraged to nurse from the first day of life, whenever possible. 4. When the milk is abundant, a three-hour interval soon becomes the shortest for feeding in the daytime, but a longer interval at night can be borne by the child with benefit. 5. Both the digestive capacity of the child and the quantity of breast milk may affect the results, without regard to the times and quantity of feeding.

Rat Leprosy.—Fourteen cases of rat leprosy were found by Agnes Walker in the examination of 2,780 rats, all of the common Norway species. The pathological condition was much as observed by others, thickening of the skin, nodules in one case only, but ulcers in nearly every case containing enormous numbers of the acid-fast bacilli, morphologically identical with those of human leprosy. The granules observed by McCoy and the subcutaneous congestion noted by Wherry were not noticed. The question as to the relationship between this disease of rats and human leprosy can not at present be answered, but the comparative frequency in rats and rarity in the human species in that locality suggests, she thinks, that it may not be transmissible to man from rats or that the contact is not sufficiently intimate to favor the transmission.

Heredity and Insanity.—E. Cohn says that hereditary tendencies are very manifest in insanity, and he thinks if we could get the exact facts in all cases the high estimate of 90 per cent. of cases attributable to hereditary causes would probably be found not far from the truth. Even in cases of apparently purely acquired insanity some hereditary defect or predisposition may have made the patient an easier victim. Intermarriage, alcoholism of parents, drug habits, etc., are cited as effective factors in the production of mental disease. It is unfortunate, he thinks, that we can not have federal laws preventing the crowding together of immigrants in great centers where they concentrate and propagate their hereditary defects. The remedy for the conditions he sees in better methods of education, the teaching of right ideals in our public schools, instruction of the public in regard to the transmission of hereditary defects, and higher and better standards of morality.

The Lancet, September 26 and October 3, 1908.

The Therapeutic Value of Stock Vaccines in the Treatment of Bacterial Infections.—The general principles underlying the mode of therapy are described by J. Williams, who defines a "vaccine" as a killed bacterial culture suspended in normal saline to which ¼ per cent. lysol, or ½ per cent. carbolic acid has been added. Their injection into healthy individuals causes (1) an immediate rise in the protective substances as indicated by the opsonic index, (2) a fall of longer or shorter duration, followed by a rise up to or above normal, with a succeeding fall to normal and (3) a fall tending to be more or less permanent, according to small, medium or excessive dosage. The intelligent use of vaccines presupposes (1) diagnosis of the bacterium at fault, isolation and culture and preparation of a vaccine, and (2) the estimation of the amount which for a given case constitutes a proper dose and the correct determination of the period which should elapse before inoculation. These points are elaborated in considerable detail. In the institution with which the author is connected it has been found practicable to dispense tubercle (T.R.), staphylococcus, streptococcus, gonococcus and typhoid vaccines. Experiments seem to promise the addition of a vaccine of micrococcus performance for its beneficial results in lessening pain and retarding growth, and secondary deposits in some forms of cancer. The paper of Dr. Williams will serve as a valuable introduction to anyone wishing to take up the study of vaccine therapy.

Vaccine Therapy in General Practice.—The paper of L. Grant, T. H. Campbell and W. D. Anderson is a record of personal experience with four cases. Two were tuberculous, one presented staphylococcus infection, and one, encapsulated pneumococci mixed with Friedlander's pneumococci. In the tuberculous cases, T.R. tubuculin was used, and in the other two the proper vaccine prepared *secundum artem*. Results were satisfactory in all four cases. In the cases treated with tuberculin the following facts are emphasized: (1) The scars resulting were soft, pliable and the disfigurement (following certain operative procedures) slight. (2) Recovery under the treatment seemed rapid, and this implied saving of suffering and expense to the patient and anxiety to the medical attendants. (3) The absence of severe surgical measures minimized the risk of a general tuberculous infection and obviated that slight risk which always attends general anesthesia. (4) Although opsonic estimations were only made occasionally during the treatment, they suggested that the index was being steadily raised, and from this it is probable that for some time, at least, the patients will be less susceptible to attacks by the same bacterium. Surgical measures alone may achieve this indirectly, inasmuch as they rid the body of the focus of the disease, but it is questionable if they are capable of raising the standard of defense to the same high level as that induced by vaccine therapy.

Diffuse Painful Lipoma of the Foot.—The first patient of A. H. Tubby was a hospital nurse, woman, aged 25 years, who three months before coming under observation had complained of pain in the feet. Examination showed an oval swelling on each foot on the inner side and just below the sustentaculum tali, encroaching on the weight-bearing surface of the feet and measuring almost one by one and a half inches. A diagnosis of lipoma was made and confirmed by operation. Recovery was uneventful. The growth was highly vascular and bled considerably. The second case was that of a girl of 16 years with a swelling on the inner side of the right foot, semicystic in character and almost one inch in diameter. Operation showed the same fatty and vascular condition as in the previous case. The author notes certain differences in such growths as compared with congenital diffuse lipoma. In the latter the main part of the microscopic section is occupied by fat and areolar tissue, yet the interfibrous spaces are occupied, are crowded by small round cells, not unlike those seen in round-celled sarcoma, and clinically the diffuse congenital form of lipoma is somewhat akin to sarcoma, in that it shows an inveterate tendency to recur very rapidly after removal. In the acquired diffuse form, such as reported in this paper, no such appearances are evident,

but the bloodvessels are extremely numerous and somewhat hypertrophied. With reference to the clinical features of these acquired cases, the author notes that on careful observation the swellings due to acquired painful diffuse lipoma may partially fill up the arches of the feet, so that the condition can be mistaken for flat foot; but in all the cases the author has seen, numbering now five, the tumors have always been between the inner edge of the sole of the foot and the internal malleolus, and have not extended further forward than the anterior part of the sustentaculum tali. In no case has he seen them over the scaphoid or internal cuneiform bone. The striking features about them are their slow growth and their indolence, their extreme tenderness, and their vascularity when cut into. It is also noticeable that any pressure, whether arising from an irregularity on the inside of the boot or from the employment of a "flatfoot" pad, renders the patient completely unable to get about on account of the pain. Finally, on removal, they do not, as far as is known, recur, and in this respect are entirely different from the congenital diffuse lipoma.

Rheumatic Hyperpyrexia.—In a patient of T. E. Meyber, a boy of nine years with a seven weeks' history of stiff neck and slight leg pains, examination revealed a presystolic initial murmur with a flaccid and paralyzed arm. The condition went along for four days without change when the boy suddenly developed stertorous breathing and became comatose. The temperature was 109° and the pulse uncountable. The patient died in an hour with a temperature of 110°. The author notes the variety of hyperpyrexia during acute rheumatism in children, and its greater frequency in first attacks and in those which run a mild course.

Treatment of Inoperable Cancer.—Henry Morris regards cancer as at first a local affection, and would divide inoperable cases into four groups: (1) Primary cancer affecting inaccessible parts and organs; (2) primary cancer which though originating in an accessible part or organ of the body has been allowed to extend beyond the limits within which an operation is prudent and complete removal possible; (3) certain cases of acute diffuse carcinoma and very rapidly growing or widely infiltrating new growths of exceptionally virulent character; and (4) recurrent cancer, where the disease has recurred in multiple metastatic foci or in parts beyond the limits of removal. Many of the cases included in these groups are submitted to operation for the purpose of palliating symptoms or prolonging life. Hence the term "treatment" as applied to inoperable cancer means one of two things: (1) The employment of remedies and methods other than the knife, to cure, ameliorate, or retard the disease, as well as to prevent relapses after its removal; or (2) the employment of the knife to give relief from pain, to prolong life, to restore function, and otherwise to make the patient's condition more tolerable. The remainder of the paper is an application of the principle of therapy above enumerated to cancers in various bodily areas. The various operatic measures and cauterizing agents are passed in review. Concerning trypsin solution, the author writes very cautiously, and believes it has yet to justify its use. He declares that Beard's results have not yet been duplicated by any other observer. The paper gives a very candid review of the present status of the pancreatic ferment therapy.

British Medical Journal, October 3, 1908.

Family Pneumonia.—G. Norman notes the susceptibility and want of resistance power in some families as regards pneumonia, and reports a series of seven cases with five deaths in the same family. Three generations lived in one house. The first case was that of the grandmother, who died on the sixth day of the disease (apex lesions) after a prodroma of grippe; second, her daughter-in-law, who had been attacked with fever and diarrhea at the same time, died three days later with a middle lobe pneumonia. A child and a niece of the second patient living in an adjoining house developed the disease on the day after the mother's and aunt's death, but both recovered (apex lesions). One week later the grandfather was stricken (apex), and died on the third day. Sixteen days later another child (cousin to the preceding) developed measles with complicating pneumonia and died in two weeks. About a month after, the seventh case, an infant three months old, came down with a gastric disturbance, but after a temporary improvement developed pneumonia (base) and died on the fifth day from the onset of symptoms, and ten hours after the diagnosis of pneumonia was possible. Nothing could be detected as regards unsanitary conditions in either dwelling. During the same season there were other cases of the disease in the same general locality, but with few fatalities.

Oxygen and Muscular Exercise as a Form of Treatment.—This therapy is commended by L. Hill, who says that he has noted its good effects on swimmers, athletes, work horses, and trotting horses. He has constructed (and describes) a small portable apparatus which is in effect a combined generator and inhaler. He has no doubt that oxygen in connection with exercise has a most beneficial effect on untrained or fatigued men. It enables them to increase greatly the bodily metabolism. It should be of value, therefore, in the treatment of people who are fat and scant of breath, and those who overeat and take too little exercise, and in cases of emphysema and of heart disease treated by graduated exercise. It may find a use in tropical regions to make exercise easier and in men who are exhausted by a day's mental work and worry. The author's paper is followed by a report of Mr. Flack on the case of Wolffe, the man who tried to swim the English Channel and to whom oxygen was administered while he was in the water. The swimmer gave out when only a quarter of a mile from the end of his route, and while the oxygen did not stave off fatigue, it demonstrated its great value in relieving fatigue of a most advanced type.

Münchener medizinische Wochenschrift, September 22, 1908.

Dietetic Causes of Nervousness in Children.—Siegert says that in addition to the hereditary nervousness of children there is another form which is proved to be acquired by the rapid convalescence and cure of the patients under proper management. The most important cause of the latter type of nervous disturbance is found in improper diet, especially the co-called "nourishing" diet, which is often prescribed for children. Usually there is an overabundance of proteid in such a diet, while fat is also well represented; vegetables and fruits are frequently not given because of their supposedly small nutritive value. Restlessness, lack of attention in school, constipation, anemia, skin affections, night terrors and insomnia are often caused by this disproportion between the requirements of the organism in proteid and fat and the quantities of them consumed by the child. No medicinal treatment proves of any use, but simple change in the diet with increase of vegetables and fruit running parallel with gradual but decided reduction of proteid and fat soon leads to amelioration of the symptoms and finally to complete restitution of the patient to health. The treatment, then, is very simple, but the diagnosis is made difficult by the widespread idea of the inherited character of most nervousness in children. Complete history with details as to the amount and kind of food given is the best aid in arriving at the correct interpretation of the condition present in these cases. The treatment, too, while simple, must be faithfully adhered to for long periods of time in order to save the child from reaching maturity handicapped by a badly balanced nervous system.

Removal of Tonsils.—Hopmann says that the usual objections to removing tonsils, such as the uselessness of the operation, the harm done by removing protective lymphatic systems at the portals of entry for possible infections, the great danger of narcosis in children, etc., are answered not so much by theoretical considerations as by the practical results obtained. Partial operations, on the other hand, may be properly objected to the mutilated lymphatic organ left on their performance being as much a source of danger as the hypertrophied organ before the operation. The great danger of the hypertrophied and diseased tonsils or adenoids consists in the favorable culture ground which they furnish to various bacteria that reach them from the constantly infected mouth and pharynx; thus of 300 tonsils examined, 43 per cent. were found to contain infected areas or foci of putrefaction. The earlier the operation is performed the less chance is there of general infections with such chronic disease as tuberculosis. General narcosis must be insisted upon in all cases, for it is only in its use that the opportunity is given for a complete and careful removal of the tonsillar and adenoid tissue.

Congenital Syphilis and Progressive Paralysis.—Müller says that Wassermann's researches have finally proved that without syphilis there can be no progressive paralysis. The fact that some 10 per cent. of paralytics do not give any history of syphilis is explained by the possibility of ignorance of the existence of the disease, which is often the case in women, and the well-recognized untrustworthiness of all venereal patients. Still more important is the fact that paralysis may occur in consequence of inherited syphilis. Müller reports three cases of progressive paralysis in such patients. That they are more frequent than is usually thought is probable, when the extraordinary distribution of syphilitic infection in all classes of people is considered. Often, therefore, a careful family history and an examination of the patient's parents may clear the mystery of a progressive paralysis in apparent absence of any leutic infection.

Book Reviews.

Protozoa and Disease, Comprising Sections on the Causation of Smallpox, Syphilis, and Cancer. By J. Jackson Clarke, M.B. (Lond.), F.R.C.S. Part II. New York: Wm. Wood & Co., 1908.

This is a thoroughly comprehensive and up-to-date résumé of the life history of those protozoa which are responsible for disease in the human organism. The author is not an extremist, yet he believes that we have already established beyond doubt that yellow fever, tick fever, smallpox, hydrophobia, molluscum contagiosum, trachoma, syphilis, carcinoma and sarcoma are of protozoic origin. He declares that it has been well established for five years that certain hyaline bodies appearing in the corneal cells of rodents, when inoculated with variolous matter may be relied on to make the diagnosis of smallpox. Moreover, the Negri corpuscles can be made out by simply pressing a cover glass upon the *cornu ammonis* staining and examining. Their presence he regards as proof positive of hydrophobia, and thus priceless time may be saved to a supposedly infected patient. The author uses the term "cancer" to include all common forms of malignant disease whether of the epithelial or connective tissue type. He goes back to the cell theory of Schleiden and Schwann enunciated in 1838 and upholds Virchow's belief that constituent cells of cancer are lineal descendants of cells formerly an integral part of the body in which the tumor grew. As an evidence of the great progress that has been made during the past decade in the interpretation of protozoa as factors in disease, this book is the most illuminating we have yet seen.

Grundriss der Allgemeinen Symptomatologie. Für Aerzte und Studierende von Dr. med. R. Oestreich, Privatdozent für Allgemeine Pathologie und pathologische Anatomie; Prosektor des Königen Augusta Hospitals in Berlin. Berlin: August Hirschwald, 1908.

This work is based on an extensive postmortem experience and is written with the intention of fixing in the clinician's mind the pathological conditions which may be associated with various subjective and objective symptoms. After some general observations on symptoms and their relation to disease the author takes up various objective symptoms describing clearly how any one of them may be caused by various diseases of the internal organs. He discusses the numerous varieties of each objective symptom, such as the different kinds of dyspnea, pulse, etc., showing how one variety may suggest more strongly one disease than another. In the latter half of the book the writer briefly describes the symptomatology of the various diseases of the internal organs, laying special stress on differential diagnosis. The book is to be recommended to both the student and general practitioner, because it very clearly and concisely indicates how to interpret objective symptoms in order to arrive at a correct diagnosis.

Vitality, Fasting and Nutrition. A Physiological Study of the Curative Power of Fasting, Together with a New Theory of the Relation of Food to Human Vitality. By Hereward Carrington. With an Introduction by A. Rabagliati, M.A., M.D., F.R.C.S. New York: The Rebman Co., 1908.

This is a remarkable book and one that will probably call down upon the author's head the wrath and contumely of the unbeliever. He seems to have gone to work with a purpose of setting us all by the ears, and turning topsyturvy pretty much every conceivable notion of present-day physiology. But if we disagree with him on many of the issues he raises, he sets us thinking by the very audacity of his concepts, and the ingenious way in which he postulates what most scientific men will consider impossibilities. His theory of fasting as a cure for human ills did not originate with him, but with a certain Dr. Dewey; so we are told. In the following up of Dewey's theories, Mr. Carrington has succeeded in filling more than 600 pages with statement, argument, and exhortation, to-wit: that food does not give strength or energy, but on the contrary detracts from both; that mankind would live longer and be happier if it followed the "no-breakfast" plan; that food supplies new tissue only and does not supply energy or vital force; that vitality cannot be made but must flow into us somewhat as does the soul at birth, and that the purpose of sleep is a renewal of vital force. This is by no means all, but it perhaps is enough to begin with.

Urogenital Therapeutics, Medical and Surgical. A Treatise on the Practical Treatment of Diseases of the Urinary and Genital System, by Fillip Kreissl, M.D. Chicago: The Cleveland Press, 1908.

This work, as its title indicates, deals only with the treatment of genitourinary diseases. The author in his introductory assumes in the reader "a knowledge of the physiology and pathology of the urogenital tract and familiarity with the recognized methods of diagnosis in this tract * * *" From this viewpoint the work certainly justifies its existence. It must be conceded that the majority of practitioners are more interested in the treatment of disease than in recondite pathological research. To the majority, therefore, the book will prove extremely acceptable. The specialist, too, obliged to give general practitioners at least a synopsis of the treatment of their cases, will find it very convenient to refer them to Kreissl's book. The tone of the work is somewhat magisterial; but the author certainly embraces within a relatively small volume for so large a subject, all the methods of treatment. That he mentions some which are still in the experimental stage, as, for instance, the serum treatment of systemic gonorrhea, is doubtless for the sake of completeness. Covering, as this book does, the entire medical and surgical therapeutics of diseases of the genitourinary apparatus, and those of syphilis and sexual derangements as well, the author presents his subject admirably. The value of the book for rapid reference would be materially enhanced, if future editions were provided with a more exhaustive index. The 149 illustrations, many of them original, materially assist in comprehension of the text. The mechanical part of the work does credit to the publishers.

Outlines of Physiology. By Edward Groves Jones, A.B., M.D., Professor of Surgery in Atlanta School of Medicine, and Robert Grier Stephen, A.B., M.D., Instructor in Physiology in the Atlanta School of Medicine. Second Edition, Revised; 107 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

Dr. Stephens has revised the little book of Dr. Jones and has rearranged the subject matter. The introduction, containing definitions and scope of the divisions of physiology, has been entirely rewritten; the chapters on circulation and on the chemical constituents of the body are likewise recast. A new chapter on the "Blood" has been inserted as an introduction to the consideration of circulation. The book retains its character as a handy *résumé* of the subject which ought to prove useful to the student reviewing the subject and to the busy physician who wants to brush up his knowledge of physiology. It cannot, of course, take the place of the larger works as a college textbook. In its special field, however, it is one of the best books of "Outlines" that we have seen.

Le Cancer. Prophylaxie, Etiologie, Traitement. Par le Docteur C. Sobre-Casas (Buenos-Aires). Paris: G. Steinheil, 1908.

While Dr. Sobre-Casas has put very little of his own views into this book, nevertheless he deserves the thanks and praise of everyone who is fortunate enough to be able to peruse it. As a compilation of the best that has been said and written on the great cancer problem this little volume is a model for all that shall come after. So far as one can determine, the author has not missed a single important point, and this is by no means extravagant praise.

The first chapter considers the prophylaxis and defense against cancer, followed by a review of its actual status in Germany, England, France, the United States, Austria-Hungary, Russia, Spain, Portugal, Italy, and the Argentine. The parasitic and nonparasitic theories of origin are thoroughly reviewed and discussed, while contributory and predisposing causes receive due attention. Chapter IV. is devoted to the various kinds of treatment which have been tried, and an attempt is made to determine the true worth of each. There is a chapter on general hygiene and a brief one on our present knowledge of the cancerous maladies. Eight full pages are given to bibliography. We believe that this essay will prove indispensable to all students of malignant disease.

Practical Life Insurance Examinations. With a Chapter on the Insurance of Sub-standard Lives. By Murray Elliott Ramsey, M.D. Philadelphia: J, B. Lippincott Co., 1908.

After many years' experience as an examiner for life insurance companies, Dr. Ramsey has prepared this book, with the single purpose of placing before the examiner what will be expected of him in the way of interpreting such facts as may be revealed by the examination. The volume is essentially a compendium on physical diagnosis with such references to prognosis as are essential in determining the validity of a "risk." Especial attention has been directed to diseases of the chest and abdomen, and the chapter on sub-standard insurance is in this respect well done. The author approaches his subject with a due sense of the obligations resting upon the examiner, and he warns against careless work as a violation of trust reposed in the latter by both the public and the company. The volume is carefully written, and will prove a helpful one to the specialist in this branch of medicine.

Society Reports.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-sixth Annual Meeting, Held at Winnipeg, Manitoba, August 25, 26, 27 and 28, 1908.

THE PRESIDENT, DR. RICHARD H. LEWIS, OF RALEIGH, N. C., IN THE CHAIR.

Report of Committee on Ophthalmia Neonatorum.—Dr. F. PARK LEWIS of Buffalo, N. Y., Chairman, presented a lengthy report on this subject, in which he stated that ophthalmia neonatorum was still a most prominent cause of much unnecessary blindness. The efforts that had been made had already lessened its disastrous results in a large degree, but in many instances where it seemed to be infrequent it would be found to be producing blindness among the poorest and most neglected classes. In these the burden on the public treasury was greater because the victims of this neglect became almost inevitably charges upon the State. The responsibility for the investigation, the recognition, and the control of this infection rested upon the Department of Public Health. The committee recommended that the conclusions reached by the Committee on Ophthalmia Neonatorum of the American Medical Association be approved by the American Public Health Association, and that whenever practicable the Health Officer of the State or Territory over which he exercised jurisdiction be urged to confer with the committee appointed by the American Medical Association, and to inaugurate such measures through the State and its counties for the enlightenment of the people and the control of this disease as might in their judgment seem advisable. The recommendations of the Committee on Ophthalmia Neonatorum of the American Medical Association were (1) to secure the enactment of laws in each State or federal territory requiring the registry of births and placing the supervisory control and licensure of midwives in the Boards of Health, requiring that all midwives be examined and registered in each county, and that they be required immediately to report each case of ophthalmia occurring under their ministrations under penalty for neglect, if found guilty, of fine, and for a subsequent offense, forfeiture of license. (2) The distribution by Health Boards, through bulletins and otherwise, of circulars of advice to midwives and mothers, giving instructions as to the dangers, methods of infection and prophylaxis of ophthalmia neonatorum. (3) The preparation and distribution by the Health Boards of ampules or other receptacles containing the chosen prophylactic with specific directions for its use. It is advised that the choice of the prophylactic be determined by the health officer with the advice of the committee representing the obstetricians and ophthalmologists for that State from the American Medical Association. (4) To insist on the maintenance of proper records in all maternity institutions and other hospitals in which children are born, of the number of cases of ophthalmia neonatorum, with the method of treatment and the results. These reports, which should include all cases of scarred cornea as well as of blindness, should be filed at regular intervals with the Department of Public Health, and the records published. (5) Periodical reports to Boards of Health by all physicians engaged in obstetrics of the number of cases of ophthalmia neonatorum that has occurred in their practice within a specified time, whether or not a prophylactic was used, and if so, what, together with the result.

DR. GARDNER T. SWARTS of Providence, R. I., said that inasmuch as ophthalmia neonatorum was a communicable disease, the proper health authorities and health associations should take cognizance of that fact and endeavor to combat the disease as they did other communicable affections. In Rhode Island there was a law requiring that if inflammation of the eye or eyes occurred in a child during the first five days after birth, a physician or health authority should be sent for to take charge of the case. It was the duty of health officers, if they found that this disease was prevalent, to notify physicians of the fact, and particularly the younger practitioners. As the disease was a preventable one, such prophylactic measures as suggested by Dr. Lewis should be carried out.

DR. F. F. WESBROOK of Minneapolis said it should be a comparatively easy matter to convince the provincial or State authorities that what money was expended in providing for printing, postage, nitrate of silver, argyrol, or some other drug, was more than saved in the cost of providing for the education, housing and maintenance of blind people. He felt quite sure that in Minnesota they would save in the State Hospital for the Blind more than it would cost to carry out the recommendations of this committee.

DR. CHARLES F. FAGAN of Victoria, B. C., said that for a number of years he had devoted his entire attention to health matters and was ashamed to say that he had neglected his duty on this question, but in the future would endeavor to keep this subject before medical and health authorities, so that they would take action. He would certainly take up this question in his own district.

DR. WILLIAM HENRY GUILFOY of New York City said that steps had been taken by the New York City Department of Health in prosecuting successfully some of the midwives who had been accused of not reporting cases of ophthalmia among very young infants. The Health Department had found it necessary to go further, and at the last session of the Legislature a bill was passed which gave the New York City Department of Health complete power over registration and the practice of midwifery, and in consequence certain rules had been formulated, a violation of which was a misdemeanor and punishable by fine and imprisonment. Very soon they hoped to see the way clear to have about fifteen hundred midwives under constant supervision.

DR. JOHN N. HURTY of Indianapolis, Ind., said that all those who were engaged in public health work should fully appreciate the importance of this report and its recommendations. While great progress had been made in this regard, still it would be a long time before the legal authorities took hold of this matter in the right way, and it would be a long time before the people would become interested in that which concerned them so deeply. It was strange that the people themselves were so indifferent in regard to the prevention of blindness.

DR. HURTY moved that the Secretary be instructed to publish at the earliest date possible the report of the Committee on Ophthalmia Neonatorum in the *Journal of the American Medical Association,* or other medical journal, and that he should have 2,000 reprints made and distribute the same according to his judgment, subject to the approval of the Publication Committee.

This motion was seconded and carried.

Vaccination with Humanized Lymph.—Dr. FRANCISCO DE P. BERNALDEZ of Mexico described the methods adopted by the Vaccination Department of the Supreme Board of Health of Mexico, with the most satisfactory results. The region in which the vaccine was to be inserted, whether on the arm or on the leg, was carefully washed with sterilized water, soap and a brush, rubbing with the latter until the skin became red, and was then dried with sterilized cotton. The inoculation was then practiced with lancets that had previously been dipped in boiling water or passed through the flame of an alcohol lamp. The postules of the child from whom the vaccine was drawn were cleansed exclusively with sterilized water and cotton, were very superficially scarified, and not used if they bled. A small quantity was taken up on the lancet and the inoculation made in the person who was to be vaccinated by means of small punctures, almost joining each other, and six to eight in number. In making these punctures the lancet left the lymph spread over the place where the punctures had been made. These should not reach beyond the dermic layer of the skin, because that was where the lymphatic network was found abundant and fine. Moreover, this was the way

to prevent the vaccine postules from bleeding. The object in making the punctures in the form above described was to produce postules in a series, so that the collection of the lymph would be facilitated, because there would be only one scar and not several. The pustules might be numerous, and, lastly, the vaccination was not painful. The advantages of this method over others that had been described were that they did not cause any pain, did not give rise to any flow of blood; they facilitated the collection of the lymph, and they could easily be examined to find whether they presented the characteristics of true vaccination, because this was the only way in which the operating physician could ascertain with certainty whether a person had been well or badly vaccinated. If other methods were employed, or the skin was scratched, the pustules could not present those characteristics, and the operator always remained in doubt as to whether the individual had obtained immunity or not.

Prevention of Smallpox.—Dr. James Roberts of Hamilton, Ontario, described an outbreak of this disease which comprised some eighty cases, the handling of which cost the municipality of Hamilton approximately $10,000. The one feature which appeared to him more striking than any other in this outbreak was the precision with which the disease singled out in family after family the unprotected for attack. He was unable to find after careful scrutiny of the personal history of each case previous to this illness any evidence to prove that in more than one or two instances vaccination had ever been performed. Practically the whole series of cases was without the semblance of a scar. More thorough investigation and closer inquiry into the causes of disease furnished more convincing evidence in favor of contact infection as the chief factor in the spread of this as well as the other exanthemata, notwithstanding all that had been said and written on the doctrine of aerial transmission. The author believed that if the enforcement of the vaccination act were entrusted by law to the sanitary authorities alone, with the necessary legislation to protect them adequately in the discharge of their duty, the great bulk of the people of Canada would be found as willing to have the law carried out as were the people of Germany. Upon the practicing physicians devolved the great and serious responsibility of seeing that the performance of vaccination for contract prices among school children and among the industrial population in large cities was carried out in such a scrupulous and conscientious manner as in no wise to bring discredit or reproach upon the twenty years of quiet and painstaking investigation which gave to the world the greatest discovery known for the preservation of the human species.

Dr. W. F. Elgin of Glenolden, Pa., referred to the effect of heat on vaccine. Taking virus from the same animal and subjecting it to various temperatures and noting the results, the speaker found that a temperature exposure of 60 deg. C. killed the vaccine matter in five minutes. Where the vaccine was kept at the temperature of the body, and was carried by physicians in their pockets for three days, it had but little or no effect. At a temperature of 25 deg. C., or ordinary room temperature, vaccine would last a week; at a temperature of 15 deg. C., it would last from three to six months, and if kept below the freezing point, minus 10 to 15 deg., he had been able to keep it for four years, and it was good at the end of that time. But he had never kept vaccine longer than that.

Dr. F. M. Smersh of Owatonna, Minn., said that in order to have a successful vaccination, the arm, the towel, and the vaccine must be aseptic. He found in a great many instances that people who had been vaccinated infected themselves through carelessness. In many cases they put a dirty rag around the sore. He cited some instances where infection had occurred.

Dr. Alton S. Fell of Trenton, N. J., referred to the methods of quarantine in cases of smallpox. Prior to seven years ago the speaker had not seen a case of smallpox. In December, 1901, the disease broke out in the city of Trenton, and the President of the Board of Health, who had had some experience with smallpox, insisted that no matter what the stage of the disease was, everyone should be taken to the Isolation Hospital, and isolated for a period of eighteen days. This worked a good deal of harm, and later such rigid isolation measures were not enforced, but the results were equally as good.

Dr. William A. Evans of Chicago said there was a growth of anti-vaccination sentiment in this country which he believed philosophically was founded on the prevailing principles of American law. In addition, it was founded upon a growing diminution in the virulence of the disease, due largely to the fact that men protected were modifying the causative agency of smallpox just as the causative agency of smallpox in turn modified man. He believed that this decreasing virulency of the disease was a factor in the development of an anti-vaccination sentiment which proved ill for this country. Some organization should prepare a refutation of the arguments advanced by anti-vaccinationists, and this refutation should be given the official endorsement of the organization responsible for its preparation. He knew of no organization that was better prepared to do this work than the American Public Health Association. Accordingly, he moved that a committee be appointed to prepare an argument as to the efficacy of vaccination, and that the association devise some means for the dissemination of that report, and that some effort be made toward a simultaneous and concerted movement throughout the country in opposition to the anti-vaccination sentiment.

This motion was carried, and a committee of seven was to be appointed by the President.

Dr. L. Laberge of Montreal said that in 1885 they had a serious epidemic of smallpox, having had 10,000 cases in eleven months. They struggled with this epidemic by means recommended, namely, vaccination and isolation. Since then they had tried to have a compulsory vaccination act in the city, but had not been able to obtain it. But they had, however, an ordinary which held the employer and the superintendent of schools responsible. They had now power to vaccinate, and since that time vaccination had been very efficacious. They had no hesitation in isolating a case from the first hour of making the diagnosis.

Address of the President.—Dr. Richard H. Lewis of Raleigh, N. C., pointed out the difficulties in the way of establishing a national department of public health in the United States by the dual nature of the government and the distribution of constitutional powers. It was unquestionably to the interest of the general cause that each State should look after its own health work, acting always in a spirit of cordial cooperation with the great national bureau, which spirit the latter should be very careful to foster and encourage in every way, not only to its own interests, but that of the whole country. It would not be at all difficult to so conduct the national bureau as to have the State Boards look to it as both guide and friend. In a general way, the kind of national bureau of health we ought to have and the kind he thought most desired, was one including within its scope and management all the specific health agencies of the government now in existence, with the addition of others when needed, so thoroughly manned by the best men in their respective departments, and so richly endowed with funds that work of the highest class in demonstrating the principles underlying all subjects bearing upon the public health could be done. Having by the study of the work of others and by original research settled upon the correct principles of sanitation, it should make a practical application of them to the actual everyday problems of preventive medicine in the sanitary management of the District of Columbia and the territories over which the United States had absolute control. It should give a clinical demonstration of the best methods as carried out by its own thoroughly educated and trained health officers. But it was as a source of information and education that we found the chief value of the bureau.

First, in the education of its own officials and the health officers of the country; second, of the medical profession, and, third, of the people. In a bill now pending in Congress further enlarging the powers and duties of the Public Health and Marine Hospital Service, authority was given for the establishment of a school of hygiene for the training, free of charge, of such health officers as might choose to attend. The granting of a certificate was allowed, but it should go further and grant the degree of Doctor of Public Health, as was done in England. In this way we might hope for the gradual development of a sanitary profession of equal dignity with that of medicine or the other regular professions.

Typhoid Fever in the Province of Manitoba.—Drs. R. M. Simpson and A. J. Douglas, in a joint paper on this subject, directed their attention in particular to Winnipeg. Separating Winnipeg into two parts, North and South, they found in the south district, where nearly all houses were furnished with improvements, 549 cases of typhoid in the years 1903-4-5. In the north district, where box closets dotted the landscape at frequent intervals, during the same period there occurred 1,983 cases. Particularly striking was the fact that as soon as the evenings began to grow cold in August, and the flies were driven indoors, the typhoid rate rose, and when the first hard frosts of winter set in, and the snow fell early in November, a diminution at once took place. Box closets offered every possible facility for flies to act as infection carriers, the excreta being above ground and entirely accessible, and the light not excluded. It was the commonest thing not only to see flies swarming in these places, but also to see abundant evidence of their actually breeding in them. It was a frequent occurrence to visit houses and find two or three typhoid patients being cared for in one room where the cooking was done and the food kept, the individual who was doing the cooking usually acting in a nursing capacity as well. Drastic regulations were undertaken. No case of typhoid was allowed to remain at home unless the conditions were such that proper isolation could be obtained, and that excreta could be handled in a manner precluding the chance of infecting others. Rigid disinfection of the premises was carried out in all cases. The use of metal garbage receptacles was insisted on, also that manure should be kept in covered boxes and removed frequently and regularly to avoid affording breeding places for flies. The Provincial Board of Health and the Local Department distributed literature on typhoid prophylaxis and on the care of cases. Circulars were issued instructing people to screen their houses and to keep down the number of flies by the use of flypaper and other means. Milkmen were instructed as to what their duties were. Careful supervision was exercised over the water supply, and a large number of public and private wells had been closed. Low lots were drained or filled in, rubbish heaps were burned or destroyed, lanes paved or graded, many insanitary premises were closed altogether, and work along these lines was still going on. Last year some results from their efforts were evident, and from indications the present year would exhibit an even more satisfactory showing, as up to the present they had only had 160 cases, which was considerably less than last year's total at the same time.

Epidemiology of Typhoid Fever.—Dr. H. W. Hill of Minneapolis traced the history of typhoid fever from the earliest stage to the present time. In old times it could be attributed to flies and to the mother of the child. Contact and fly contamination were the great causes of the spread of the disease. The Minnesota State Board of Health issued the following instructions with regard to typhoid fever: "To the Citizens of ————: Typhoid fever is epidemic in ————. The Minnesota State Board of Health is investigating this epidemic to find its exact source. Meantime, govern yourselves as follows: 1. Typhoid fever is contracted solely by the mouth. If you do not put the poison of typhoid fever into your mouth, you will never contract the disease. Therefore, watch the mouth. 2. Do not eat or drink anything (water, milk, oysters, fresh vegetables, or anything else) unless it has been first boiled, broiled, baked, roasted, fried or otherwise thoroughly heated through and through. 3. Do without all food or drink which has not first been thus heated. (Canned or bottled foods or drinks, other than milk or water, are not included in this.) 4. If living in the same house with a typhoid fever patient, do not handle your own food or food intended for anyone else, even if it has been heated, except with hands that have been thoroughly washed with soap and very hot water, preferably also with antiseptics. Ask your physician about the antiseptic to use. Wash before every meal in this way and before cooking, serving or eating anything or putting the fingers in the mouth. 5. If there are flies about, see that all food and drink is protected from them at all times. Flies often carry typhoid poison to food and drinks. 6. The poison of typhoid fever does not show itself for two weeks after it enters the body. Therefore, for the next two weeks, typhoid cases may develop from typhoid poison already taken in. But any case which develops on and after (a date two weeks later than the date of the placard) will be due solely to neglect of this notice and failure to carry out minutely the directions here given."

Dr. John F. Anderson of Washington, D. C., agreed that flies were a fruitful source of infection. Milk was also a source of contamination, due to the lack of proper washing of the cans and other causes.

Dr. Henry Albert of Iowa City, Iowa, exhibited a table showing the epidemics that had taken place through the carriage of bacilli from infected places, the period of infection extending over several years before the disease made itself known. An interesting case was reported early in the present year from Germany, in which thirty-two cases of typhoid fever developed among a population of 130. The author referred to one case in which for fifty-two years a woman had been a carrier of typhoid bacilli, and was the cause of an epidemic which prevailed last year. She was the keeper of a hotel. Women and children were the greatest carriers of the disease. One in every 500 adults who had never had typhoid were chronic carriers. It was impossible to state how long the bacilli carriers acted as such, but it was certain there were as many carriers as there were cases of the disease. Many cases were to be traced to the gall-bladder. He expressed the opinion that in a few years there would be sufficient knowledge to prevent the carriage of the disease, and that one of the greatest preventives would be vaccination.

A Study of Typhoid Fever in Richmond, Va., with Certain Conclusions Relating to the Disease in the South.—Dr. Ernest C. Levy and Dr. Allen W. Freeman of Richmond, Va., in a joint contribution on this subject, pointed out the importance of reporting promptly all cases of typhoid fever by the physician in attendance. There were recommended:—Freer use by physicians of the laboratory aids to diagnosis, which were now furnished gratis by all progressive city and State Boards of Health. Immediate inspection of every reported case, the securing of full information and the study of the data so obtained, with the view of determining the origin of the case. Instruction of the members of the household, at the time of this visit, in the elementary points in the epidemiology of the disease, and leaving printed directions covering the same points. Extension of the sewerage system, so that dry closets may be entirely abolished. Pending this, rigid rules, rigidly enforced, governing the construction and maintenance of dry closets in those sections which were forced to rely on this primitive means of disposal of excreta. The closing of all wells in the city, when a good public water supply was available, and the extension of this supply to reach all the people. Thorough dairy inspection, and the rigid enforcement of a rule requiring every dairyman, under penalty of revocation of his permit, to report immediately any case of illness among the members of his household, as well as among his em-

ployees and their families. Prompt investigation of such reports by the Health Department, and the temporary shutting out of the milk wherever a typhoid case that could not be perfectly isolated was found. Rigid supervision over the disinfection of excreta in all typhoid cases, and the supplying of disinfectants gratis by the Health Department in indigent cases. The campaign against flies, the limiting of their breeding places, and the screening of all typhoid cases, on the one hand, and living rooms, dining room, and kitchen, on the other. Supervision over "carrier" cases, although just how this could be done legally and efficiently was at present an unsettled problem. Education of the public and the medical profession by lectures and literature on the main points of typhoid prophylaxis, especially in regard to the hygiene of the sick room and the danger of carrier cases. If the greater part of southern typhoid is of the residual type, the above measures constitute, in the light of present information, the chief means of lowering the typhoid fever death rate in the South generally.

The Commercial Pasteurization of Milk.—Mr. B. R. Rickards and Mr. W. M. Campbell of Boston said that a large amount of milk was pasteurized in Boston every day. Some of the milk of one contractor was pasteurized in the country and was again pasteurized here. The amount of milk pasteurized was probably increasing. It was evident that the larger part of the milk now pasteurized was before pasteurization above the limit established by the Board of Health of Boston, 500,000 bacteria to a c.c. Some of this milk was of very high bacterial content. Bacteria would increase much faster in pasteurized than in unpasteurized milk. Souring bacteria were killed out quicker by pasteurization than other forms. The tendency was, therefore, for such milk to remain uncurdled much longer than unpasteurized milk, the milk thus having a chance to putrefy. The pasteurization of milk affected the microscopic estimate of bacteria and leucocytes. The authors concluded (1) that the commercial pasteurization of milk without restriction put a premium on dirty milk, since dirty and old milk, otherwise unsalable, could then be put on the market. (2) Pasteurized milk might well mean cooked dirt, cooked dung, and cooked bacterial products, and the laboratory was powerless to detect it. (3) The commercial pasteurization as at present practiced in Boston probably would destroy all disease-producing organisms with the possible exception of the bacilli of tuberculosis. The latter would probably be killed in the majority of instances. One machine only out of the three tested would be likely always to destroy the latter. The toxins produced by these and by the putrefactive organisms in dirty milk would undoubtedly escape unharmed and in many cases be capable of producing severe intestinal disturbance, especially in babies. (4) A false sense of security was undoubtedly conveyed by the term pasteurized milk. The lack of security might come from either improper pasteurization, the pasteurization of improperly handled milk or improper care of pasteurized milk. (5) The unrestricted pasteurization of improperly kept, old or dirty milk should be prevented by regulations or ordinances prohibiting the pasteurization of milk containing over a certain specified number of bacteria per cubic centimeter, the bacterial limit being set with due regard to local conditions, especially the distance from which the milk comes. Such regulation should, of course, be coupled with a regulation forbidding the sale of milk above the bacterial limit established. (6) The law should require that milk heated above 140 deg. F. should be marked "Heated or pasteurized milk." Pasteurized milk should not be sold as fresh milk. The pasteurization of milk in itself was probably not a harmful process and was to a certain extent a necessity under modern conditions in large cities, but commercial pasteurization should be carried on only under the most stringent supervision.

Result of Reincubation and Reinoculation of Atypical Diphtheria Cultures.—Mr B. R. Rickards, Mr. F. H. Slack and Dr. B. L. Arms of Boston presented the results of reincubation and reinoculation of 242 atypical cultures, proving that in many instances a final result may be obtained by these means and a report sent to the physician before the result could be obtained from a secondary culture. Of 242 such cultures, 120 proved either from these or subsequent cultures to be positive; 82 proved to be negative; no subsequent cultures were received on the other 40, although requested. Of the positive cases, reincubation was positive and reinoculation negative in 20 instances. Reincubation was negative and reinoculation positive in 16 instances. Both were positive in 43 instances. Both were negative in 41 instances, the subsequent cultures being positive. The results tended to show that the diagnostician who reported positive or negative only was likely to be in error in about 50 per cent. of those cultures which contained atypical forms only. It was preferable in such cases to report "suspicious organisms present," request another culture, and do further work with the culture already obtained. In many instances positive results were obtained from such cultures after but five to seven hours' additional incubation.

Report of Committee on Standard Methods for the Diagnosis of Rabies.—The committee gave a summary of its knowledge in regard to the diagnosis of rabies. In consideration of the fact that there were still many unsettled questions in regard to this subject, the committee recommended as a working method to use in diagnosing rabies the following: "1. Removal of central nervous system and of salivary glands under aseptic conditions. 2. Smears or impression slips made from ammon's horn, fixed in neutralized methyl alcohol, and stained over the flame until steamed, with the following solution: Methylen blue, sat. alc. sol., 30 c.c.; fuchsin, 5 c.c.; dist. water, 300 c.c. (to be kept in icebox until used)."

If typical Negri bodies were demonstrated, the diagnosis of rabies could be made; if they were not found, similar slides should be made from the gray matter: (1) Of the cerebellum, (2) of the cerebral cortex (motor areas), (3) of the gray matter from other areas. At least six slides should be made, covering a wide area of gray matter in order to exclude the possibilities of localization of definite Negri bodies. If no Negri bodies or suspicious forms were found in any of the slides, and the examined material was fresh, the diagnosis was probably not rabies. If suspicious forms were found in fresh material, the diagnosis was probably rabies. If no definite forms were found in decomposing brains, the diagnosis doubtful must be given. In all cases where the diagnosis was uncertain, animals should be inoculated with a fine emulsion made from material taken from various parts of the brain and pieces from surrounding parts should be prepared for sections. Pieces should also be taken from the Gasserian and several spinal ganglia for demonstrating the presence of the rabies tubercles, as well as of the Negri bodies. Two rabbits or four guinea pigs should be used for the inoculation, which might be either subdural or intracerebral. The inoculated animals should be kept under observation for at least three months before a negative diagnosis was made. An emulsion from different parts of the brain should be made in sterilized neutral glycerin for later inoculations, if, for any reason, the first should be unsatisfactory. Decomposed brain should be allowed to remain in the glycerin for one to three weeks before inoculation, unless very weak solutions were used. In the latter case negative results would necessitate another inoculation.

Animal Inoculation in Tuberculosis, Rabies, and Glanders.—Dr. B. L. Arms of Boston presented some of the unusual results from animal inoculation in one case of tuberculosis, three of rabies, and six of glanders, all occurring in routine work, with the following conclusions: (1) All pigs inoculated for tuberculosis should be

autopsied. (2) All negative rabies pigs should be kept under observation for twelve months. (3) All negative glanders pigs should be kept under observation for at least four weeks. (4) All pigs inoculated for glanders dying after forty-eight hours should be autopsied. (5) Any inoculation might give a freak result, consequently the possibility of the unusual occurring in any given case must be remembered.

Committee on Standard Methods of Chemical Analysis for Water and Sewage.—The committee (Earle B. Phelps, Robert S. Weston, Edward Bartow, A. Elliott Kimberly, L. P. Kinnicutt) had been at work collecting information looking to a revision of the present standard methods. A circular letter was sent out to water chemists and others. The present standard methods were in quite wide use, and no very important changes were suggested. Some additional matter was needed, particularly in the case of mineral analysis of water, and of the analysis of alum and other materials used in water and sewage treatment. The committee had planned a comparative study of all alternative methods and modifications, which would be undertaken by the various laboratories volunteering. The final form which the various methods should assume would be determined by the results of the proposed study. Changes were proposed in the following determinations, some of the changes being only in minor points: Turbidity, free ammonia, organic nitrogen, nitrates, copper, hardness. Additional methods were planned as follows: Complete mineral analysis, the determination of manganese, free chlorine, alum, and other commercial products.

Stability and Putrescibility in Sewage Filter Effluents.—Mr. Earle B. Phelps of Boston said that the development of the modern rapid sewage filter had given a somewhat altered conception of the function of sewage disposal in general, and the rapid introduction of such filters had necessitated changes in the schemes of sewage analysis and their interpretation. The most important result of all this was that they looked now for qualitative changes, rather than quantitative removal. The putrescibility test had become a most important one. The author dealt with the subject of putrescibility with a view to arriving at a definition which would be acceptable to all, a method or methods of determining putrescibility which would harmonize with that definition, and a method of expressing results so that they shall have quantitative significance. Putrescibility was shown to mean ultimately the availability of the material as a bacterial food. To avoid confusion and confliction of the present conceptions with various past uses of the term, it was recommended that the word stability would better represent the thing sought after in sewage purification. Stability was shown to be not an absolute characteristic to be recorded as plus or minus, but a relative and quantitative property of organic matter, which required quantitative treatment. The methylen blue or similar test was recommended for adoption as a standard test. It combined great simplicity with quantitative accuracy, a combination possessed by no other test. Finally the speaker also proposed a method of recording results by which the time required to decolorize methylen blue could be properly weighted to give a stability factor which was an accurate index of the quality of the effluent.

State Control of Public Water Supplies.—Dr. C. O. Probst of Columbus, Ohio, said that if a polluted public water supply concerned only the community that used it there might be some argument in favor of home rule, although in this case it would be more properly home misrule. The State had become in a large measure one community, and it must assume increased responsibility for the conditions which threatened the lives and health of the people. It should be the duty of the State to protect from pollution, as far as possible, all sources of water supplies of which use was being made. The question coming up in all populous States was, Could the streams and watersheds that must furnish public water supplies be kept free from contamination by laws and inspection? This might be possible for some of the States, but not for the great Middle West territory, where usually municipal and industrial wastes must go to the streams. Should these wastes be purified in all cases where the stream was used in any part of its course as a public water supply, or should water purification be depended on for protection? We could not settle this problem for all communities in general terms, for the very evident reason that each community afforded a problem of its own. The State should decide what could best settle such questions.

Means to Promote the Health of School Children.—Dr. M. L. Price of Baltimore began at the cradle and ended at the grave. Among other things, he said that school education was important. The first education of the child should be to save itself from death. Teachers should carefuly instruct the children in methods of hygiene. There should also be medical inspection of the schools. Children were subject to many diseases. They should not be allowed to exchange food or clothing, or any article of personal use.

Dr. Samuel G. Dixon of Ardmore, Pa., strongly urged the vaccination of children before they would be allowed to attend any school, public or private, and said that all schools should have a regular medical inspection and regular disinfection.

Registration of Births and Deaths.—The following resolution was adopted:

Resolved, That the draft of a model law for the registration of births and deaths in the United States, based upon the essential requirements of registration, as laid down by the American Public Health Association in conjunction with the United States Bureau of Census, and approved by the American Medical Association and by the conference of Commissioners on Uniform State Laws, be cordially endorsed by the American Public Health Association; and that the Committee on Legislation of the Section on Vital Statistics be authorized to cooperate on behalf of this association with the representatives of the other organizations named and with the Bureau of the Census in making such minor changes as might be necessary and in urging the adoption of such legislation in non-registration States.

Enlarging the Powers of the Public Health and Marine-Hospital Service.—The following resolution, introduced by Dr. John N. Hurty of Indianapolis, Ind., was adopted:

Resolved, By the American Public Health Association, that it heartily recommends to the American Congress the passage of such legislation as is intended to enlarge the scope and increase the efficiency of the Public Health and Marine Hospital Service. To this end the association believes the powers of the service should be increased; that provisions should be made for the retirement under pay of the members of the service, and that the salaries of the said members should be made commensurate with the medical service of the army. The Secretary shall send a copy of this resolution to the chairman of the House Committee on Interstate and Foreign Commerce, and to the corresponding committee in the Senate.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Gardner T. Swarts, Providence, R. I.; *First Vice-President,* Dr. R. M. Simpson, Winnipeg, Manitoba; *Second Vice-President,* Dr. Jesus Chico, Mexico City; *Third Vice-President,* Major Charles F. Mason, U. S. Army, Washington, D. C.; *Secretary,* Dr. Charles O. Probst, Columbus, Ohio; *Treasurer,* Dr. Frank W. Wright, New Haven, Conn.

Richmond, Va., was selected as the place for holding the next annual meeting; time to be fixed by the Executive Council.

AMERICAN PEDIATRIC SOCIETY.

Twentieth Annual Meeting, Held May 25 and 26, at Delaware Water Gap, Pa.

PRESIDENT DR. CHARLES G. KERLEY IN THE CHAIR.

Special Report to the MEDICAL RECORD.

(*Concluded from page 569.*)

Tuesday, May 26—Second Day.

Public School Education.—Dr. CHARLES GILMORE KERLEY of New York delivered an address with this title. He considered his subject of public school education as it affected the physical and mental development of the child. There were at present 18,000,000 children in the public schools of this country, and they now attended school ten months of the year, five days a week, and five hours a day; therefore a large part of the responsibility of rearing these children that had formerly belonged to the parent fell to the schools. These children were compelled to read and to write more or less during the time they were in school and by an artificial light. The question arose, what had these schools taught the children? Had they fitted them to compete for a living? It had been shown that a large percentage (from 17 to 80) of the pupils in the public schools were defective. Formerly the children in the schools were mostly English speaking and now this was not the case. In the larger cities there were from 75 to 90 per cent. foreign-born children. The school system was seriously at fault in not teaching something of sex. Dr. Prince A. Morrow was authority for the statement that 75 per cent. of the population either have or have had gonorrhea and that from 10 to 14 per cent. had contracted syphilis. Sixty per cent. of the morbidity among the male population was due to these infections. Thirty-five per cent. of the blindness was due to gonorrhea, and from 60 to 80 per cent. of the pelvic disorders of women were due to the same disease. Dr. Kerley said that he had known three girls who became pregnant in their thirteenth year and all of them were ignorant of the nature of the sexual relation. It was evident that the children were being educated to the danger point. The competitive spirit was pushed to its limit and the whole atmosphere was charged with the inevitable causes of disappointment, failure, and suicide. The overeducation of the unfit brought forth tastes, traits, and desires that he should never have known of and was the cause of much dishonesty. Sons of trades people no longer would follow the calling of their fathers; all wished to become professional men and bank presidents. Dr. Kerley thought it would be wise to insert into the curriculum a few minutes' talk on the nobility of labor and to emphasize the fact that all labor was honorable except that which was badly done. Children had the right to demand better physical advantages than they were receiving at the present time. If they were to judge the public school system by the manner in which it discharged its duty in these directions they would have to admit that it had failed in its function.

An Unusual Type of Nephritis in Children.—Dr. JOHN LOVETT MORSE of Boston said that he had recently seen a number of cases of acute nephritis in children that differed from those one usually met with in that there was almost complete absence of blood and blood elements in the urine. There were large numbers of round mononuclear cells, often associated with polymorphonuclear leucocytes. The comparatively large diameter of the casts was also observed. He cited a number of cases to illustrate this type of the disease. In these the amount of blood present had been moderate in the beginning and had disappeared after a few days, and then the urine took on the characteristics mentioned. He thought the cases were milder in character and of shorter duration than ordinarily seen, and the prognosis was better. He said he had never had an autopsy in one of these cases.

Dr. HENRY KOPLIK of New York said that the paper had reminded him of certain cases of typhoid fever in which such kidney trouble occurred, where there were leucocytes and casts in the urine. It was difficult to distinguish these cases from infectious nephritis. In cases of gastroenteritis followed by nephritis there was a question of the involvement of the ureters and bladder, especially in female children.

Dr. J. H. MASON KNOX of Baltimore mentioned a case of this kind in which there was hematuria, a number of leucocytes, and a few casts. The kidneys at autopsy showed the convoluted tubules undergoing hyaline degeneration.

Dr. L. E. LAFÉTRA of New York spoke of a case that had been under his care in which the leucocytes persisted long after the disappearance of the casts. He had been unable to account for the condition, as the child was otherwise in good health.

Recent Diagnostic Methods in Children.—Dr. L. EMMETT HOLT of New York presented charts to show the fever reactions to tuberculin, the tuberculin eye test (Calmette), and the tuberculin skin test (von Pirquet). Of the fever reaction to tuberculin, of the positively tuberculous, 22 were positive, one was doubtful, and one was negative. Of the cases probably tuberculous, there were 17 positive, and no doubtful or negative reactions. Of the cases probably not tuberculous, there were two positive reactions. Of the positively nontuberculous, one gave a positive reaction, and there were 60 negative reactions. There had been no bad results among the 568 tests made. Of the tuberculin eye test (Calmette), of the positively tuberculous there were 24 reactions, three doubtful reactions, and eight negative reactions. Of the probably tuberculous cases, 15 were positive, and one was doubtful. Of the probably nontuberculous, there were two positive reactions, six were doubtful, and 508 were negative. Of the tuberculin skin test (von Pirquet's), of the positively tuberculous, seven were positive, and one was negative. Of the probably tuberculous, seven were positive, and one was negative. Of the probably tuberculous, nine were positive, and one was negative. Of the probably nontuberculous, there were 41 negative. Of the positively nontuberculous, three were negative.

Dr. WILLIAM P. NORTHRUP of New York said that he had reached the same conclusions as Dr. Holt. He had carried out the injection test in 65 adults under the direction of Dr. Trudeau. The patients were made quite ill and he could not take quite as cheerful a view of the test as Dr. Holt did. Dr. Baldwin of Saranac Lake had suggested that there should be three points of scarification in carrying out the skin test. He used a small instrument much like the screw driver used for eyeglasses. He used broth for the first; broth plus old tuberculin 5 per cent. for the second, and plus tuberculin 10 per cent. for the third.

Dr. THOMAS MORGAN ROTCH of Boston described the work that they were doing along this line. He described at length the advantages that they had in the way of material for experiment. He was of the opinion that the eye and skin tests would be more popular than the fever test in the future because there were a large number of cases in which we were doubtful whether we were dealing with tuberculosis or not. There was such a large number of cases in which this test could not be used. He thought that perhaps where it could be used it gave better results than the others. He had never had any serious results with the fever test excepting where a gross error was made.

One should be very careful as to the dosage. He had had best results with the eye test. They had given it in 100 consecutive cases and it seldom gave a reaction except where there was tuberculosis, and in almost every case it disclosed the tuberculosis. He hoped that the skin test could be used because it gave more rapid results. They had given small doses frequently repeated in their experiments. It was better when repeating the eye test to repeat in the other eye.

Dr. Augustus Caillé of New York said that he was opposed to the eye test. The eye was not the proper organ for experimentation. The tuberculin test had been found to fail in 5 per cent. of the cases upon which it had been tried. He thought the test fairly unreliable and was opposed to it in a general way.

Dr. Henry Koplik of New York said that he used the v. Pirquet test in those cases where there was fever and the tuberculin test was ruled out. He had used 1/10 mg. and then increased the dose as indicated. He expected to publish the results at the Tuberculosis Congress. He had not allowed the eye test to be used in his service. He related an instance in which the eye test had apparently failed and a family had been thrown into a panic by the announcement that the child had tuberculosis. The child recovered in a very short time, with no signs of the disease. Of course, one could not tell what would develop later.

Dr. S. Mc. Hamil of Philadelphia had used the eye test in 177 cases and had had his preconceived prejudices confirmed. His work had been on institutional children and he had had some very disturbing results. In 144 cases he employed the cutaneous test and the ointment test of Moro. He had employed the eye tests first, following that the ointment test, and then he took the balance of the cases and employed the three tests at the same time. It was evident that there was practically no difference in the reaction of these tests. There was uniformity of degree as well as uniformity of action. The reaction with the cutaneous test was most marked in 35 per cent. of the tests; in 34 per cent. it was most marked with the eye test; with 24 per cent. most marked with the ointment test. He had employed the cutaneous test in confirmation of the others in 85 per cent. and the results were positive in all but one case. He used 1/10 mg. and repeated it in 25 per cent. of the cases. The dose was advanced to 1 mg. if necessary. He was working in an institution that was overcrowded and had a definite number of cases of definite tuberculosis. This accounted for the high percentages. In 20 cases he had used both human and bovine tuberculins. In eight cases the reactions were the same to both. The reaction was more marked to the bovine than to the human in two cases. He had anticipated this result because the bovine tuberculin was much weaker than the human.

Dr. A. H. Wentworth of Boston spoke of the German statistics that gave a number of reactions in healthy persons. He asked how they proved the so-called healthy persons to be nontuberculous.

Dr. Holt, in closing the discussion, said that Dr. Park made no deductions when one man used ½ per cent. and another 1 per cent. tuberculin. There was so much difference in the strength of these tuberculins that the results could not be compared. He said that statistics had recently been given comparing the results of tuberculin tests with the findings at autopsies, the point being to determine the latent tuberculosis. These statistics threw some light upon the positive reactions in healthy persons. The latent tuberculosis steadily rose from the first few months to past 14 years. If a positive reaction was obtained one should be very careful to ascertain if the patient had tuberculosis. The sputum should be studied, going over it again and again. The fact that we got a positive reaction in a patient and that the patient got well did not prove that the case was not one of tuberculosis.

Fresh Air in the Treatment of Disease.—Dr. Wm. P Northrup of New York read this paper. Two points of value he said he wished to bring up with regard to the fresh air treatment of disease: first, the practical application of the fresh air treatment, and, second, in what particular cases this method was to be adopted. The element of cold in the fresh air treatment was of value. He told of the experience of treating the tuberculous insane in New York City. They lived and slept better in the open air and it was not necessary to resort to drugs to produce sleep and to quiet them. The fever and the maniacal excitability of these patients were controlled. In the application of the cold fresh air treatment one of the first rules should be to make the patient, as well as the attendant, comfortable. Dr. Northrup then detailed the method of making a bed; a point aimed at was to prevent the cold getting up from below. The diseases that he had treated in the open air were pneumonia, scarlet fever, and other pyrexial diseases. Dr. Lambert of New York claimed that the open-air treatment of lobar pneumonia in adults shortened the course of the disease. The open air treatment killed no one; it did not even hurt anyone. In all the doubtful and desperate cases the treatment with fresh cold air determined the balance in favor of a cure in every case.

Fresh Air in the Treatment of Disease.—Dr. E. E. Graham of Philadelphia said that for eight years they had been using the fresh air treatment of diseases in the Philadelphia Hospital. Hospitalism he believed to be due to lack of fresh air. When this treatment was begun, the infant mortality immediately began to lessen. Of all the factors that went for reducing infant mortality, fresh air was one of prime importance. During the past three years he said he had been treating all the severer cases of pneumonia in children of all ages in the fresh air. The results had been so different from those under the old plan that he now had lost the dread of pneumonia as a hospital disease. Rickets, scrofula, gastrointestinal diseases, and many other diseased conditions had been much benefited by this method of treatment.

Dr. Augustus Caillé of New York said that he agreed with everything the essayists had said. Twenty years ago, when he entered the babies' ward, he tried to get the ladies in control to understand the importance of fresh air. At present they had a roof garden part of which was open and part closed. Breathing fresh air was the most important therapeutic agent we had.

Dr. A. Jacobi of New York said that in 1870 he proposed boarding out infants and taking the curtains from their cribs, and he proved that of every 100 infants admitted to the hospital and kept three months 100 died. He was asked to resign. Times had changed. He said that since immigration and poverty had increased we had a great deal more rickets than formerly. He thought the disease was due more to bad air than to bad feeding. The northern Russians and Swedes had rickets in their best families because their winters were eight or nine months long and the babies were not removed from their close quarters.

Dr. R. G. Freeman of New York related his experience with measles. In 1907 they had 71 cases in the Nursery and Child's Hospital and only one death. They had considerable otitis media and some pneumonia with the measles. Afterwards the whole ward came down with bowel trouble; the children were put outdoors and there were no deaths at all. Scarlet fever broke out in one of the measles wards, and they put 11 of the measles patients out on a closed piazza. They all did remarkably well. He, too, had felt convinced that rachitis was a disease of asphyxiation. The fact that it was a disease of winter,

that cases were better in the fall, that experiments on animals to produce the disease with different kinds of feeding had failed all pointed to the truth of the statement that it was a disease of bad air.

Dr. J. P. Crozer Griffith of Philadelphia said that there was a difference in the way that men used the term "fresh air." They sometimes meant breathing fresh air, sometimes breathing cold air, and sometimes exposure of the body to cold air. Exposing a child with a temperature of 107° to cold air to reduce temperature was a different thing from breathing cold air. There could be no discussion as to the advisability of breathing fresh air, but none of us would put a child in a cold room and take the covers off of it.

Dr. E. M. Buckingham of Boston said that he had intended saying just what the last speaker had said. Pneumonia patients suffering from dyspnea were relieved by placing them out in the air when the administration of oxygen failed to give relief.

Dr. C. B. Putnam of Boston said that when he first entered the Massachusetts Infant Asylum, 35 years ago, they were just beginning to farm out the children, but that since that time this method had developed until now they had less than 25 out of 125 children in the institution itself. There were some cases better suited to hospital treatment.

Dr. L. E. La Fétra of New York said that one could often overcome the objections to fresh air in private practice by using the inside awnings, which allowed the child to breathe fresh air without being exposed.

Dr. Charles G. Kerley of New York said he had been particularly interested in the fresh-air treatment of typhoid fever. He had had very little trouble in applying it in private practice. He thought that the teaching concerning tuberculosis had prepared people for the rest. No doubt deficiency of oxygen had much to do with rickets, but children got rachitis under the best of conditions, and he believed it essentially a nutritional disorder.

Dr. Samuel S. Adams of Washington said that farming out infants at the present time meant something very different from what it did at the time to which Dr. Jacobi had reference. They used at that time to farm children out to a darkey with five or six children of her own who would express surprise that the infant could not keep "pot liquor" on the stomach. He had been surprised at the willingness of even the ignorant to follow out directions in the fresh-air treatment. He cited a case in illustration of this.

Dr. F. S. Churchill of Chicago thought that people were more willing to carry out the fresh-air treatment than the profession at large believed. He had no difficulty in private practice and had a nurse follow up his dispensary cases, going to the home to look after them.

Dr. P. J. Eaton of Pittsburg said that the nurse had a great deal to do with results from this treatment. Dr. Northrup's famous paper "23" had given him the inspiration to teach the nurses, and he had been lecturing to them in four different hospitals.

Dr. L. Lovett Morse of Boston said that they had heard a great deal about fresh air and cold air for babies, and he wished to remark that it did no harm to well ones.

Dr. A. Jacobi of New York said that it had been suggested that the time to which he had referred when he spoke of farming out babies was different from the present, and he wished to say that it was hardly forty years ago, and many of the principles of good infant feeding were known then. He taught the same things at that time that he still taught. The Department of Charities of New York City had commenced at that time to board out children. The results were the same in institutions to-day as they were at that time. He was glad that common sense was beginning to prevail.

Dr. E. E. Graham of Philadelphia, in closing the discussion, said that, as he had pointed out in his paper, the importance of fresh air was recognized in the early part of the nineteenth century as an absolute necessity. When in 1864 the advisability of erecting a foundling hospital in Philadelphia was discussed such a step was decidedly opposed and Dr. Jacobi was quoted at that meeting. These methods had been taught by a few men for a great many years, but we were just beginning to get to them as a body. If we were as enthusiastic in our efforts to secure fresh air as we had been in securing clean milk we would get excellent results.

Dr. Northrup, in closing the discussion, said that he wished to emphasize what Dr. Graham had said in regard to paying as much attention to fresh air as we had to the quality of milk. He spoke of what agitation had done in the way of procuring a better quality of drinking water. He had purposely spoken concerning pneumonia and its treatment in the open air. He thought the body breathed the air and needed the stimulus as much as the lungs. He said that he was not at all sure that cold air would take the place of the bath in typhoid fever. Dr. Oliver Wendell Holmes had said:

"God lent his creatures light and air and waters open to the skies;
Man locks him in a stifling lair and wonders why his brother dies."

Dr. Henry D. Chapin of New York said that he had felt for a great many years that we had not lived up to our lights on this subject. We had seen hundreds of babies slip through our hands in these institutions without having the moral courage to tell the truth as Dr. Jacobi had.

Congenital Obliteration of the Esophagus with the Report of a Case.—Dr. J. P. Crozer Griffith and Dr. R. L. Lavenson of Philadelphia presented this report. They stated that malformations of the esophagus were very rare, even more so than was supposed. Sixty-three cases of the various forms of malformations had been collected by Mackenzie. These were classified as follows: (1) Complete absence of the esophagus; only seven such cases were reported in the literature. (2) Partial or complete doubling of the esophagus; this condition was extremely rare, only two cases being on record. (3) Direct esophageal fistula without other lesion of the esophagus; seven or eight such cases had been reported. (4) Stenosis. This condition might be due to such causes as (*a*) mucous fold; (*b*) malformation of the tube producing a stenosis. These patients might live for many years. (5) Congenital dilatation. This was usually accompanied by dilatation of the end of the stomach. (6) Obliteration of the esophagus without fistula. About eleven of these had been described in the literature. Phillips had reported two cases in the *Archives of Pediatrics*. (7) Partial obliteration of the esophagus with a tracheoesophageal fistula; in Mackenzie's records forty-three of his cases were of this nature. Hoppe had tabulated fifty-nine such cases. The author collected ten or eleven such cases from the literature. They concluded that fistula was nearly always near the upper extremity or the lower fragment. That while the lower extremity was usually of normal size the upper fragment was usually dilated, but tapered gradually as the fistula ran upward. Nearly all cases opened into the trachea. Three cases had been reported where the fistula entered the bronchus. They reported a case (with the typical history) which ended fatally, and the usual conditions were found at autopsy. The pathology of this condition was quite obscure. All treatments gave discouraging results; the children invariably died. A gastrostomy was the only operation that held out any promise of relief.

Spasmodic Stricture of the Esophagus in an Infant of Four Months.—Dr. Samuel S. Adams of Washington reported this case. The child was well nourished for one of its age. When it attempted to swallow something took place which prevented it from swallowing for from sixteen

to twenty-four hours. Any attempts at swallowing caused regurgitation. Upon giving the child some water there occurred a series of attempts at vomiting; finally the water was ejected and a quantity of mucus as well. The case was diagnosed immediately as one of obstruction of the esophagus. The child had swallowed well enough up to the age of three months. The patient was taken to the hospital, where an attempt was made to pass a lavage tube. This failed, and finally a small sound was passed, and this was followed by a feeding tube. In this way the child was fed for some time and gained in weight. The parents took the child, and the attacks continued for fourteen months, though Dr. Adams said he did not see the child. Then the attacks occurred every three or four days for some time. Very recently the child was brought to the hospital, where a physician passed a bougie. On the following morning on passing the sound an obstruction was met with. A false passage had been made. The child developed pneumonia and died. At autopsy there was found a rupture of the diverticulum and signs of posterior pneumonia. The obstruction to the esophagus proved to be a broken down tuberculous gland which had enlarged and compressed the esophagus. He was told that the pathologist was not certain whether the diverticulum was caused by the surgeon or was necrotic. Below this obstruction were two diverticula, one of which would easily admit a pen. The outer one yielded to slight pressure and ruptured.

Dr. Augustus Caillé of New York reported a similar case in a lad of ten years, who had had spasmodic stricture for five years. The condition came on gradually and was purely spasmodic. The boy had had hydrocephalus in infancy, and he doubted whether he would ever get well, as he thought the irritation was of central origin. He warned in regard to the use of the esophagoscope or sound in making examinations. He had recently learned of an instance where the instrument was run into the pleural cavity, in consequence of which a pneumothorax developed and death resulted.

Dr. C. B. Putnam of Boston reported a case, a child of three years, who could not swallow anything and who died after a few days. A condition similar to that described by the reader of the paper was found. The esophagus had a blind ending, the lower portion opening into the trachea.

Dr. Thomas Morgan Rotch of Boston said that an important point in regard to differential diagnosis had been opened up. Some cases of constriction of the esophagus simulated pyloric stenosis. These conditions were almost identical so far as rational signs were concerned. The lower part of the esophagus had a thinner wall in these cases, and this was the reason there was danger of perforating the wall. He had made a careful autopsy in one case where there was congenital stenosis just at the entrance to the stomach and a ballooning of the esophagus from stretching just above. The least mechanical interference before death would have ruptured it. These cases also simulated closely chronic gastric indigestion, and the greatest care should be taken before employing any other method to determine whether or not they were cases of indigestion.

Dr. A. Jacobi of New York asked the exact site of the constriction in Dr. Griffith's case.

Dr. Griffith replied that it was just above the bifurcation.

Dr. Jacobi said that that was the position that gave so much difficulty in the adult. The cause must be looked for in embryonal conditions. The parts were formed separately, but as a rule found each other and so the tube was formed. This was the seat of predilection for cancer in the adult. The muscular layers in these places were incompletely developed. Such places were found throughout the whole intestinal tract.

Dr. Samuel S. Adams of Washington stated that there was no fluid found outside the esophagus, nor was there anything in the bronchial tubes. He thought the pneumonia was the result of the inhalation of some food that the child had tried to take.

Defect of the Ventricular Septum and Absence of the Pulmonary Artery; Symptoms of Angina Pectoris.—Dr. Alfred Hand, Jr., of Philadelphia, reported this case. A boy of three years was admitted to the hospital on July 10 with the statement that he had severe attacks of dyspnea. His history was negative; he had never had the diseases of childhood. He was a blue baby. His first attack occurred in April, 1907, and he had had one attack daily until admitted to the hospital. He then had two attacks a day. The patient seemed to have some pain with each attack, but nothing in the way of an aura was noticed. The mother claimed that convulsions occurred, but the history did not point that way. After each attack he went to sleep. During attacks the respiration was almost stertorous. The action of the heart was rapid, and the sounds were obscured by the noisy lung sounds. The pupils were semidilated. The attacks were of about an hour's duration. The heart was rapid but regular and had normal sounds. The liver reached 2 c.m. below the ribs, the spleen was not palpable. There was no ankle clonus, Babinski's, and no Kernig's signs. On July 11 the attacks lasted nearly two hours, with a great deal of cyanosis, and the patient was much relaxed. There were no clonic or tonic movements. There was a marked dullness over the upper part of the sternum and a brassy cough. He thought of the possibility of enlarged thymus and gave antitoxin, but without effect. He continued to have the attacks for several days, and then had an attack that resembled angina pectoris in an adult. One-twelfth of a grain of morphine was given, which caused the patient to sleep. Any subsequent attack was aborted by the morphine. The temperature ranged from 98.8° to 107.4°, when the patient died. At autopsy an enlarged thymus gland was found. The heart was found to weigh 115 grams and measured 9.5x7.5x 3 c.m. The pulmonary artery was absent, and there was a defect in the membranous portion of the septum. There was no opening from the right ventricle except into the left ventricle. The ductus arteriosus could not be found in the septum, and there were numerous infarcts in the spleen, liver, and kidneys. Complete obliteration of the pulmonary arteries was found. The absence of heart murmurs was thus explained. The distress complained of must have resulted from the fact that there was more blood in the lungs than normal and less in the general circulation.

Dr. A. Jacobi of New York said that the lungs derived their nutrition from dilated bronchial arteries coming from the aorta, which took the place of the pulmonary artery which was absent or stenosed. He had published such a case in which the patient died at the age of 29 years. He did not think the cases were very rare. There was a late systolic murmur that extended all over the heart. The circulation in these cases simply remained fetal.

A Simple Method of Circumcision in the Newborn.—Dr. W. Reynolds Wilson of Philadelphia said that he had been dissatisfied, and with good reason, with the older methods of performing this operation. They were unsatisfactory because of the incompleteness of the removal of the foreskin in those instances where the latter was adherent to the glands; because sutures were placed irregularly and might have to be tightened to the point of unduly constricting the tissues, and as a result there would be edema which might cause the sutures to cut, because of the length of time required for the operation. In operating, the adhesions of the mucous membrane lining the glands were carefully broken up by sweeping the point of the unopened scissors beneath the foreskin. The scissors could then be introduced beneath the prepuce. The skin was first divided with a division of the mucous membrane to a point corresponding to the division of the skin. The mucous membrane was rolled back to the corona and rendered perfectly free. The redundant fold of skin was

trimmed off with the scissors, as well as the mucous membrane on either side of the incision. This was done carefully while the field of operation was kept free from blood. The redundant roll of skin was removed as far as the distal site of the frenum in order to avoid an edematous flap. A tape of gauze, one-half an inch in width, cut so that the edges frayed, was applied, thus securing a roll of mucous membrane in position behind the corona and compressing the blood-vessels. The tape was about ten inches in length in order to admit of several unwindings. The end of the glans should be left uncovered that there might be no obstruction to the meatus.

Dr. S. C. Cotton of Chicago related the method followed by a Jewish rabbi whom he had seen operate twenty-five years ago, and whose operations were uniformly successful. The method was very much like that just described. He adopted the method at that time, but did not recommend it now as he had formerly done.

Dr. Wilson, in closing, said he thought the use of the knife debatable. He used a pair of surgeon's scissors. He related the case of an infant who disengaged himself from the grasp of the nurse and forcibly drew up his legs, causing him to cut into the femoral artery. He succeeded in getting the proximal end of the artery, but the experience had led him to adopt the more simple method.

Pyelitis Terminating in Suppurative Nephritis.—Dr. J. Park West of Bellaire, Ohio, reported this case. The patient was a child, ten months of age, who was taken ill and died within twenty-four days. The first period of her illness seemed to be lobar pneumonia, the second pyelitis, and the third pyelonephritis. It was supposed that the child had pneumonia until after the crisis the sixth day of her illness. After this her temperature went up to 103° without symptoms on the part of other organs. There had been no evidence of vulvovaginitis. On the first day after the crisis a slightly acid urine was noticed containing a number of small cells and epithelial cells. On the following day the urine was like milk and water, and for the eight days following it was clear milk color. Three specimens obtained gave a specific gravity of 1014, 1012, and 1014; they always contained pus, albumin, and abundance of epithelial cells and some blood cells. At times the secretion was scanty and at times free. After the second day of this period the temperature went down gradually. There were no chills nor sweats. There was marked soreness over the body and at times over the left kidney. On the third day there was swelling of the face, hands, feet, and later of the arms which pitted on pressure over the tibia. On the sixteenth day of her illness there suddenly appeared symptoms of severe gastrointestinal disturbance and uremia, which continued until her death eight days later. The urine remained milk-like in color, but did not look so clean. Postmortem the pelvis of the kidney was found to be thin and rough. There were small spots of distended capillaries on the surface. It was a remarkable case of suppurative nephritis. The capsule was invaded, but the blood-vessels in general had a normal appearance. There were bacteria scattered throughout the tissues, but none in the blood-vessels. The bacilli were larger than typhoid bacilli. The tubules were distended with large quantities of lecucocytes and desquamated cells. There were no distinct abscesses. The glomeruli were fairly well preserved. Some of the tubules showed an extreme fatty degeneration of the epithelium. There was considerable débris in the tubules of the medulla, consisting of cells and leucocytes. The fact that there were no changes in the glomeruli and that bacteria were present in the tubules and not in the blood-vessels argued in favor of an ascending rather than a hematogenous infection.

Dr. Isaac A. Abt of Chicago thought it best to cystoscope the bladder and to learn something of the bladder walls and the orifices of the ureters, especially in female children.

Dr. Jacobi of New York asked if gonococci were found.

Dr. West replied that no examination had been made, as there was no history of vulvovaginitis.

Dr. Jacobi said the pyelitis and vulvovaginitis belonged together. He asked if the uterus had been examined.

Dr. West replied that it had not.

Dr. Jacobi said that vulvovaginitis might exist for weeks and months without being detected, as the process was very frequently limited for the time to the uterus, where the gonococci were stored away. This was why cases broke out again after we thought we had cured them.

Dr. Charles G. Kerley of New York said he had been called upon to perform an autopsy upon a case which was supposed to have died from malaria. He found extensive cystitis and multiple nephritic abscesses.

A Case of Apparently Tuberculous Meningitis.—Dr. C. W. Buckingham of Boston reported this case. A boy, seventeen months of age, had malaise for a week or two and cephalic cries. On April 10 a physician was called because of some shuffling in the walk. Vomiting and convulsions followed within the next four days. There was strabismus and dilatation of the pupils, the right more dilated than the left. The knee jerks were unequal and Kernig's sign marked. Babinski's sign was present, and there was no retraction of the head. A lumbar puncture was made and 10 or 12 c.c. of fluid removed, which ran under considerable pressure. The pathological report showed a clear colorless fluid, without sediment. The lower parts were smeared on slides and stained by Wright's method. Eighty-nine cells were found, all but three of which were lymphoid. The diagnosis was made of chronic inflammatory tuberculous meningitis. The pressure symptoms were relieved and the child seemed to recover. This seemed to be one of the few cases of cerebrospinal meningitis where there were prodromal symptoms. The cerebrospinal fluid also contained an excess of mononuclear cells.

Election of Officers.—*President,* Dr. C. B. Putnam of Boston; *First Vice-President,* Dr. Isaac A. Abt of Chicago; *Second Vice-President,* Dr. Thomas S. Southworth of New York; *Secretary,* Dr. Samuel S. Adams of Washington, D. C.; *Treasurer,* Dr. J. Park West of Bellaire, Ohio; *Member of Council,* Dr. Alfred Hand, Jr., of Philadelphia; *Recorder and Editor,* Dr. L. E. LaFétra of New York. Next place of meeting, Lenox, Mass.

An Epidemic of Poliomyelitis Anterior Acuta.—Dr. Henry Koplik of New York read this paper. He said that the epidemic of poliomyelitis that had been engaging the attention of the profession in New York City and vicinity had been extensive; the State Board of Health had registered over 1,200 cases, and it was believed that there were many cases which were not reported. The disease was widely distributed, invading fashionable quarters as well as the poorer localities. There seemed to be nothing unusual in the weather, the atmosphere, the conditions of cleanliness, or the milk and water supply. The epidemic resembled the one that occurred in Horwitz in Sweden. Children of all ages were affected and a few adults. The disease as it manifested itself was not just what was understood by poliomyelitis anterior. Many cases resembled meningitis, but in some things they did not. For instance, a child in apparent health would go into a state of unconsciousness and would develop paralysis of all the extremities. This would be followed by sopor and symptoms referable to the bulb or medulla. There would be difficulty in breathing and in swallowing, with increased coma and paralysis, ending in death from respiratory failure and paralysis. In some cases the abdominal muscles and those of the back and four extremities were paralyzed. In other cases the child would awaken from sleep with acute pain referable in many instances to the joints. Gradually paralysis of one or more of the extremities would develop. There might occur a mild febrile disturbance. After lasting three or four weeks the pain would subside and leave paralysis of one or more of the extremities. The cases that recovered seemed to be merely

cases of neuritis. In a third class of cases the patient would go to bed perfectly well and awaken with paralysis of one or two of the extremities. Perhaps there would be a paralysis of a small group of muscles in the forearm, leg, thigh, or face. Many cases of poliomyelitis anterior began with disturbances of the stomach, a slight febrile attack, and paralysis. There were, therefore, three distinct classes, the cerebral, the neurotic, and the classical. It seemed that all the victims suffered from the same infectious agent. The findings at autopsy in the cerebral cases were identical with those described by Harvey. In many cases nothing was found but a polynuclear cytosis. In the cerebral cases the sensorium was clear when the patients were conscious. The neurotic cases were peculiar in having the pains in the joints and because of hyperesthesia. They were perfectly helpless, and yet their recovery was complete, and it was concluded that there was no affection of the cord, but an affection of the nerve trunks. In this epidemic where the paralysis was permanent the atrophy of the muscles was very rapid. The reaction of degeneration would occur six weeks after the onset of the disease. Some cases recovered completely, some could walk, but the upper extremities remained paralyzed, and some made recoveries with contractures. At the hospital for deformities there were some cases whose only evidence of the disease was facial paralysis and facial atrophy. Some cases gave a history of intestinal disturbances. There was also a set of cases in which there was a tonsilar infection. The nomenclature of the disease would have to be revised. In regard to the treatment he said that hot baths with massage were of value. Electricity sometimes aggravated the symptoms, especially where there was pain along the nerve trunks. In cases of complete paralysis he had found intramuscular injections of strychnine valuable. Cupping along the spine had been tried. The principle aimed at had been to keep up the tone of the muscles that were paralyzed and to wait for recovery.

Early Symptoms of the Recent Epidemic of Poliomyelitis.—Dr. L. E. LaFétra of New York presented this paper. He said that the recent epidemic had furnished the opportunity of seeing many cases of poliomyelitis in which the symptoms presented were not those that occurred in the ordinary conception of this affection. From 63 cases the following suggestive histories were obtained. In 25 cases vomiting occurred; in 14 constipation was present; in 17, diarrhea; in 6, cough, tonsillitis, and sore throat; in 52 cases there was fever. This symptom was probably present in all cases. It generally lasted from two to three days. Restlessness and irritability occurred in 37 cases, delirium in 2 cases, and convulsions in 4 cases. Rigidity of the neck occurred in 11 cases. Babinski's sign in 3 cases at the Babies' Hospital; in 10 cases atrophy was present; in 4 stupor; in 10 headache, and in 3 photophobia. In 32 cases there was pain and tenderness in the affected limb. In 58 cases the paralysis was flaccid and in 5 spastic. The paralysis came on early in the course of the disease. In 1 case opisthotonos existed for five days, and in another for ten. In 1 case there was general anesthesia. In two cases there was unilateral paralysis of the abdominal obliques. Lumbar puncture was done in 14 cases, and from 15 to 70 c.c. of fluid removed. In every instance the fluid was clear. In only 2 cases were cells and mononuclears found. It was exceedingly difficult to diagnose this disease in the beginning of the epidemic. It was especially confusing when acute meningitis was attended with pronounced irritative symptoms.

Dr. L. Emmett Holt of New York did not agree with Dr. Koplik that the disease was limited to New York City. He had been struck by the groups of cases occurring together. These seemed to show that there was probably a mild degree of contagiousness in this form of the disease. He thought they would have to admit that it belonged to the category of acute infectious diseases of the central nervous system.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners, Mississippi.

Examination, May, 1908.

ANATOMY.

1. Give origin, insertion, and nerve supply of: (*a*) tensor fascia lata, (*b*) deltoideus, (*c*) scalenus anticus, (*d*) latissimus dorsi.
2. What are (*a*) neurones, (*b*) neuroglia, (*c*) ganglia?
3. Name the accessory organs of nutrition, and give anatomy of the largest. (Ductless glands.)
4. Describe the celiac axis and give its branches.
5. Describe (*a*) the inferior longitudinal sinus, (*b*) torcular Herophili.
6. Describe, give contents and relations of Scarpa's Triangle.
7. Describe the fourth cervical vertebra, and distinguish it from the fourth dorsal.
8. What structures would be severed in an amputation at the lower third of the arm?

PHYSIOLOGY.

1. Define katabolism, metabolism and anabolism.
2. What are the functions of the red and white blood corpuscles, respectively, and what are the functions of the blood as a whole?
3. Describe the heart cycle, and locate the various valvular sounds, explaining the cause of each.
4. What position should be maintained during the inhalation of chloroform, and why?
5. What change in the density of the blood attends severe hemorrhage, and how is the change accounted for?
6. Where and how are the starches digested? Where and how are the proteids digested? Where and how are the fats digested?
7. What are the chief stimulants to respiration, and what are the changes taking place in the blood and air as they pass through the lungs?
8. Is the specific gravity of the urine higher or lower in cold weather, and why?

CHEMISTRY.

1. Define molecules, and atoms.
2. Define acids, bases, and salts.
3. Describe a reliable test for albumin in the urine, also test for sugar.
4. Describe a reliable test for arsenic; give antidote for arsenic.
5. What is osmosis?
6. What is the difference between a chemical and a physiological antidote?
7. What is the difference between fermentation and putrefaction?
8. Define ptomain poisoning.

MATERIA MEDICA.

1. What would guide you in the selection of ether or chloroform as a general anesthetic?
2. What is the physiological effect of belladonna? Name its alkaloids and dose; explain why atropine is frequently given with sulph. morphia.
3. What is the physiological effect of calomel? The indications and contra indications for giving calomel, and its dose? What are the advantages of combining calomel with sodium bicarbonate, and with pulv. opium?
4. What is Epsom salts, its dose, physiological action, and indications for its use?
5. In what form, size of dose, and disease is iodine usually administered, and how would you prevent iodism?
6. Name the alkaloids of nux vomica, and their dose; what is the effect of strychnia in 1-20 grain doses by mouth, on the circulation, respiration and intestines?
7. What are the general conditions indicating the use of opium? How would you differentiate a case of opium from alcohol poisoning?
8. Describe hypodermocleisis and intravenous injection. Give formula of solution to be used, and state when indicated.

SURGERY.

1. What are the signals of danger in general anesthesia?
2. Give briefly the preparation of patient and surgeon for an abdominal operation.
3. Define surgical shock, and give treatment.
4. Give treatment of a compound fracture of the femur.
5. Describe Bassini's operation for the radical cure of inguinal hernia.
6. Give symptoms and treatment of acute intestinal obstruction.

7. Describe intubation and tracheotomy, and state when each would be indicated.
8. How would you treat a case of acute appendicitis?

OBSTETRICS.

1. How would you determine before labor the presentation and position of the fetus, without a vaginal examination?
2. How would you prepare your patient for delivery, and yourself for attendance in a case of labor?
3. What are the uses of the liquor amnii during pregnancy and labor?
4. Differentiate puerperal sepsis from malarial infection.
5. Name at least six of the most common conditions calling for the use of the forceps.
6. Name three important forms of hemorrhage met with in obstetrical practice, and give treatment of each.
7. How, and how long, would you treat a babe apparently dead when born?
8. Into what stages is labor divided, and when does each stage begin and end?

PATHOLOGY.

1. Define, and mention three most prominent causes of icterus.
2. Mention the pathological condition that distinguishes measles from scarlatina.
3. What is the pathology of acute lobar pneumonia, and how does it differ from broncho-pneumonia?
4. Describe the pathological condition of a case of chronic osteo-myelitis.
5. Describe pathologically a case of salpingitis, and usual cause.
6. What parts are usually affected with diphtheria? How, and by what bacillus?
7. Define embolism, and give five causes.
8. What is the pathology of spina bifida, and where does it most frequently occur?

HYGIENE.

1. What impurities are given off by lighting by illuminating gases and oils, and how best effect their removal?
2. What disease stands forth pre-eminently as a true soil disease, and what are the principal measures of prophylaxis?
3. What relation in area should the windows of a school room bear to the floor space, so as to admit a standard amount of air and light?
4. Name five principal methods of heating residences in Mississippi.
5. State the most satisfactory manner of disposing of the garbage of the towns and cities of our State.
6. Divide disinfectants into their component classes, and give examples of each.
7. What epidemic diseases that we know with certainty can be carried through the introduction of water into the stomach, and state the way they may be prevented.
8. How many cubic feet of air per capita are necessary for each individual adult, or how many people may be put in a room 40x20x15 feet without danger of contamination or vitiating the air?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, MISSISSIPPI.

Examination, May, 1908.

ANATOMY.

6. Scarpa's triangle is a triangular area or depression situated just below the fold of the groin. It is bounded *above* by Poupart's ligament, *externally* by the Sartorius, and *internally* by the inner margin of the Adductor longus; its *apex* is formed by the junction of the Adductor longus and Sartorius. The *floor* is formed, from without inward, by the Iliacus, Psoas, Pectineus, Adductor brevis, and Adductor longus. *Contents:* The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex, the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

7. Differences between the fourth cervical vertebra and the fourth dorsal vertebra: *The fourth cervical vertebra* has a small, transversely elongated body, with no facets; the laminæ are long and sender; the spinous process is short, nearly horizontal, and bifid; the transverse processes are short and contain a foramen for the vertebral artery; the superior articular process is directed upward and slightly backward; the inferior articular process is directed downward and slightly forward; the spinal foramen is large and triangular.

The fourth dorsal vertebra has a heart-shaped body with a facet on each side for articulation with a rib; the laminæ are broad and deep; the spinous process is long and points downward; the transverse processes are long, articulate with the tubercle of a rib, and do not contain a foramen; the superior articular process is directed backward and slightly outward; the inferior articular process is directed forward and slightly inward; the spinal foramen is smaller and circular.

8. In amputation at the lower third of the arm, the following structures would be severed: Skin, fascia, biceps, brachialis anticus, triceps and supinator longus muscles; brachial, inferior profunda and a branch of superior profunda arteries; veins, brachial, basilic, cephalic, superior and inferior profunda; nerves, median, ulnar, musculospiral, musculocutaneous, and internal cutaneous; bone, the humerus.

PHYSIOLOGY.

1. *Metabolism* is the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive (anabolism), and (2) destructive (katabolism).

2. The *red corpuscles* supply the tissues with hemoglobin; the *white corpuscles* serve as a protection to the body from the incursions of pathogenic microorganisms, they take some part in the process of the coagulation of the blood, they aid in the absorption of fats and peptones from the intestine, and they help to maintain the proper proteid content of the blood plasma.

The *functions of the blood as a whole*, are: To distribute nourishment, oxygen, and the internal secretions to the tissues of the body; to remove carbon dioxide and other waste matters from the tissues so that they may be excreted by the lungs, kidneys, and skin; to regulate the body temperature.

3. The *cardiac cycle* includes all the changes which occur between the commencement of one heart-beat and the commencement of the next; it consists of the alternate contractions (or systole) and relaxations (or diastole) of the auricles and ventricles of the heart. The contraction of the two auricles takes place simultaneously, and is followed by the simultaneous contraction of the two ventricles; then follows a period during which the whole heart is in a state of diastole. The cycle then begins again with the auricular systole.

There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup*.

The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage.

The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) the vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

4. During the inhalation of chloroform the patient should be in the dorsal position, with the neck not too much extended. This position is comfortable for the patient, is less likely to interfere with the expansion of the chest, is not likely to prejudicially influence the respiration and circulation, and the force of gravity tends to keep the vital centers supplies with blood.

5. According to Michael Foster, "hemorrhage lowers the specific gravity of the blood, but the normal or nearly the normal is very quickly regained. The interpretation of the effects of hemorrhage is not clear. We may suppose that the lost volume of blood is in the first instance replaced by plasma only. Though we know that hemorrhage stimulates the production of new red corpuscles, it is difficult to believe that these can make their appearance in sufficient numbers to account for the regained density, seeing that this may occur in less than half an hour. It looks as if the system got rid of the water of the extra plasma, and regained its density by acquiring a smaller volume." (Allbutt's *System of Medicine.*)

6. *Starches* are digested in the small intestine, by the action of the amylopsin of the pancreatic juice; and also to

a very small extent in the mouth, by the action of the ptyalin of the saliva.

Proteids are digested in the stomach, by the action of the pepsin of the gastric juice; and also in the small intestine, by the action of the trypsin of the pancreatic juice.

Fats are digested in the small intestine, by the action of the steapsin of the pancreatic juice; the bile also assists in the emulsification of fats.

7. The chief stimulants to respiration, are: diminution of the amount of oxygen in the blood, increase of the proportion of carbon dioxide in the blood, constriction of the bronchial muscles, weakening of the heart, pain, convulsions, certain drugs (as strychnine, ammonia).

In the blood the changes take place in the capillaries of the lungs, and are: (1) the giving up of the CO_2 by the venous blood, (2) the absorption of oxygen during inspiration, (3) the blood is cooled, and (4) it also loses a small amount of watery vapor.

The changes produced in the *air* by respiration are:

	Inspired Air.	Expired Air.
Oxygen	21 per cent.	16.6 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide....	0.04 per cent.	4.4 per cent.
Other gases	Rare.	Often present.
Watery vapor	Variable.	Saturated.
Temperature	Variable.	That of body.
Volume	Varies.	Diminished.
Bacteria	Always present.	None.
Dust	Always present.	None.

8. The specific gracity of the urine is lower in cold weather, because more urine is voided, owing to the lesser excretion of sweat.

CHEMISTRY.

1. *A molecule* is the smallest quantity of any substance (element or compound) that can exist in a free state.

An atom is the smallest quantity of an element that can enter into chemical action.

2. An *acid* is a compound of an electro-negative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element, without the formation of a base.

A *base* is a ternary compound capable of entering into double decomposition with an acid to produce a salt and water.

A *salt* is a substance formed by the substitution of an electro-positive element for part or all of the replaceable hydrogen of an acid.

3. *A reliable test for albumin in the urine:* The urine must be perfectly clear. If not, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral, or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

Test for sugar: The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

Fehling's test: Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystalized $CuSO_4$, dissolved in water to 500 c.c.; and solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

4. *A reliable test for arsenic:* Reinsch's test is as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

The *antidote for arsenic* is freshly prepared ferric hydroxide, $Fe_2O_6H_6$. The two following solutions should be mixed and administered:

(1) ℞ Liquoris ferri tersulphatis..... ℥ij
Aquæ destillatæ ..... ℥vj. M.

(2) ℞ Magnesiæ ..... ʒiij
Aquæ destillatæ ..... ℥viij. M.

5. If two liquids be separated from each other by a membrane, each will pass through the membrane into the other. This phenomenon is called *osmosis.*

6. *Chemical antidotes* act as such by uniting chemically with the poison and thus converting it into a harmless or insoluble compound.

Physiological antidotes act as such by combating the physiological action of the poison.

7. Both fermentation and putrefaction are forms of decomposition of organic matter under certain favorable conditions. When the organic matter is composed of carbon, hydrogen, and oxygen only, the process is called *fermentation;* when nitrogen and sulphur are also present, *putrefaction* is said to occur.

8. *Ptomaine poisoning* is poisoning by the putrefaction products of dead animal tissues and fluids.

MATERIA MEDICA.

1. As a general rule, ether would be the anesthetic of choice. But chloroform may be used: (1) in hot climates; (2) when large numbers of persons have to be rapidly anesthetized; (3) in brain surgery; (4) in labor; (5) in patients who are known to take ether badly; and (6) in the conditions mentioned below, in which ether is contraindicated.

The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics:* "*Ether* should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties: in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

2. Belladonna. *Physiological effects:* Anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

Alkaloid.—Atropine: *Dose* of the sulphate of atropine is gr. 1/250 to 1/40.

Atropine is often combined with morphine when the latter is used, for the following reasons: (1) To prevent nausea and insomnia; (2) to intensify the effect of the morphine, and so a smaller dose may suffice; (3) to neutralize the effect on the pupils.

5. Iodine is usually administered in the tertiary stage of syphilis; in the *form* of potassium iodide; *dose*, gr.v to lx in solution. The addition of ♏v of the tincture of belladonna to each dose of the iodide is said to prevent iodism.

6. Nux Vomica.—*Alkaloids:* Strychnine and Brucine. *Dose:* Strychnine, gr. 1/64 to 1/16; strychnine sulphate, gr. 1/64 to 1/16; strychnine nitrate, gr. 1/64 to 1/16; brucine, gr. 1/32 to 1/16.

The effect of strychnine on the *circulation,* is to increase the rate and force of the pulse beat; on the *respiration,* is to increase the rate and also the respiratory capacity; on the *intestines,* is to increase peristalsis.

7. In *opium poisoning:* The pupils are contracted, the respiration is slow and full, the skin warmer than in alcohol poisoning, the face suffused, and the pulse slow and full.

In *alcohol poisoning:* The pupils are not contracted, the respiration approaches the normal, the skin is cool and sometimes moist, the face may be pallid, and the pulse is rapid.

SURGERY.

1. *The signals of danger in general anesthesia* are: Irregular, shallow, and slow respiration, preceded by quickened respirations; irregularity of the pulse, accompanied by a weakened pulse; dilatation of the pupils (unless the patient is coming out of the influence of the anesthetic); lividity or extreme pallor of the face.

3. *Shock* is the name given to a sudden and general depression of the vital powers, due to some strong stimulation (such as injury or emotion) acting on the vital centers in the medulla, and producing vasomotor paralysis.

Treatment of shock: Place the patient in the recumbent position, with the head low, apply warmth to the body, administer a stimulant, and give a hot saline infusion; morphine, hypodermatically, may be necessary for the relief of pain.

8. *Treatment of acute appendicitis:* The patient should be kept in bed; no food is to be given for the first twenty four hours; after this, fluid and jellies may be given; cooling drinks may be allowed in moderation; the pain can be relieved by hot or cold applications on the right iliac region, or morphine may be given if necessary; an enema of olive oil or glycerine may be given to empty the bowels (if loaded).

The indications for appendectomy vary according to the views of the surgeon. Some maintain that every case of appendicitis should be operated on as soon as the diagnosis is made. Others would operate only in case of rupture, or when suppuration occurs, or in cases which do not improve in a week or so, or in cases which are steadily getting worse. Probably all would agree in taking out every appendix that has undergone more than one mild attack.

OBSTETRICS.

3. *Uses of the liquor amnii.*—(*a*) *During pregnancy:* (1) As a protection to the fetus against pressure and shocks from without. (2) As a protection to the uterus from excessive fetal movements. (3) It distends the uterus, and thus allows for the growth and movements of the fetus. (4) It receives the excretions of the fetus. (5) It surrounds the fetus with a medium of equable temperature, and serves to prevent loss of heat. (6) It prevents the formation of adhesions between the fetus and the walls of the amniotic sac. (7) It has been supposed, by some, to afford some slight nutrition to the fetus.

(*b*) *During labor:* It acts as a fluid wedge, and dilates the os uteri and the cervix; it also slightly lubricates the parts.

4. The following table (from Dorland's *Obstetrics*) differentiates the two conditions; but a careful blood examination, by revealing the presence or absence of the *plasmodium malariæ*, will render the diagnosis certain.

PUERPERAL SEPSIS.	MALARIAL INFECTION.
The chills are irregular in their appearance and are associated with marked alterations in the temperature rate.	The chills occur at regular intervals, and are followed by the usual elevation of temperature and then a sweat.
The constitutional disturbance is profound.	The constitutional depression is moderate, and quite out of proportion to the severity of the paroxysm.
The pulse rate is exceedingly rapid and ominous.	The pulse rate is in proportion to the amount of febrile reaction.
There will be associated uterine subinvolution and tenderness, and probably alteration in the lochia.	There will not be noted any peculiar local pelvic manifestations.
The patient's condition steadily grows worse without appropriate treatment.	Within a few hours there will occur a marked amelioration of the symptoms.

5. Six of the most common conditions calling for the use of the forceps: (1) Uterine inertia; (2) prolapsed funis, with threatened death of the fetus; (3) occipito-posterior positions; (4) eclampsia; (5) hemorrhage from premature detachment of placenta; (6) small amount of pelvic contraction.

8. Labor is divided into three stages: The *first stage* begins with the commencement of labor, and ends with the complete dilatation of the os uteri. The *second stage* begins with the complete dilatation of the os uteri, and ends with the birth of the child. The *third stage* immediately follows the second, and ends with the expulsion of the placenta and the beginning contraction of the uterus.

PATHOLOGY.

1. *Icterus* is the condition in which the tissues of the body are discolored by bile pigment.

Three causes: (1) Obstruction of the bile duct; (2) various poisons in the blood; (3) excessive secretion of bile.

2. In *scarlatina* the serous membranes are more often involved than the mucous membranes, and acute nephritis is a common complication.

In *measles* the mucous membranes are involved, nephritis is not a complication.

Of course the eruption differs: In *scarlet fever* the eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat.

In *measles* the eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present.

3.

ACUTE LOBAR PNEUMONIA.	BRONCHOPNEUMONIA.
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct; and there is a large area of consolidation.	Physical signs indistinct; and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

6. The parts usually affected with the diphtheritic membrane are: Larynx, tonsils, epiglottis, pharynx, trachea, mucous membrane of the nares, bronchi, soft palate, uvula, and esophagus. The bacillus is the Klebs-Loeffler bacillus.

7. *Embolism* is the plugging of a blood-vessel by a foreign body. *Five causes:* (1) Vegetations from the cardiac valves; (2) detached thrombi; (3) oil globules; (4) parasites; (5) fragments of tumors.

8. Spina bifida is a condition in which there is a cleft in part of the posterior wall of the spinal column; it is due to imperfect development. Through this cleft there may protrude the spinal meninges and cerebrospinal fluid (meningocele); or it may contain in addition some of the cord and nerves (meningomyelocele); or there may be great distention of the central canal, the sac-wall being formed of the thinned cord (syringomyelocele).

It most frequently occurs in the lumbar or dorsal region.

HYGIENE.

2. A true soil disease is tetanus. The principal measures of prophylaxis are: To cleanse and keep open all wounds contaminated with the soil; all wounds containing foreign matter, and all Fourth of July wounds; tetanus antitoxin should be used where tetanus is feared.

3. The window area should be about one-eighth to one-sixth of the floor area.

4. Five principal methods of heating residences. Open fires, stoves, gas, steam, and hot water.

6. Disinfectants may be classified as: (1) *Mechanical*, such as scrubbing, shaving, irrigation. (2) *Chemical*, such as bichloride of mercury, carbolic acid, lysol, hydrogen peroxide. (3) *Thermal*, such as *moist heat* (steam, boiling water), *dry heat* (flame, cautery).

7. Epidemic diseases that can be carried through the introduction of water into the stomach are: Typhoid, cholera, and dysentery. To prevent the spread of these diseases: All water for drinking or for washing dishes, etc., and milk should be boiled; no ice should be put *in* water or other drink or food; flies should be kept out of the house; all discharges from the sick persons must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over.

8. Three thousand cubic feet per hour is the accepted standard allowance of fresh air for each adult. As the air can be changed (by proper ventilation) three times in an hour, one thousand cubic feet of space is required for each adult. Hence, a room 40 x 20 x 15 feet should accommodate $\frac{40 \times 20 \times 15}{1000} = 12$ persons.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 11
Georgia	E. R. Anthony, Griffin	Atlanta	
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Indianapolis	Indianapolis	Oct. 27
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. 8
Kansas	D. P. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville	Oct. 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	Nov. 10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Nov. 4
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec. 30
New Jersey	J. W. Bennett, Long Branch	Trenton	June —
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	F. P. Davis, Enid	Muskogee	Nov. 10
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	Dec. 1
Rhode Island	G. T. Swarts, Providence	Providence	Nov. 5
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis / Nashville / Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Dallas	Nov. 10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 16
Washington*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov 10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 12
Wyoming	S. B. Miller, Laramie	Laramie	

*No reciprocity recognized by these States.
†Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Treatment of Chancre.—Erdös advises the following method: If the chancre is of recent date and situated on the free edge of the prepuce or of the labium as the case may be, excision followed by aseptic suture, is to be recommended. If the sore is ulcerated and of long duration, two months, for instance, and if excision is impossible, a few drops of a soluble salt of mercury, such as the benzoate, the biniodide, or the bichloride, may be injected around the chancre. Having washed the parts with a solution of sulphate of copper or nitrate of silver of strength 1 in 50, an ointment should be applied consisting of 1 gram of white precipitate, ½ gram of resorcin, 30 grams of simple ointment, and 10 grams of lanolin. The same ointment can be used for the normal chancre. The internal treatment should consist as much as possible in mercurial injections. If these are not permitted, the ordinary inunction treatment should be followed.—*Lancet.*

Pathogenesis of Psoriasis.—Giuseppe Verrotti, after a careful consideration of the causes, hematology, histology, and urology gives us his conclusions. The most complete theory for the interpretation of the clinical facts of the disease is that of autointoxication. The only other theory that is worthy of discussion is the parasitic theory. It is not possible to admit that a parasite can produce the morphological entity that is called psoriasis. Such a parasite must work on the superficial layers of the epidermis, while psoriasis involves the deeper layers of the skin. The process of psoriasis may be aggravated by the presence of microorganisms which act as exciting causes, just as chemical, thermal and mechanical irritations act in persons that are predisposed to the disease. These agents act upon a soil that is ready for their life by reason of gastro-intestinal or metabolic failure and poisonings, which are necessary to its production. There must be a congenital or acquired perversion of the cellular metabolism underlying the whole process.—*Giornale Internazionale delle Scienze Medicale.*

Medical Items.

Contagious Diseases. Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending October 17, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	486	138
Diphtheria	311	19
Measles	119	2
Scarlet Fever	109	5
Smallpox	1	—
Varicella	30	
Typhoid Fever	105	23
Whooping Cough	22	5
Cerebrospinal Meningitis	4	7
Malarial Fever	—	—
Totals	1187	199

Immediate Treatment of Osteomyelitis of Adolescents.—M. P. Hardouin sums up the subject of treatment of osteomyelitis in adolescents by saying that such a condition is always infectious and begins in the bone medulla; it should be treated by trephining, rapidly done, and thoroughly accomplished. Treatment to have the best results must be undertaken within the first forty-eight hours. Unfortunately, few cases come to the physician so early. There are rare subperiosteal abscesses that are primary, and which can be treated by simple incision and drainage. The most common ones are secondary to acute osteomyelitis of the epiphysis. These must be thoroughly opened and all dead bone removed at once. The diagnosis is established by the symptoms, acute inception, with high fever, intense pain, increased on palpation and pressure, with enlargement below the knee joint. Rheumatism of a single joint would be rare and less severe. A large incision is made deeply through all muscles and fasciæ down to the front of the tibia, the trephine applied until all diseased bone is removed, all pus removed, the wound cleansed, and drained.—*La Presse Médicale.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending October 16, 1908:

SMALLPOX UNITED STATES.

		CASES.	DEATHS.
Indiana, La Fayette	Sept. 21–28	2	..
Kentucky, Covington	Sept. 26–Oct. 3	1	.
Massachusetts, Lawrence	Sept. 12–19	1	..
Missouri, St. Joseph	Sept. 19–26	1	.
Washington, Spokane	Sept. 19–26	2	Imported
Wisconsin, La Crosse	Sept. 12–19	1	.

SMALLPOX—FOREIGN.

Brazil, Rio de Janeiro	Aug. 23–30	683	294
Canada, Halifax	Sept. 19–26	1	..
Ecuador, Guayaquil	Sept. 5–12		5
India, Bombay	Aug. 25–Sept. 1		3
Italy, General	Sept. 21–27	16	.
Naples	Sept. 20–27	1	
Java, Batavia	Aug. 22–29	2	.
Norway, Christiania	Sept. 5–12	22	1
Russia, Moscow	Aug. 29–Sept. 12	42	9
St. Petersburg	Aug. 22–Sept. 5	9	2
Warsaw	Aug. 8–15		4
Spain, Valencia	Sept. 12–19	1	..
Straits Settlements, Penang	Aug. 15–22	1	1
Turkey, Constantinople	Sept. 5–13		8

YELLOW FEVER.

Cuba, Habana	Sept. 29–Oct 4	1	(From S.S. Merida)
Ecuador, Guayaquil	Sept. 5–12		1
France, St. Nazaire	Oct. 7		Present
Martinique, Fort de France	Sept. 12–26	5	3
Mexico, Vera Cruz	Oct. 12–13	2	.

CHOLERA.

India, Bombay	Aug. 25–Sept 1		1
Madras	Aug. 22–28		74
Japan, Moji	Sept. 2–7	18	6
Wakamatsu	Aug. 25–Sept. 7	1	1
Russia, General	To Sept. 20	10,359	4,633
Moscow	Aug. 29–Sept 12	3	2
Riga	Sept. 19–26	2	..
St. Petersburg	To Sept. 26	1,732	1,764

PLAGUE.

Ecuador, Guayaquil	Sept. 5 12		1
Egypt, General	Aug. 20–Sept. 17	59	16
Alexandria	Aug. 20–Sept. 17	8	4
India, General	Aug. 22–29	1,783	1,239
Bombay	Aug. 25–Sept. 5	..	28
Indo-China, Cholen	Aug. 15–22	20	19
Saigon	Aug. 15 22	6	4
Peru, Callao	Sept. 5–12	1	..
Venezuela, Caracas	Sept. 7–21	4	2

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INTESTINAL INFECTION AND IMMUNITY IN TUBERCULOSIS.*

By PROF. A. CALMETTE,

LILLE, FRANCE.

DIRECTOR OF THE PASTEUR INSTITUTE OF LILLE.

Permit me to express, first of all, my gratitude for the great honor which you have bestowed upon me in inviting me to discuss before your illustrious society the present state of our knowledge of the rôle of the digestive tract in tuberculous infection and in immunization against tuberculosis.

For several years this question has been the principal object of my laboratory researches, which I have pursued with the aid of some of my scholars, particularly of C. Guérin. It has engaged the attention in an equal degree of a large number of workers in every country. There are but few of greater interest, as the discussions of our recent congress will bear witness.

I do not pretend that I can cast sufficient light upon this question to warrant us in expecting in the very near future the establishment of a method capable of protecting humanity against the most terrible of the scourges which desolate it. I do wish, however, to make an effort to acquaint you with the principal experimental facts upon which we can build to-day so as better to comprehend the mechanism of the tuberculous infection, and I trust that you may be brought to regard the hopes which have been raised so many times in vain, as at least partly realizable.

It is forty-three years since Villemin announced that tuberculosis is inoculable and contagious, and twenty-six years separate us from the memorable epoch at which Robert Koch, discovering and cultivating his bacillus, made the demonstration of its specificity. Notwithstanding the enormous accumulation of publications in the last quarter of the century, we are still but very imperfectly informed upon the respective importance of the different ways by which the virus of tuberculosis can penetrate into the bodies of man and of susceptible animals. Until lately, the greater number of scientists, clinicians or experimental workers, have considered as an indisputable dogma the respiratory origin of pulmonary tuberculosis, and the celebrated debates which took place at the international conferences at The Hague in 1906 and at Vienna in 1907, and since then in various learned societies, are so fresh in your minds that it would be useless to recall them. It appears, however, that the impression that a final decision had been reached is not correct, and that, as is always the case, the truth lies between two extremes.

If it appears undeniable that in certain probably very rare cases, direct infection of the lung takes place through the respired air, notwithstanding the many and very efficacious natural defenses which line this route, it is also manifest that the path to the pulmonary parenchyma normally followed by the tubercle bacillus is most often through the lymph or blood-vessels, the great portal of entry being the digestive tract.

Experimentation has shown that to effect primary tuberculous infection of the lung by the air, it is necessary to place the animal under pathological conditions, as has been done by Nocard, Flügge, and, more recently, Kuss, in immobilizing the animals so as to oblige them to breathe for a long time an atmosphere charged with infectious particles, liquid or dry. Very fine spray is certainly dangerous, above all for young infants, and it is evident that pneumonia with early caseation and acute pulmonary tuberculosis of infants are almost always of respiratory origin. When a mother or a nurse, the subject of an active pulmonary tuberculosis, coughs or sneezes at a short distance from the lips of an infant breathing through its open mouth or crying in expectation of the breast, contagion by inhalation is all but fatal. But this mode of infection is certainly exceptional for the older child or for the adult.

Infection by dust laden with bacilli is more exceptional still; and the positive results of Cornet, as well as those of Kuss, accomplished by shutting up the immobilized animals in an inclosed space, in an atmosphere of talcum powder or of the débris of vegetable fibers mixed with dried sputum, invalidate in no way the much more numerous negative results described by Baumgarten, Tappeiner, Cadéac and Mallet, and Petersson, and by myself with Vansteenberghe.

Does not, however, the normal asepsis of the respiratory tract attest strongly the protective efficiency of the defensive apparatus of this region, when not affected by preexisting lesions of the nasopharynx, of the larynx, and of the larger bronchi?

The primary lesions of the tracheal and bronchial nodes, which certain authors consider as always related to a respiratory infection, can no longer be invoked as a convincing argument in favor of this view. If it be true that, following the law of Parrot, the nodular lesion should always be accompanied or preceded by one or several pulmonary tubercles, there is nothing to prove that these last must be of aerial origin, since they make their appearance with great frequency in animals artificially infected through the digestive tube. Breton and myself have observed this regularly upon a great number of guinea-pigs which had absorbed through the rectum or been given by an esophageal sound, a small quantity of a fine emulsion of a pure culture of the bacillus of bovine tuberculosis. These animals when killed after four or five weeks very often presented no other lesions than one or two superficial tubercles, as large as the head of a pin, in one of the anterior lobes of the lung, with a coexisting extensive tuberculosis of the peribronchial lymph nodes. An observer who was ignorant of the conditions under which the infection had been experimentally pro-

*Lecture delivered before the Harvey Society, at the New York Academy of Medicine, October 24, 1908.

duced, would undoubtedly have stated that the lesion was due to respiratory infection.

It can then hardly be denied that if primary tuberculosis of the lung or of the tracheobronchial lymph nodes by the direct inhalation of particles carrying bacilli is quite possible in some cases, it is certainly exceptional.

Quite frequent, on the other hand, but also less serious, is infection of the body through the digestive tract.

When I state that tuberculosis is most often contracted through the intestine, I do not wish to be considered as saying that I attribute to the food, and consequently to the milk of tuberculous cows, the essential rôle in the tuberculous infection of man. I am convinced, on the contrary, that the importance of infection through milk has been very largely exaggerated in the last few years. The fact that tuberculosis is so common, both in infants and in adults, in countries where the use of cows' milk as human food is exceptional, for example, in Egypt, India, Indochina, and Japan, shows that the propagation of tuberculosis from man to man is infinitely more common than the infection of man by cattle.

Without doubt the ingestion of the milk of tuberculous cows is dangerous, principally for young children, though even for healthy adults, and much more for those in whom the intestinal mucosa is not intact, when the ingestion of virulent material is frequently repeated. But infinitely greater and more frequent is the danger from human bacilli freshly expelled from the lung of a consumptive, when these bacilli are carried by the sputum to the food or upon the mucous membrane of the mouth by direct or indirect contact of the lips, the hands, soiled objects, etc., or by flies. The tuberculous mother who tastes the dish prepared for her child or who wipes its face with her handkerchief, and the nurse who moistens her breast with her saliva, subject the infant in their care to the danger of tuberculous infection. The child who handles its food after crawling about the floor, and the man who wets his fingers to turn the pages of a book, or to handle type, or who works with tools belonging to a consumptive whose sputum contains the bacilli, may ingest at any moment a number of virulent bacteria; and the risks of contagion are much more serious the more abundant and frequently repeated these ingestions are.

And how can one doubt that the rôle of flies is particularly important and dreadful in the unhealthy tenements where, among the sick persons, children and adults, living side by side in the closest contact, these insects swarm in compact masses alternately upon the sputum and upon the food?

Careful study of the tuberculous infection in animals furnishes abundant clinical proof of the predominance of infection through the digestive tract.

For example, it is known that the flesh-eating animals such as the lion, the tiger, the hyena, and the jackal, when confined in a menagerie and fed upon tuberculous meat, often become infected with tuberculosis, either pulmonary or visceral, whereas these animals never show spontaneous tuberculosis in the wild state. The dog becomes tuberculous when he swallows the sputum of his sick master; the calf, the cat, and the pig contract the disease when they are fed upon milk rich in the bacilli.

Insistence has rightly been laid, in recent times, upon the complete absence of tuberculosis in American pigs fed exclusively upon corn or other vegetable substances which may have been cooked, whereas this disease is extremely common in the pigs of our European farms, above all where the animals are fed upon the unpasteurized waste from dairies.

It is evident that tuberculosis thus developed—most often with primary lesions in the pleura or bronchial lymph modes—in pigs fed upon the milk of tuberculous cows, results from the absorption of the bacilli through the digestive tube. These ingested bacilli are able to penetrate the intestinal wall, and enter into the blood or lymphatic circulation, and are carried about in the body for a greater or less time before they produce the lesions characteristic of the tuberculous infection.

This fact was first demonstrated experimentally by Chauveau, in 1868 to 1872, and then by Villemin, Aufrecht, Gerlach, Klebs, Gunther and Harms, and a number of other observers, among whom one may mention Saint-Cyr, Viseur, Bollinger, Orth, Toussaint, Baumgarten, Rabinovitch, Parrot, Ravenel, Schroeder and Cotton, etc. Nevertheless, certain negative results attract attention, particularly those published by Colin (of Alfort) and by Moeller, which seem to demonstrate that animals can swallow with safety large quantities of tuberculous material. We now know the reason of this. It is because artificial infection through the digestive tract is not invariable unless one takes certain precautions which I have definitely pointed out in studies with C. Guérin. It is necessary to cause absorption of the bacilli in a divided state so that they remain finely emulsified, as they are in the sputum or in milk. Under these conditions a single administration of infectious material is ordinarily sufficient to produce the tuberculous lesions, which in young animals most often remain localized for a longer or shorter time in the mesenteric lymph nodes, but which in adults, on the contrary, appear at once in the lungs.

In studying the mechanism of the absorption of inert dust by the intestinal mucosa, I have been able to establish, with Vansteenberghe, that the same phenomena can be observed. The ingestion of finely powdered lampblack, or, better, of India ink, mixed with the food, produces in the adult guinea-pig the typical lesions of anthracosis of the lung, whereas in the young guinea-pig the colored granules remain for a longer or shorter time in the mesenteric nodes. Sections of the small intestine fixed during digestion allow one to recognize these colored granules surrounded by leucocytes in the chylous vessels of the villi.

In repeating our experiments upon this subject, Sir William Whitla* and Symmers have recently reached the same conclusions; and these workers have described an ingenious procedure which permits them to produce simultaneously tuberculosis and anthracosis of the lung or of the mesenteric nodes. This procedure consists in causing young or old guinea-pigs to swallow an emulsion of tubercle bacilli and India ink in olive oil.

Experimentation upon large animals such as cattle permits the determination with still greater certainty of the path which the tubercle bacilli follow to the lungs, if the animals are sacrificed, as in my experiments with Guérin, at successive intervals from the time of a single ingestion of the infectious material. One can thus convince himself, as has been shown by Chauveau, afterwards by Dobroklowski, that these bacilli penetrate the intestinal mucosa, even when this is entirely intact, and that they generally leave no trace of their passage. They are transported by the polynuclear leucocytes from the chylous vessels of the villi to the nearest mesenteric nodes.

In suckling animals and in young infants, they are frequently retained in the lymphatic organs which

*The Etiology of Pulmonary Tuberculosis. Cavendish Lecture, 1908. *Lancet* or *British Medical Journal*, July 11, 1908.

act as an almost perfect filter for the lymph. Sometimes they are destroyed in the nodes; sometimes they give rise to tuberculous lesions which, developing towards caseation, throw off their microbes into the efferent lymphatic canals, or occasionally into the peritoneum.

In older subjects, in whom the mesenteric nodes—as has been shown by Weigert—are much more permeable, the bacilli, always surrounded by polynuclear leucocytes, are carried with the lymph through the thoracic duct as far as the right ventricle of the heart, and thence forced into the capillaries of the lung. If the leucocytes carrying the bacteria have lost their ameboid movement because of the intoxication resulting from the tuberculin secreted by the bacilli, they are incapable of penetrating the walls of the capillaries by diapedesis, and they then give rise to fine emboli which become the starting point for a corresponding number of tuberculous lesions at the expense of the endothelial vascular walls (the gray granulations of Laennec).

The tuberculous lesions thus formed go on later to calcification or to caseation. In the second case, the tubercles drain into the alveoli or into some lymphatic vessel or vein, more rarely into an artery. They thus bring about a dissemination more or less rapid and more or less grave, of the virus into other parts of the body.

In my researches with Guérin, I have always been able to show the extreme frequency of adenitis of the tracheobronchial glands in young cattle, when the bacilli have penetrated the filter formed by the mesenteric nodes, and have reached the lung. This adenitis is in constant relation with one or several tuberculous subpleural lesions which it is easy to discover.

The digestive origin of these lesions is entirely evident. We have reproduced them many times, and Vallée (of Alfort) has also obtained them, either by feeding calves on milk proved to be from tuberculous cows, or by inoculating the bacilli directly into the mesenteric nodes after laparotomy.

Further, we have observed in some of our animals infected through the digestive tract, primary localizations of tuberculosis in other organs than the mesenteric nodes or the lungs. We have seen these appear under the form of pleurisy, of arthritis, of orchitis, and, in one very remarkable case in a young kid, of iritis. These exceptional localizations occurred only in animals infected by a single administration of small quantities of bacilli. One can suppose that these, because of their small number, had remained for a long time in the circulating blood, carried about by some polynuclear leucocytes, and that they had finally established a tuberculous lesion only in the organ where these leucocytes were when they succumbed.

Whatever interpretation may be accorded to these facts, it remains certain that so-called primary pulmonary tuberculosis and many other forms or localizations of tuberculous infection, manifestly result in a great number of cases from the penetration of the poison through the digestive tract.

Partisans of the theory that infections by inhalation predominate, above all Flügge in Germany and Kuss in France, bring forward the objection that in order to produce tuberculosis experimentally by ingestion, it is necessary to cause the animals to absorb thousands or millions of the bacilli, whereas a few individuals alone suffice to produce tuberculous lesions of the lung when they are inhaled. Those who think thus forget too often that among the millions of ingested bacilli there is only a small number—undoubtedly only a few individuals—which succeed in penetrating the intestinal mucous membrane, and that the greater part of those which break through are subsequently destroyed in the mesenteric nodes. Finally, there are only a few which are carried by the leucocytes as far as the flow of lymph in the thoracic duct or as the capillaries of the lungs. But those bacteria which attain these situations establish the intravascular tuberculous formations so well described by Borrel, and later by Letulle, the slow development of which in successive steps finally gives rise to phthisis.

If so many physicians still persist in believing that man behaves differently from animals in the face of tuberculous infection, it is perhaps because the old ideas on *miasma* still weigh upon our brains. Without doubt, some among us have exaggerated the importance and the frequency of the infection of man by milk, and those who contend to-day that tuberculosis is contracted through the intestine more often than through the respiratory tract, bear the burden of these exaggerations.

We must protest also against this tendency to identify *intestinal origin* with *alimentary origin*. It is very certain that for our species the human patient is—I cannot repeat this with too much emphasis—the principal factor in the dissemination of tuberculosis. But I believe it necessary to declare strongly that while man can exceptionally contract tuberculosis, above all in infancy, by the inhalation of the bacilli, he contracts it much more often by intestinal absorption, repeated frequently for a long time, of some of these same bacilli freshly thrown off by a consumptive.

At the Congress of Veterinary Medicine of Cassel, on September 26, 1903, Von Behring advanced the theory that pulmonary tuberculosis of the adult might well be merely a tardy manifestation of a tuberculous infection contracted in infancy. He laid emphasis, to support this opinion, upon the frequency with which pulmonary lesions are observed in adult cattle, whereas in young cattle the mesenteric lesions are the most frequent.

My experiments with Guérin, and also those of Vallée (of Alfort) have shown the inaccuracy of so absolute a statement. We know to-day that a primary pulmonary tuberculosis can be produced in adult cattle, goats, monkeys, and guinea-pigs, by feeding these animals on infected material once or several times.

Since infection by the digestive tract is so easy, there is reason for astonishment that tuberculosis is not a still more widely spread and deadly disease among live-stock than it is.

Now then, veterinarians and stock breeders have frequently stated that certain animals remain immune, although they have been in contact for years with animals suffering from the disease. More often still it happens that cattle react sharply to tuberculin at the first trial, cease to react a little later, and retain all the appearances of the most perfect health.

Must it then be admitted that in the first subjects the tuberculous poison has not been able to gain a foothold, and that the second are capable of complete recovery after a first attack? Here again, experimentation will enlighten us.

When we compel young calves to swallow, in a single contaminated meal, a small dose of tubercle bacilli of bovine origin, which have been very finely divided in order to facilitate their absorption, we notice that all these animals, without exception, contract tuberculosis. They react, on an average, thirty days later to the tuberculin test; and if we test them again each month following we find that after three, four, or five months, some of them cease to react. On being slaughtered these last present

no tuberculous lesions, and if, having saved them, one attempts to reinfect them a short time after, by making them absorb a fresh dose of poison certainly capable of infecting other calves of the same age, one finds that they remain immune.

These animals then have really recovered from the primary lesions, and they should be considered as vaccinated, at least during a certain time the duration of which is still undecided.

On the other hand, if we administer to calves, not a single time but in several successive feedings, at close intervals, a series of small doses of the bacilli, not only do they never cease to react to the tuberculin, but we find that in them tuberculosis develops very quickly and becomes rapidly fatal.

It is then the animals which are exposed to a series of successive reinfections, so close together that they have not time to recover from the first attack, which become definitely and fatally tuberculous.

We understand from this why, under conditions moderately predisposing to infection, certain subjects resist contagion for a longer or shorter time: it is because they have actually been vaccinated or rendered insusceptible by a previous attack, the lesions of which had time to heal before a new occasion for infection offered.

It is not easy to furnish proof that this state of immunity acquired by a previously successfully resisted attack exists also in man. Prolonged clinical observation of old cases, however, permits us to affirm that it is, at least in many cases, very probable. It appears especially evident in old cases of scrofulous lesions, and since the statements of Marfan in 1886, numerous doctors have described it.

One must inquire whether this is a question of a true immunity, of longer or shorter duration, supported not only by the absence of the reaction to tuberculin—which is not sufficient demonstration—but also by the non-persistence of the virulent bacilli in the different groups of lymph nodes in the body.

The experiments which I have carried out upon this subject with Guérin demonstrate that at the end of the fourth month after the ingestion of the bacillary vaccine, a lymph node is no longer virulent for the guinea-pig. The bacilli have then been absorbed and have completely disappeared.

We have attempted to prove the resistance of animals thus vaccinated through the digestive tract, with reference to an intravenous inoculation so serious as surely to produce in the control subjects the rapid development of an acute miliary tuberculosis with death in four to six weeks. This proof has been accomplished in six cattle, eight and twelve months after the administration of the vaccine. All the vaccinated animals were resistant and preserved the appearance of the most perfect health. But suddenly, about eight months later, one among them, although strict isolation was maintained so that infection from an outside source was impossible manifested the first symptoms of a serious tuberculosis of the udder. All the others were then slaughtered; they did not react to tuberculin, nor did they show any visible tuberculous lesions, but their bronchial and mediastinal lymph nodes still contained living bacilli which were virulent when inoculated into guinea-pigs. The bacilli which had been injected intravenously, then, were not absorbed after eight months, whereas the bacilli which had previously been introduced by the digestive tract were not discoverable at the fourth month. And these bacilli remained latent in the body, not exciting any pathological trouble, up to the day when, the immunity ceasing, they became capable of suddenly producing disorders more or less grave.

From other experiments we are able to state that the cattle already suffering from benign tuberculous lesions and reacting to tuberculin, or that healthy cattle prepared by two or three large intravenous injections of tuberculin, manifest a resistance entirely exceptional to the severe tuberculous infections taking place through the veins. While the new subjects succumbed to the acute miliary tuberculosis in four to six weeks, the animals already tuberculous or prepared as I have above described contracted constantly a chronic form of tuberculosis with a very slow development. They showed, then, a resistance incomparably superior to that of the healthy animals.

One observes the same phenomena in cattle artificially or spontaneously tuberculized through the digestive tract, when one inoculates them later with a culture of tubercle bacilli subcutaneously. Thus Koch had already described in the tuberculous guinea-pig, at the time of his first work upon tuberculin, the formation of an abscess at the point of inoculation, but the neighboring nodes did not become infected, and the abscess healed when it opened on the surface.

Analogous facts are frequently established in clinical work on man. Every one knows that a local tuberculous suppuration occurring in a person with pulmonary tuberculosis, ameliorates the condition of the patient and considerably increases his resistance. Inversely, it is rare that patients in whom pulmonary tuberculosis has had a rapid development have been attacked previously by suppurations of the lymph nodes, or bony or cutaneous tissues, except in the cases where an inopportune surgical operation has provoked an infection of the blood. It is a well known fact that about a quarter of the persons suffering from lupus present the auscultatory signs characteristic of pulmonary tuberculosis, and that these generally develop in them with very great slowness; likewise many lupus patients live to an advanced age.

If one recalls that certain clinicians have pretended to obtain in phthisical patients real amelioration following the subcutaneous inoculation of cultures of virulent bovine tubercle bacilli (F. Klemperer), or of dead bacilli (Maragliano), or of cultures of human tubercle bacilli modified by passage through the body of a cold-blooded animal (crocodile) (Moeller), the experimental facts of which I have just spoken are of a nature to justify such assertions in a certain measure. But such a therapeutic method is certainly to be condemned; and so much the more because we possess in tuberculin a means as efficacious and less dangerous of attaining the same end.

Upon the whole, the resistance conferred by tuberculin and that which is observed in animals or in man already attacked by benign forms of tuberculosis (tuberculosis of the lymph nodes or scrofula, tuberculosis of the bone, or of the skin, lupus) appear to be of the same nature as that which is artificially effected, whether by intravenous inoculation of human or bovine bacilli, following the methods of Behring or of Koch and Schültz, or by subcutaneous inoculation of the same bacilli (Lignières, Arloing), or by the insertion under the skin of collodion sacs containing cultures of human or bovine tuberculosis (Heymans).

In each of these cases it is not a question of true immunity, since the animals thus prepared, although not giving the tuberculin reaction, remain indefinitely carriers of living and virulent bacilli, and these are capable when the resistance begins to diminish of giving rise in the bodies of these same animals to serious lesions.

Let us recall, indeed, on the one side, that in the experiments of Melun (1906) on animals vaccinated with the "bovovaccin" of Behring, the inoculated bacilli were proved not to be absorbed at the end of six months (Vallée and Rossignol, Moussu), and, on the other hand, that Roux and Vallée have demonstrated that vaccination intravenously or subcutaneously does not protect against infection.

On the contrary, the experiments which I have reported strongly support the statement that by the intestinal absorption of a weak and single dose of tubercle bacilli very finely divided, one can obtain at the same time the total absorption of the bacilli in the lymphatic system, and a state of immunity such that the animals are insusceptible, during a year at least, to large infections through the digestive tract.

Without doubt it is not a matter of a method of vaccination which one could think of employing in preserving the human race from this terrible scourge of tuberculosis. It would be rash to consider as very near a definite solution of this sort. But so difficult a study can proceed only by stages. Following Villemin and Robert Koch, who have laid the foundations upon which we build, a great number of research works have brought their stones. Others will follow, and the work will be accomplished for the glory and for the salvation of humanity.

THE MYTH AND THE MYSTERY OF "MÉNIÈRE'S DISEASE."

By GEORGE M. GOULD, M.D.,

ITHACA, NEW YORK.

Bibliographical.—The titles of some three hundred books and monographs on "Ménière's Disease" have been listed since, in 1861, the Parisian Aurist made his communication to l'Académie Impériale de Médecine. None would attempt a critical reading of all these, but if an emmetropic intelligence should secure a cartload of the more noteworthy and carefully digest them, he would find much to amuse, more to edify, and most to warn. Especially if he is an oculist! But thousands of physicians have, more or less carefully, read much of this literature without suggestion either of pleasure, instruction, or admonition: and most certainly but few of the three hundred intended to furnish amusement, enlightenment, or warning. Leastwise to themselves! The astute reader must find the unconscious fun with some grim intrepidity, must fish cunningly for the unintended profit, and must know a deal more than the writers about pathology in order to be heedful of decayed signboards at every crossing, silently crying: *"Danger! Look and Listen before Crossing!"*

The Legend Begins.—At the session of L'Académie Impériale de Médecine, held January 8, 1861, M. Ménière, Médecin de l'institution impériale des sourds muets, etc., supplied at least an epitome of a study, "sur une forme de surdité grave dépendent d'une lésion de l'oreille interne."* in the following terms:

1. An auditory apparatus, hitherto perfectly healthy, may suddenly become the seat of functional troubles, consisting of sounds of various kinds, continuous or intermittent; these noises are soon followed by more or less deafness.

2. These functional troubles having their origin in the internal auditory apparatus, may give rise to symptoms supposed to be cerebral, such as vertigo, dizziness, uncertain walk, turning, and falling, besides being accompanied by nausea, vomiting and a state of syncope.

3. These symptoms, intermitting in type, are soon followed by more or less complete deafness, and often the hearing is suddenly and completely abolished.

4. Everything leads to the belief that the physical lesion, which is the cause of these functional troubles, is in the semicircular canals.

In a later communication, published the same year, M. Ménière emphasizes the necessity of recognizing that certain apoplectic seizures are not cerebral in origin, but are lesions of the auditory apparatus, which will be followed by incurable deafness. He supports this view by the reports of five cases furnished by others:

Case I. A physician, aged 47, for 15 years had had tinnitus, especially in the left ear; deafness of this ear followed, despite all treatment. The right followed the same course. In neither case had there been a sign of local inflammation, no catarrh of the tubes, etc. For three years the disease had been stationary, when, after a day in the open air, the patient, *while reading* [italics mine], was suddenly seized with violent sneezing; upon rising, he staggered and could not walk straightforward. This continued for three hours, when the man went to bed. In the morning, walking was still more difficult, there was a feeling of heaviness or compression in the occiput, a wheeling of the body to the left, a threatened falling, as if the left side was weak, although, in bed, both sides of the body seemed equally strong. Nausea soon came on, with vomiting often repeated during the day; the stomach could retain nothing. There was recovery in a few days of perfect health, although the hearing gradually lessened. The diagnosis was lesion of the internal ear. Six weeks later there was another attack of vertigo, lasting two days, with great weakness, followed by paresis of the left side, with sudden general recovery, but with lessened acuity of hearing.

Case II. M. Ménière's second case was that of a physician, aged 45, who had tinnitus, following taking of quinine. Hearing lessened, and by and by attacks of vertigo and vomiting came on, which continued for some months, until finally there were falls in the street. Deafness increased. The general health was finally completely reestablished, although the hearing was almost lost. There was no inflammatory or catarrhal disease of the ears. The warning is repeated that the agony of belief in deep-seated cerebral disease endured by so many patients with such symptoms may be relieved by recognition of this, their supposed aural origin.

Case III. A man, probably middle aged, in good health, swooned *in his office*. Nausea and vomiting supervened; everything whirled about him. Noise in the ears was complained of, and some loss of hearing followed. There was no other discoverable sign of disease of the ears.

Case IV. A business man, 40 years old, *always confined to his desk*, in perfect health, swooned while smoking. Nausea and repeated vomiting followed; everything whirled in the room; he was confined to bed for awhile, fearing to fall again. Health soon returned, but there was some difficulty in walking. There was violent and continuous tinnitus, and the hearing was somewhat weakened. He could not go to the theatre as heretofore, and his life, public and private, underwent a change.

**Bulletin de l'Académie de Médecine*, Paris, 1860-1, XVII. I shall not hereafter burden the reader's attention with the usual bibliographic references. They are easily obtained by the serious students of the subject.

Case V. A man, "encore jeune," was seized with attacks of vertigo, nausea, and vomiting. The treatment fashionable at that time (bleeding, purgation, etc.) left the diagnosis "cerebral congestion" (still not out of fashion) doubtful. Hearing lessened, tinnitus was noticed, and unsteady gait, but no ascertainable aural disease existed. A sort of half-faint occurred, the weakness lasting a few minutes only. M. Ménière and his great consultants, Trousseau, etc., could not explain such a happening, and as hearing was a little impaired, the conclusion was that the lesion was in the internal ear. Science is praised for her magnificent progress in the localization of cerebral lesions. A certain conclusion is emphasized that the affection signalized has no relation to epilepsy.

Note in passing, that M. Ménière makes the following unwarranted assumptions:

a. That these "functional troubles," briefly, tinnitus, have their "seat" in the ear. That is like saying that the "seat" of paralysis of the leg is in the leg, or that the "seat" of headache or any reflex neurosis is in the organ noticeably affected. M. Ménière speaks as if he had never heard of reflex action, physiological or pathological. The human body in health and disease is one vast system of reflexes.

b. This tinnitus is "functional," and yet it is followed by "more or less deafness." The cause of this deafness, he assumes, is a physical lesion in the semicircular canals. As every aurist knows, there are multitudes of patients with tinnitus not followed by deafness. And, as has often been subsequently demonstrated, there have been many cases of both tinnitus and deafness not caused by any lesion of the canals.

c. These functional troubles, assumed without proof, to have their origin "in the internal ear," are assumed to cause other symptoms, "supposed to be cerebral," such as vertigo, unsteady walk, turning, falling, nausea, vomiting, and syncope. All of these symptoms, separately, in any pairs, all threes, all fours, all fives, the sixes, and the sevens, often exist without tinnitus, and without deafness, and without any aural symptoms whatever.

d. The lesion of the "internal auditory apparatus" is assumed to be apoplectiform, and yet the "deafness" of M. Ménière's five cases is described as "lessened acuity of hearing" in one, "hearing almost lost" in another, "some loss of hearing" in a third, "somewhat weakened" in the fourth, "a little impaired" in the fifth. And yet he had said in proposition three that "often the hearing is suddenly and completely abolished." The local "apoplexy" is thus assumed, and his clinical cases do not certainly warrant his "suddenly and absolutely abolished." With such a weaving of clinical malobservation, preformed theory, unjustified assumptions, and reckless logic, was the start made.

Epitomes of Case-Histories.—The reports of the cases of M. Ménière "furnished him by others" may be simply and correctly, and adequately, given as follows:

Case 1. A man of 47, who had tinnitus for 15 years, had two attacks of the already universally-known, immensely common, old-fashioned disease, variously called "sick-headache," "migraine," "megrim," "hemicrania," etc.

Case 2. A man of 45 had an attack of sick headache.

Case 3. A middle-aged man had an attack of sick headache.

Case 4. A case of sick headache in a man of 40.

Case 5. A man *"encore jeune"* had attacks of sick headache.

Because the hearing in these cases, not measured or registered before the attacks, was later reported as impaired, the cause is assumed to be apoplexy of the internal ear. But for ages before, millions of patients had suffered from sick headache, with all the symptoms listed, and all about M. Ménière were multitudes of contemporary sufferers from the same disease. The only diagnosis justified by inductive logic and clinical experience was: Sick headache with a continuing sequel of abnormal aural function.

Confusion's Masterpiece.—Besides that of its inventor, the disease has become that of many years and many ears. It is both useless to attempt and impossible to compile an abstract of the confusion ever worse confounded that has characterized the discussion during the last forty-seven years. Assertion has been disproved, contradiction has been contradicted, theories have been set up and knocked down, subterfuges have been exposed, props and even foundations have been undermined—until there is not a statement that can be made concerning the theory of which the exact opposite is not as true. The theorizers have made a sorry mess of it all. Schartze and Grunert in 1895 say that the real nature of the disease is up to now, unknown, and Sugar uses the term, "the confusion of Babel," when speaking of the disease and its exponents and critics. Heerman speaks with sincere regret when, in 1906, he is compelled to let an old theory drop without having anything to offer in its place.

The Experimental Physiologists as to the Function of the Semicircular Canals.—In the histories of cases there were as many symptoms as could be found, invented or exaggerated, of vertigo, unsteady gait, swaying, turning, weakness, falling, swooning, etc., and as it was early decided that according to their three planes and the arrangements of the canals, the labyrinth must be the organ of equilibrium, and that the hemorrhages into it in Ménière's disease caused the inequilibrium, the vertigo, the swooning, and all that. The illogic of this logic was ludicrously apparent, the observation blind, the physiology was unphysiological and the science startlingly unscientific, but that did not, and does not, matter. Thousands of experiments upon animals have been carried out, all without conclusive results. And the vivisection experiments upon man by disease and traumatism, as revealed in the few necropsies, have only added to the mystification. Before Ménière's publication, Flourens, by extirpation of the labyrinth in pigeons and rabbits, had tried to determine the function of the canals, and Ménière found exudate in the case of a girl with symptoms of his disease prior to death. Goltz confirmed Flourens. Breuer's conclusions, confirmed by Mach, opposed those of Flourens and Goltz. Böttcher contends that injuries of the neighboring cerebral organs account for the symptoms, and that the injuries to the semicircular canals are not the cause of the loss of equilibrium. Tomasziewicz agrees to this, and Baginsky, after many experiments, concludes that the accidental and incidental cerebral lesions cause the loss of equilibrium and the forced movements. Kusselbach confirms this conclusion as a result of experiments on fishes. Lucae agrees, and cites a human case with hemorrhage and inflammation of the entire labyrinth, especially of semicircular canals, yet before death there was not a sign of giddiness, etc. Höges disputes Baginsky's conclusions, and Landois and Loewenberg believe that the semicircular canals are controllers of equilibrium. Brunner thinks that the correctness of the Goltz-Breuer hypothesis is established by the double

atrophy of the acoustic nerves, which should produce both deafness and loss of equilibrium. Curschmann confirms the Flourens-Goltschen experiments, although he does not think the canals are the organs of equilibrium. Brunner contends that not loss of the canals, but their irritation, produces loss of equilibrium. The early stages of the disease produce the giddiness which ends with the complete degeneration. Ferrier concludes the canals have a function in hearing. Gellé finds that dizziness can exist for years without any demonstrable abnormality in the labyrinth or ear. Steiner does not find the canals to be the organs of equilibrium. Neither does Ewald. Gallstein says "the hypothesis of the physiologists as to the function of the canals finds no proof in clinical histories," and thinks that cerebrospinal meningitis is the cause of the lesion. Gellé found no effusion present in his necropsies, but did find sclerosis of the windows, which did not yield to pressure, thus producing a "simulated" Ménière's disease. Pengniez and Fournier think the lesion is not localizable in the auditory apparatus, but is a sign of mental degeneration. Necropsies multiply, in which the severest lesions of the inner ear, necroses of the labyrinth, hemorrhages, etc., have not produced a symptom of the so-called Ménière's disease. Conversely, cases are reported in which a tumor of the fourth ventricle produced "typical" Ménière's disease, the labyrinth being normal. Hensen says that after a study of the literature and ten years of physiological experiments, there is no adequate basis for conclusion. Eckert emphasizes the impossibility of decision by physiological experiments, and of carrying out a *pure* experiment, so that there is a chaos of contradictory methods, results, and opinions. Foster thinks the canals are not connected with the sense of hearing, but serve to intermediate the feeling of movement of our head through space, a feeling which, when intense, produces dizziness and vertigo. Baginsky combats this theory, and Högyes combats Baginsky. Cases of Ménière's disease have been reported caused by all sorts of diseases and abnormal conditions of the external and middle ear, cerumen, polyps, abscesses, etc., the symptoms disappearing with treatment. The symptoms of caisson disease are precisely those called typical of Ménière's disease, and the pathology of caisson disease is well known. Many are the instances of complete recovery (including that of hearing) from "typical" Ménière's disease, and far more of a hundred purely cerebral and systemic diseases with "typical" symptoms. Lucae says that physiology and pathological anatomy still owe us a clearing up of this extremely difficult problem, and Frankl-Hochwart is of much the same mind. The investigations of Barnicks, Jansens, Stenger, and others leave the conclusion certain that no conclusion is certain. After nearly fifty years of most diligent investigation a supposed disease of a supposed single small organ without a single definite result and without any pathology whatever, must be either mythical, or of functional and reflex origin.

The Symptomatology. — Voury's "Professorial Guide" gives the number of symptoms as twenty-one: (1) Sudden vertigo, (2) vacillation, (3) loss of consciousness, (4) return of consciousness, (5) headache, (6) obscuration of vision, (7) giddiness, (8) loss of equilibrium, (9) propulsion, (10) paleness, (11) sweating, (12) cold skin, (13) nausea, (14) vomiting, (15) confinement to bed, (16) tinnitus, (17) deafness, (18) absence of fever, (19) return of health, (20) deafness persistent, (21) series of attacks.

The inevitable differences in the symptoms of the cases reported as morbus Ménière, and the consequent startling impossibility of getting all into the procrustean bed soon necessitated a vigorous lopping off of the overlong and overnumerous members. It was a reckless surgery, but without it the minds even of the theorizers balked, and poor Typical Disease was got to bed under the strabismic names of "Ménière's syndrome," Ménière symptomcomplex," "Ménière's triad," "Ménière's symptoms," "Ménière's vertigo," "morbus Ménière." It is difficult to understand why it has not been called "Ménière's vomiting," "Ménière's swooning," Ménière's propulsion, his gait, his sweating, his headache, or even by the too suggestive name of his "vacillation." Ménière's compulsion, or Ménière's obscuration of vision, it might well have been dubbed.

In 1872, Kroll gives the pathognomonic symptoms as sudden outbreak of acute cerebral symptoms, deafness or impaired hearing, spontaneous disappearance of cerebral symptoms, with continuance of the deafness. Bonnenfant's Professor, in 1874, warned that the pesky symptom, vertigo, is common to many diseases, but pathognomonic of none; and he then proceeds to the amazing statement that nausea and vomiting is seldom seen except in Ménière's disease. Voury's definition is, "An affection of the internal ear characterized by deafness, tinnitus, attacks of vertigo, usually accompanied by severe troubles of equilibrium, a state of syncope, nausea, and vomiting." To get the clinical order of the symptoms absolutely reversed was necessary if the very big patient, Morbus Ménière was to be got upon the very little bed. Voury finally decides that a proper patient has and must have, at least three symptoms—deafness, tinnitus, and vertigo. The headache, vomiting, and a long kite-tail of etceteras, were hacked off, and of the astonishing number of ocular symptoms present there was never even a whisper. Kroll avers that "the diseases of no organ more frequently cause cerebral symptoms than those of the ear, and vertigo is the most frequent"—a bit of the finest humor. Rare qualms of the scientific conscience are occasionally exposed in the avid ease with which our ancient, ever living and ever present "rush of blood to the head" ("cerebral congestion"), and the still vigorous "stomach vertigo" are deftly left out of the accounting. The unimportant *vertigo* takes the throne while the all-important *headache* and *vomiting* are waved into banishment. Swooning, propulsion, pallor, sweating, and many others died aborning. And so the triad at last is settled upon as (1) deafness, (2) vertigo, and (3) tinnitus (inversely, again, as the square of the distance!). But —a useless *but* of course—thousands of patients have either one alone; thousands either two; a few may have all three. "But at least the patient is deaf!" By no means! Lots of cases are on record in which typicality was otherwise all that could be desired except that the deafness was either only slight, never complete, or entirely recovered from. At least in such Alice's Cat has entirely disappeared and only the grin remains. And how about the astonishing majority of all cases proceeding to absolute deafness in which all other symptoms of the "syndrome" disappear? Why also absolutely overlook the great world of those deaf from any and all causes who, besides the deafness, never show the other symptoms?

"The Organ of Equilibration."—In a normal condition the semicircular canals are supposed to be the organ which govern the sense of equilibrium, of the position of the body, or of the movement of

our head through space. Under the abnormal conditions of apoplexy, traumatism, contiguous or neighboring disease, whirling, etc., the sense of equilibrium, position, motion, etc., is partially or wholly lost, and tinnitus, vertigo, and partial deafness, etc., supervene. But when the organ is destroyed, its assumed functions must not only be morbid, but wholly abrogated. And yet none speak of this and all ignore the fact that the patient passes from view—*i.e.* stops reeling, vomiting, etc., and ceases to be vertiginous. A child, surely a first year medical student, must see that in the light of such facts the semicircular canals are not the chief or only organs of equilibrium. James' experiments with deaf mutes are designed to show the relative immunity of deaf mutes from dizziness. Of 519, 186 were not made dizzy by whirling, 134 were made only slightly dizzy, while 199 were normally sensitive. While of 200 normal hearing persons only one was exempt.* In the name of all the great physicians not in the "Index Catalogue"—of all the great men not in "Who's Who"—what is the teaching of these facts? Frankly, nothing! But if anything at all it is surely not that destruction of the organ of equilibrium leaves the function of equilibrium uninfluenced and actively functional—"normally sensitive," in at least 199 out of 519. And so of the foolish experiments of revolving a man like a wheel in a machine (instead of dervish-wise) those with destroyed organs of equilibration should not show any more nor any less a sense of equilibrium than when not whirled. How can a subject with a single organ of equilibration ever, and under any circumstances, have any sense of equilibrium when it is destroyed? To cap the climax of absurdity, how under the theory, can a whirling dervish have any sense of equilibrium during or immediately after an hour's spin? All the mutilating experiments upon fishes, tadpoles, pigeons, etc., teach absolutely nothing, except the uselessness of experiment and experimenter. How could a clumsy endolymph with its acoustic hairs help a couple of birds to regain equilibrium, when playing or fighting amidst the branches of tree or shrub? A hundred motions in every possible attitude of the head are executed with lightning-like rapidity and precision long before such a mechanism could direct wing and eye. In the case of birds, it is of course the eyes that are the chief organs of equilibration. It seems stupid to add that the labyrinth is surely not the chief or only organ of equilibrium. Had it been studied by observant and clinical understandings instead of by theorizers and laboratory experimentalists its patent function would a half-century ago have been so evident as to need but a sentence to set it forth. It is, I fancy, plainly the device for protecting the delicate and complicated mechanism of hearing from injury from violent concussions and manifold injuries due to harmful air-pressures either from without through the meatus, or from the accidents of vomiting, sneezing, eating, etc., through the Eustachian tubes. The round and oval membranous windows and the peculiar geometrical arrangements of the canals, the endolymph, etc., are all strikingly and admirably adapted to withstand and equalize strains and violences from sudden or extreme aerial blows and stresses. Brewer suggestively says gravity exerts its constant influence on our limbs, although the canals are destroyed, and it tells us where the ground is and where the zenith.* Helmholtz had an adumbration of this truth when he held that the nerves of the vestibule and the ampulla are those of noises, and those of the organ of Corti are for musical sounds. As to what really is the organ of equilibrium, the answer seems to be as clear and decisive; it is that of nearly every muscle ("muscle-sense") and nerve, and sensation of the body, mediated by the cerebellum, but chiefly those of the eye. This presupposes the admirable truth, called by Sherrington, "the integrative action of the nervous system." What, *e.g.* but that, does the swaying and incoordination and even the falling of the ataxic, signify? His disease of the deprivation of the quick sense of pressures and delicacies of sensations upon the soles of the feet, etc., normally carried through a hundred muscles and nerves, fail to notify the man with normal labyrinths, but with abnormal and sclerosed cord-strands, of the poise of his body—*especially if his eyes are closed.* And many such instances and illustrations will illustrate the truth, had science been clinical instead of theoretical and experimental.

In the Blind Alley and Why.—The profession and the "leaders" who have led it into this blind alley are in a sad plight. To go forward is impossible, to go backward is shameful. The most careful and philosophic are saying that at last we must renounce entirely the absurd eponymic, Ménière's disease, etc., because it is ludicrous. The despairing are nagging the experimenters to read the riddle right which has been read wrong, and everybody is looking for some apparently hopeless way out of the impasse. A glance at the far sources of the blunderings should not be amiss:

A. A great and true scientist, Tyndall, speaking of so-called scientists, says: "We often complain of the scorn of theories by practical men, and to convince them we triumphantly point to the immense services of our heroes. The practical man, however, will not be convinced; and why? Simply because of ten well-known theories nine deserve nothing better than contempt. Our intellectual heroes build their theories upon enduring facts; the mass of facts which they use in order to guess the law is a measure of individual ability, not the touchstone of the correctness of their system."

Reviewing the literature of the past ten years in 1906, Herman finds the whole affair more than doubtful and speaks with justifiable irony of the tough vitality of the baseless theories of medical history.

In physics, in the pure sciences, the mistakes of nine theorizers are expensive only speculatively, and the "working hypothesis," at the best and worst, can only delay the final appearance of the truth. But in medicine, every false theory is a tragicaled vivisection experiment, multiplied and manifold upon the great patient Humanity. The demonstration of the falseness of a false theory is at the direct cost of human lives and suffering—and chiefly, too, because it results in the indirect result of therapeu-

*A man so frank as James confesses that "obviously conditions are complicated," and "curious exceptions exist which I cannot understand." De Champeaux thinks seasickness through primary stomachal diseases produces Ménière's disease, while Guye concludes that seasickness is a symptom of Ménière's disease.

*Herman was frankly opposed to the belief that the canals are the organ of equilibration, movement, etc., and concluded that "the senses in the arrangements of the body are wholly sufficient to account for the feeling of equilibrium, movements, etc., because every movement, in consequence of the feeling of weight, centrifugal force, etc., must reach consciousness even after shutting off the sense of sight, by pressure of the movable parts against the static ones. Moreover, there are the influences of the muscle sense, the recognition of the surfaces of the body against the media about it"—so that "the supposition of a special sense organ for the perception of movement is not necessary."

tic nihilism, and the simple continuance of diseases from which the attention is turned away. Sick-headache, or "migraine," is the present greatest, most health-wrecking, most ruinous of all modern diseases. Even supposing Ménière's disease a real nosologic entity, it is almost infinitely rare, as compared with "migraine." But sound observation, and a clinical attitude of mind instead of a theorizing mania, would, in 1861, and in any of the years since, have shown that old-fashioned sick-headache is the predominant and dominant cause of the whole pother about morbus Ménière.

B. The "Typical Case" Obsession.—Even in the infectious and organic diseases, no case was ever exactly like another. In all functional diseases, far outnumbering all others, the symptomatic differences are vastly more noteworthy than the resemblances. Every case is peculiarly, persistently, and almost totally unlike every other.

C. The Disgrace of Malignant Myopic Specialism.—In these 47 years not a physician, not an oculist has thought of the eyestrain-caused "migraine" as the cause of the disease of Ménière. For the personal profit of the specialist the human body has been parcelled out and farmed out in little patches to men with no knowledge of the great truth of the integrative and unitizing action of the nervous system. The leaders of such specialties make mighty haste to forget the true fable of the belly and its members, and besides deny the fact of morbid reflexes in all and through all. They fill their ponderous text-books with erudite theories, for example, of the mathematics of optics, and utterly ignore the ametropia that is cursing and killing at least one-half the world, and three-fourths of the world's sick. No Ménièrist ever seriously asked what causes the tiny localized hemorrhage into the labyrinth, and only fools and fanatics ever tried to show that "migraine" is surely caused by eyestrain and easily cured by glasses.* And for 47 more years the cynical general physician and pathologists will join in the laugh at the loony who believes that migraine is the single sole source of all Ménière "triads," "complexes," "syndromes," and "diseases." But it is true and will be plain to all some time.

D. Sticking Fast in the Mud of Medical Ignorance and Bigotry.—In the year 1853, a scientist of the true kind, Dr. Beauperthy, published in the *Gaceta Oficial de Cumaná,* the results of arduous microscopic studies of the blood of yellow fever patients, and almost completely, in all essentials accurately, established the truth that the disease is due to virus inoculated into man by mosquitos. In 1856 he communicated his discoveries to the Académie des Sciences. Strangely enough, he was allowed to do so. More strangely, he was not opposed, or reviled, or martyrized. He was simply ignored, ignored utterly and absolutely. The matter and the man were not worth even the scorn of mention. In the year of Beauperthy's communication, there were taking place thousands of deaths from yellow fever and they continued for 40 years. According to the official British Encyclopedia, Dr. Charles Finlay was the discoverer, in 1881, Beauperthy not being mentioned. According to the medical profession, professors, and official journals, the discoverers of the mosquito-rôle were years afterwards, Read, Lazear, and Carroll.

According to the official advisers and generals and honorers of the medical profession, Jenner was the discoverer of vaccination, but a thousand dairy folk had long known of the immunizing powers of cowpox; and Jenner waited 22 years before he dared repeat the inoculation of the cowpox virus on the Phipps boy which the old Dorsetshire farmer, Jesty, had made on his wife and two children. And Jesty dared also what Jenner did not dare, to inoculate the members of his family subsequently with genuine smallpox virus. And Jenner had to fight the truth into the heads and hearts of his scientific contemporaries and aftercomers.

In 1843 Holmes, and in 1845 Semmelweiss, contended that puerperal fever was a contagious affection. This was too much for the leaders and official judges, Hodge, Meigs, & Co., who proceeded to silence Holmes and Semmelweiss, the one by opposition, the other by martyrdom, and again a generation passed with many thousands of unnecessary deaths, caused by medical bigotry.

Long ago a number of men became convinced and openly said that migraine and many other diseases were caused by the eye-strain of ametropia. Some at once saw their blunder (the leaders of the profession would not accept the truth) and in blind self-stultification afterwards did what they could to oppose the truth. Others have since been fervently and secretly beseeching their god for forgiveness that, once and for a day, they dared to espouse an unpopular cause.

A hundred such examples could be added. To what good! And yet the mosquito is the means of conveying the germs of yellow fever; vaccination has prevented millions of deaths; puerperal fever was carried by the doctor; and migraine, the world's commonest and worst disease to-day, is caused by eyestrain; and it is the cause of Ménière's disease.

E. Love, the Guide.—The prayer of Maimonides, as well as the tradition of the profession, is that "the truth," "science," physician and profession, exist solely for the benefit of the patient, that therapeutics and prevention of evil come not from ambition and self-seeking. Medical science becomes ignorance and confusion when disconnected from the patient, present or to come. True success lies in work for the relief of the individual patient, and of the infinite patient, Humanity. The Ménièrists seem to have taken very literally as their rule Lessing's famous preference and desire for the everlasting search for truth rather than for truth itself. Once, indeed, M. Ménière seemed to have a little thrill of sympathy for the patient who, by his discovery, should be relieved of the incubus of the fear of incurable cerebral disease, replaced by that of incurable aural disease. After that, the dream faded into the light of common day, becoming the fateful system-building attempt at poising the unstable cone of science on its apex, a million animal experiments, and the establishment of a pseudo-disease of which there was no possibility of cure and no desire of cure. A chapter on the history of the therapeutics of Ménière's disease would be more amusing than the story of Mark Twain's "Jumping Frog." If any one of these hundreds of erudite writers could have dropped their pens and with sympathy watched a patient during the awful seizure of a vomiting convulsion! The truth would have been caught, even despite the blinding power of the theory of cerebral disease. "The Kingdom of Science" said a great scientist "cometh not by observation and experiment

*Two neurologists recently report 1,700 cases of migraine cured by scientific correction of ametropia, and at the same time, presidents, chairmen, "leaders" in ophthalmology publish their ignominy and shame (that they cannot diagnose ametropia and so cannot cure a single case of migraine) that the only certain thing about migraine is that it is *not* due to the eyes! The only certain thing about such scientists is that they never prescribed a correct pair of glasses.

alone, but is completed by fixing the roots of observation and experiment in a region inaccessible to both, and in dealing with which we are forced to fall back upon the picturing power of the mind."

To understand the outworking of these factors, let us glance at the overlooked and underlooked symptoms of the Ménièrists.

Tinnitus and Deafness.—These symptoms served to cause the specialists in charge to consider the organ of hearing as the primary one affected. Ignorant of the integrative-action truth, they could not dream that the original source of the local aural symptoms could be in another and distant organ. And being obsessed with the crude organic pathology theory of the origin of all diseases, they again could not even think of a faraway functional source of the disease. Being physicians, they had adopted the ages-long, incomprehensible, batlike blindness of the whole world that the eyes, the most marvelous and useful organs of the body, could not be the source of any systemic or distant disease. Now it is as true as truth can be that there are millions of sensible people in civilization who have tinnitus of all kinds and intensities, without sequent deafness, or vertigo, or any of the 20 or 30 other symptoms of M. Ménière and his followers. Many people can at will create a severe tinnitus by making tense certain muscles of the eyes; "setting" the muscles of the neck, of the throat, etc., will produce the same roaring in the ears. A certain number of cases of persisting tinnitus are caused by too much smoking. One patient had severe tinnitus in eating, with every motion of the jaw. It is as true that thousands of the deaf never had tinnitus, or vertigo, or the rest. To pounce upon the few who happened to have the tinnitus alone with some little or much deafness and shout it into a nosologic entity, is certainly not clinical or inductive science—most far from it! Beyond question, the tinnitus and deafness may be caused by injury, exudate, hemorrhage, etc., into the middle and inner ear. But when it is so, it is the greater duty to seek out the cause of the morbid local condition.

If the canals are the organ of equilibrium, etc., and other organs of the ear are those of hearing, why does injury of the canals produce the one distinguishing symptom, deafness? Why so little attention, practically none, to the real organ of hearing? Partly because it is usually not found to be diseased, but more, because a preformed theory must be proved. Some of the great text-books on diseases of the ear refuse to allow Ménière's disease but a brief and skimpy mention, and Politzer begs pardon for including it.

If the oculists of the world had been clinicians and observers, instead of theorizers and specialists, they could and would have long ago told the aurists that eyestrain sometimes has its morbid functional reflex to the ear, and sets up even the most unendurable and persisting tinnitus. I have had a number of such cases besides that set forth in the *Maryland Medical Journal*, April, 1905, and in "Biographic Clinics," Vol. V, p. 67. That the local aural lesion causing the deafness secondarily produces the vertigo, the headache, the nausea, and vomiting, etc., is wholly without clinical proof, and is indeed the reverse of the truth. That the vertigo produced the aural troubles is but little more credible. Tinnitus was retained in the Ménière symptom-complex in order to help poor Deafness to preserve the disease as an aural one, although either exists as often alone as with the other.

Vertigo, Staggering, etc.—That vertigo has been retained as one of the symptoms necessary to constitute the typical disease is evidenced by the fact that the disease is not seldom called Ménière's vertigo, or labyrinthine vertigo, etc. As a symptom, it was retained in the "triad" to exaggerate the rôle of the ear, although local aural disease rarely or never causes vertigo; although vertigo may continue with absolute deafness; although vertigo without aural disease is a million times more frequent than with it; although vertigo is plainly caused by a hundred extraaural diseases; although the cases of vertigo from eyestrain far outnumber those from all other causes combined. The symptoms of staggering, propulsion, impaired gait, etc., allied to, or extremes of giddiness and vertigo,* were much made of in the early reports, but have been less and less bespoken as it has become increasingly evident that they had no logical place in the complex, and the illogicalities, even of the retained three, in the struggle for existence, were sufficiently tormenting to the theorizers; and so the staggering, etc., had to be dropped.† Lucae and others confess that the conditions in which canal disease can produce vertigo are "*volkommen dunkel.*"

Swooning and Falling, as symptoms of morbus Ménière, were also early in evidence, and, like staggering, etc., often occur in the miscalled Ménière's disease (*i.e.* in the explosive kinds of sick headache) which were supposed by M. Ménière and his followers to constitute their new disease of the semicircular canals. The swooning and faintings, or even the symptom of suddenly falling unconscious, are indeed not uncommon, though not of course the rule, in sick headache and other cerebral neuroses of eyestrain. As results of eyestrain, we can understand their *raison d'être* logically, just as we often see them clinically. I have certainly had a score or more of such cases, illustrating what I have called the explosive type of migraine, cured immediately by scientific spectacles. They had more or less or all of the twenty-one symptoms of Ménière described by Voury. I have reported a few cases, but it is useless to argue, or illustrate, or plead in the present temper or distemper of the professional mind. But if swooning and falling, etc., could not be believed the results of abnormal ocular function, they could of course gain speedy credence when reported as following a drop of blood in the labyrinth of the ear. The genuine Ménièrist has by no means given them up to-day, but the more cautious and inductive investigators will not allow them to be added to the three sacred symptoms still so desperately clung to.

Headache.—Even this symptom, which every specialist and internist, every surgeon and manicurist, claims as his especial property, which characterizes every disease that ever existed or that never existed—even this thermometer and barometer and hygrometer of the medical weatherman, the more careful Ménièrists have had to exclude from their symptomatological trinity. Because, as before, it was difficult to see how the walled-off canals, even when hemorrhagic, could beget dire implication of the entire brain. Clinically, the refractionists, finally, have been able to demonstrate that headache, except in a tiny minority of cases, is peculiarly theirs, because, if they will, they can cure it. Sometimes, indeed, it coexisted with "typical" cases of Ménière's disease, but it persisted and recurred when the slight

*One advises surgically produced deafness to stop the vertigo!

†Learned authorities have reported cases of Ménière's disease in horses, one in a dog, and Lillman solemnly describes a typical case in a cat, which had "vertigo, shook its head, *miaute jämmerlich*, and became deaf." "There was no doubt of the diagnosis," he says!

deafness passed to complete deafness, and when the tinnitus ended. It was wrong for it to do so, but it was obstinate, and headache had finally to be excluded from the twenty-one, leaving the "three little Indians," Deafness, Tinnitus, and Vertigo, "standing in a row." If now the third, then the second, and, at last, the first should toddle off to join the other deserters there would be left—"none." But the big Chief around which the deserters rally is:

Nausea and Vomiting.—So far removed is the labyrinth from the vomiting center in the medulla that, although in the vast majority of the reported cases of Ménière's disease, vomiting was painfully present as the early and chief symptom, it became utterly impossible to see how the local labyrinthine lesion could set up such a marvelous and widespread convulsion of the organism. For one who is determined to bolster up a preconceived theory, for one who finds that "the diseases of no organ more frequently cause cerebral symptoms than those of the ear," the convulsion is easy of explanation. But a careful clinician will find it decidedly not so. And even the careless ones were early compelled to let this symptom go over to the enemy. Had they scrutinizingly watched him and his doings, they, one and all, might have read the riddle of the mystery of Ménière's disease, because he took with him the sole strength and support of their cause. For it was a rare incident and accident of vomiting that produced the single and genuine lesion which gave temporary but real warrant for the establishing of a distinct type of disease.* I exclude, of course, those cases due to sneezing, violent falls, blows, concussions, etc., which would mechanically wound or break or injure the delicate mechanism of the drum, the middle, or the internal ear. These things, to be sure, do produce true Ménière's disease—a few cases. But the same results are also produced by the vomiting of migraine which is as violent as that of any of these outside concussions, blows, falls, etc. If every writer on Ménière's disease could but once have personally endured the agonizing and terrible violences and exertions, almost beyond the resisting powers of the organism, suffered during migrainous vomiting, the explanation of the Ménière portion would have been discovered in 1861, and in any year thereafter. The intensity and awfulness of the acts and strains are pictured graphically by the early writers, the pallor, writhing, groaning, the agony, the sweating, the utter exhaustion and even coma afterwards. The jaws are wrenched wide as if by a giant, the muscles of the head and neck, those almost of the entire body are convulsively tortured or set, the eyes bulge, and all the conditions meet for injury to the delicate mechanisms of the ear. The vomitus is hurled as if from a deep volcano against the pharynx and the distended and gaping orifices of the Eustachian tubes. And not alone the vomitus, but first, a wild tornado of ejected air and gas, with a concussive violence compared to which that of the Politzer inflation is the softest zephyr. And yet the good aurist warns of the danger of the Politzer bag, and knows of cases aplenty in which the drum has been ruptured and irreparable injury done by it to the ear and hearing. "Soon," say the Ménière reporters, "soon or immediately after the attack of vomiting the patient complained of tinnitus, hearing was found to be impaired, and deafness increased or became complete." Should it not have been glaringly evident to clinicians and aurists, why there was roaring in the ears and deafness? Why do cannoniers find it necessary to plug the external meatus with cotton and keep the mouth closed? Or, if the ear is not plugged, to hold the mouth wide open? Why does a box on the ear sometimes cause tinnitus, disease, and deafness? The propulsive force of the air-current and vomitus against the pharynx and mouths of the Eustachian tubes, as it turns by reflection at a right angle, is far greater than the blow on the external ear and there is no closing possible of the open road to the middle-ear and all its tiny, delicately adjusted mechanisms. The prone or even head-downward position increases by gravity the vasomotor tension and the danger to ears. The vomitus and air is shot out of the mouth and even through the nostrils—but not all of it, for the borbardment of the middle-ear is inevitable.* Is it any wonder that in the few necropsies that have been made (the stapes being against the oval membrane of the semicircular canals) the canals should be found with lesions explaining the tinnitus and deafness? The wonder is that in view of the millions of cases of sick headache there have not been thousands upon thousands of "typical Ménière's disease."

The Components of the "Syndrome."—Thus with minds fixed upon the aural symptoms of the disease, the Ménièrists, as we have seen, more and more neglected the many other precedent and synchronous symptoms and elements, and finally came to lay emphasis only upon the deafness, tinnitus, and vertigo. The vertigo was theoretically retained despite its frequent actual absence in cases, simply because of a false and snapped-up theory that the labyrinth was the organ of equilibrium. The attention was not upon the functional cause of the supposed disease, because, in obedience to organic and gross-lesion pathology, the effect alone interested. The attention was not fixed upon prevention of the disease, and its cure, because theorization, typicality, and disregard of the individual patient and his suffering had excluded the personal sympathy, and "the roots of observation and experiment were not fixed in a region inaccessible to both." Thus the last, and final stage of the disease, deafness, was placed first in the list of symptoms, and in all the later reports the order in which the symptoms actually appear was reversed throughout the list. That is not science, which is, first, the careful observation of facts, and second, the rigid induction of principles or laws from the observed facts. It is not medical science, because no Ménièrist ever cured or prevented the disease in a single patient. Brunner alludes, in passing, to the possible explanation of a "vasomotor neurosis similar to migraine." And Frankl-Hochwart alludes to "pseudo-Ménière's disease due in occasional cases to migraine or its hemicranial equivalent." He also speaks of a "neurosis of the labyrinth." Another way in which the facts compel a later writer to think of migraine and yet slide away from it is shown in one who is a violent opponent of the eyestrain origin of migraine or of anything, and yet who could not wholly assent to the Ménière philosophy. In the *Medical News* of March 26, 1908, Dana describes

*The ages at which the onset of Ménière's disease came in the early cases reported are significant. They are as follows: 47, 45, 40, 40, 32, 38, 43, 62, 60, 52, 51, 28, 38, 45, 52, 35, 46, 45, 47, 40, 60, 44, 52, 58,, 53, 36, 50, 60, 36, 29, 54, 41, 55, 43, 37, 60, 51, 38, 42, 51, 40, 60, 41, 32, 47, 40, 42, 38, 45, 47, 50. The average is about 45½ years, precisely the age of the incidence and of presbyopia, when the previous eyestrain is greatly increased by failure of the accommodation.

*Other causes of vomiting, of course, than that due to eyestrain may produce traumatisms in the ear, and other causes of the traumatism, sneezing, blowing the nose, falls, concussions, diseases, etc., may as certainly cause the aural lesions.

a case of old-fashioned sickheadache which he says was a "migrainous neurosis," or a constitutional neurosis. "As in other cases I have had, the migrainous tendency located itself upon the 8th nerve and produced disturbances of its function!" What caused the "migrainous tendency? An equally good explanation, and an older one, was "God," or "the devil," or an "evil spirit."

To the Ignorers, Deniers, and Sneerers of the Advocates of the Eye-strain Cause of Ménière's Disease, a useless word or two of warning should be added:—No medical or scientific discovery was ever accepted by the so-called leaders and official judges of the matter, and the truth finally came to recognition and acceptance despite their bitter opposition. "Where the mind of genius," said a giant intellect, "discerns the distant truth, which it pursues, the mind not so gifted often discovers nothing but the extravagance which it avoids." The most common and most health-wrecking, most life-wasting, of all diseases is "migraine" or sick-headache. Call that extravagance and exaggeration if you will. It is equally certain that the cause of migraine is eyestrain, and that it is the easiest cured and prevented of all diseases.* "Exaggeration and Extravagance," No. 2.† Finally the symptoms of a large proportion of migraine cases are precisely those of all well reported cases of Ménière's disease.‡ In those reported by the Ménièrists the aural injuries following the traumatism of the terrible vomiting are known and noted without suspicion of their cause, and in those seen by the general physician and oculist, vomiting is well known, but the aural injuries from vomiting are neither known nor noted. Add the two sets of ignorances and knowledges together, and the pother is at an end. It usually takes about 40 years for a great scientific or medical discovery to wear out official opposition and prejudice. The rôle of eyestrain in the production of migraine and nervous disorders was announced 36 and 33 years ago. Already the opposition of the "leaders" and professors is becoming exhausted and they are beginning to accept—of course without a word of thanks to those whom they have ignored and cursed, without a word of public confession of their blundering and shame, and with grim determination to treat the next upstart discoverer with martyrdom.

Ménière's Disease Is Simply "Migraine," or sick headache, with many symptoms ignored and with three of the secondary or incidental effects of migraine over-emphasized:

A. Vertigo.

B. Tinnitus (*a*) of a purely functional neurotic nature, a reflex-ocular neurosis to the center or to the organ of hearing. (*b*) Of traumatic origin caused by vomiting.

C. Partial or complete deafness, due to injuries in vomiting.

Migraine is one of the evil effects, the most common and the most important of eyestrain, always preventable, almost always curable by scientific spectacles, because in almost 100 per cent. of cases it is due to ametropia.

*But not by "the leading ophthalmologists" of the world. Scientific and expert refraction they know not of, and care not for.

†Despite the hideous and stultifying articles by oculists and neurologists that the disease is "rare," its "nature unknown," and that the eye has nothing to do with it, two neurologists have lately reported its cure by scientific spectacles in 1,700 cases. Many physicians and thousands of patients know that ametropia is the cause. I have cured at least six thousand patients.

‡Even in the ignorers of eyes as pathogenic organs the early Ménière reporters could not help mentioning at the onset of the seizures in the case histories such facts as these: "Often the inequilibrium was worse with closed eyes"; "illusions of sight"; "intellectual work"; "visual troubles"; "insomnia"; "nervousness"; "conjunctiva congested"; "looking intently"; "looking upward"; "driving a nail"; "reading while eating"; "iron band about the head"; "writing at table"; "looking downward"; "amaurosis"; "dimness of vision"; "phosphenes"; "diplopia"; "monocular diplopia"; "unable to read with one eye"; "looking at bright light or at the sun"; epiphora"; "blepharospasm"; "acrimation"; "orbital pain"; "couldn't sew longer"; "couldn't see"; "as if seasick"; "stomachal vertigo"; "rush of blood to the head"; "looking at moving things"; "purulent iritis"; "with eyes looking straight forward he walked steadily, but when he turned his head to either side he tended to fall"; "with open eyes he stood quietly, but with closed eyes he would have fallen"; "associated with ocular symptoms"; "muscæ"; "strong sunlight"; "bright day predisposed to an attack"; "eyes ached"; "writing at desk"; "blue spectacles"; "photophobia"; "could not face the light of a lamp"; "no attack when he did not work"; "a severe bilious attack"; "vertigo relieved by closing the eyes"; "vertigo due to high power spectacles"; "nystagmus," etc.

THE EPILEPTIC VOICE SIGN.*

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AND

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VARIOUS[1] characteristics follow different nervous affections, thus we have tabetic gaits, the posture of paralysis agitans, the mental stigma of epilepsy and hysteria, and the like. It seems probable that there are characteristic functional stigmata in the voices of persons suffering from nervous and mental diseases. The characteristic speech of paresis and the thin high-pitched voice of paralysis agitans are well known and readily recognized by all. A more definite analysis of these speech and voice types ought to be made. Many of us have observed in a crude way that there is something very peculiar and distinctive in the epileptic voice. The defect is shown in the expressionless quality of the voice; it renders the epileptic incapable of singing beautifully or speaking well. To one who has lived in a large colony for epileptics for several years the alteration of the epileptic voice is both striking and obvious. With a view of analyzing the voice of epileptics the newer methods of voice study were applied, and we now present what we venture to term the "epileptic voice sign." It is unnecessary to say that there is no past literature to refer to in such studies, as both the problem and its results are entirely novel.

Briefly stated, the method is as follows: The patient speaks into a mouthpiece that covers his mouth rather tightly; this is connected to a small metal cup, the tambour. The top of the tambour is covered with thin rubber that yields to puffs of air and vibrations. A lever connected to the rubber receives the vibrations on a rapidly revolving smoked drum or kymograph, as indicated in Fig. 1. The arrangement can be conveniently called the "tambour method."[2]

*Read before the N. Y. Neurological Society, Nov. 12, 1907.

The character of the resulting curves can be best illustrated by explaining an example. The record of the words "mostly at night" is shown in Fig. 2. The first sound is "m," which is indicated by the flat portion of the wavy line. The gentle rise of the wavy line corresponds to "o," the steep rise to "s." The sudden fall is due to the "t." The bit of straight line in the middle is also due to a "t." The record ends with a "t." This "t" ends in the usual way with a strong puff of air, which appears in the record as a sudden upward movement of the line.

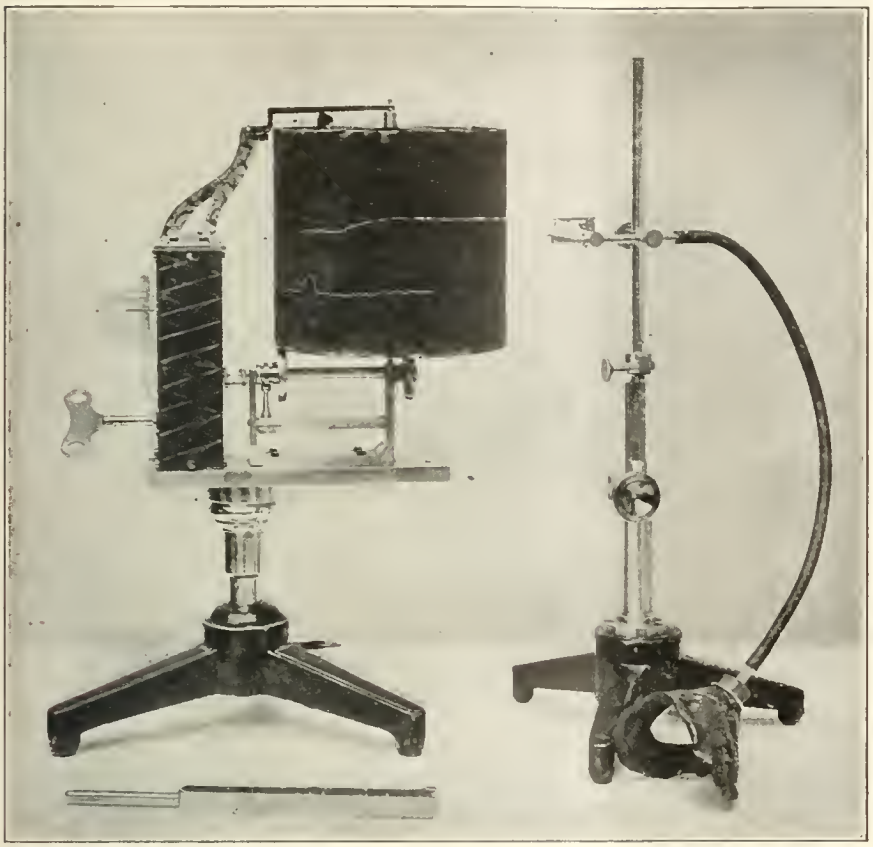

Fig. 1.—Arrangement of Apparatus for the Tambour Method.

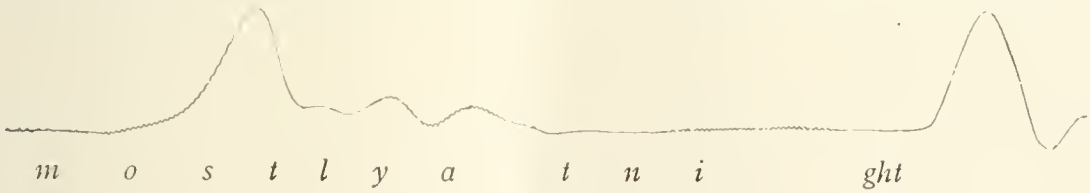

Fig. 2.—Record of "mostly at night."

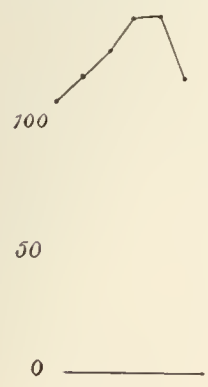

Fig. 3.—Melody Plot.

In sounds like "m," "o," "l," "y," the larynx vibrates. These vibrations produce wavy lines in the record. A long wave indicates a slow vibration, a short wave a quick one. Slow vibrations correspond to low pitch, quick ones to high pitch.

Each wave of a record is measured and the pitch is calculated. For example, the first six vibrations of "m" measured 1.3, 1.2, 1.1, 1.0, 1.2 mm. The calculations give a pitch of 110, 119, 130, 143, 143, 119 vibrations per record. That is, the first vibration corresponded to a tone of 110 vibrations; the second to a somewhat higher tone, the third to a still higher one. The successive pitches are plotted on millimeter paper, as indicated in Fig. 3. A line connecting the tops of the ordinates is termed the "melody plot." In this way the entire record is worked through.

In Figs. 4 to 6 we have the melody plots from a normal voice. In Fig. 4 we have a record of "rather cloudy." We see the melody of the first part of the word rising rapidly; thereafter it moves more or less up and down, falling at the end. In Fig. 5, "about two o'clock," a similar continual change in melody is apparent. In Fig. 6 we notice that the melody of the first vowel in "pretty" rises and falls. This is an illustration of a fundamental law of normal speech established in previous researches,[3] to the effect that every vowel used as a unit has a circumflex, that is, a rising and falling melody. The last portion of the phrase "y good" in Fig. 6 all has changing melody; the curve rises and falls in several fluctuations; there is a deep fall at the end.

The remaining curves are a few out of a large number of similar ones from epileptics. The peculiarity in the melody strikes the eye at once; instead of the continual rise and fall in melody, the vowels and phrases run along on even tones. The speech of an epileptic is, in fact, "plateau speech"; that is, his melody proceeds by even steps. There is also a tendency to monotony; that is, the successive sounds do not vary as much from each other as normal ones do. Both these characteristics are clearly shown in Fig. 7, which gives the melody plot for "mostly by day" spoken by O'Connor. Fig. 8 shows two plateau tones from the word "sleepy" by O'Connor. Fig. 9, by Donohue, "mostly by day," shows melody and plateau tones, although some of the vowels have a little flexibility. Fig. 10, for "four months old," by Coyle, shows both characteristics.

In a list of 100 cases one of us (Clark) was able to detect the disease in 75 per cent. of the cases by the voice sign alone. There is no precisely similar defect in any other nervous or mental disease. All types of epilepsy have been under study. One case had had but four epileptic fits and had never taken medicines for his disease. The voice sign seems to develop with the disease. The more severe the epilepsy and the longer duration it has, the more marked one finds the voice sign.

The sign appears to depend upon the underlying brain degeneration, of which the epileptic fits are also an expression. The voice sign persists at

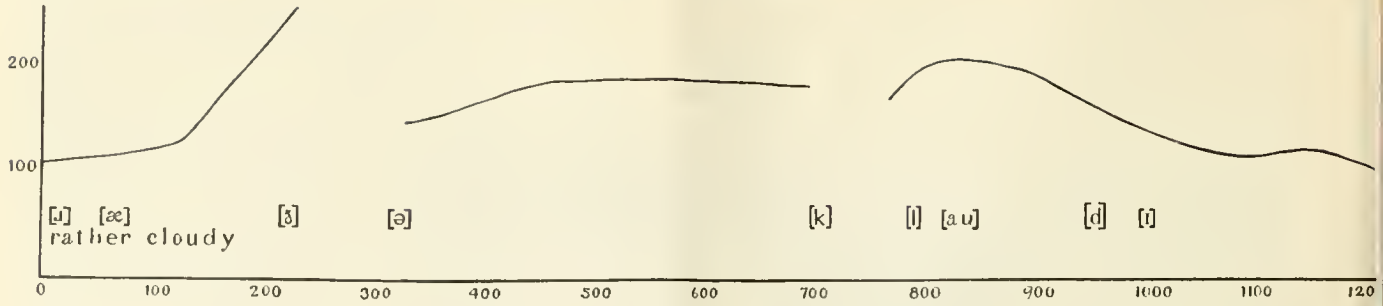

Fig. 4.

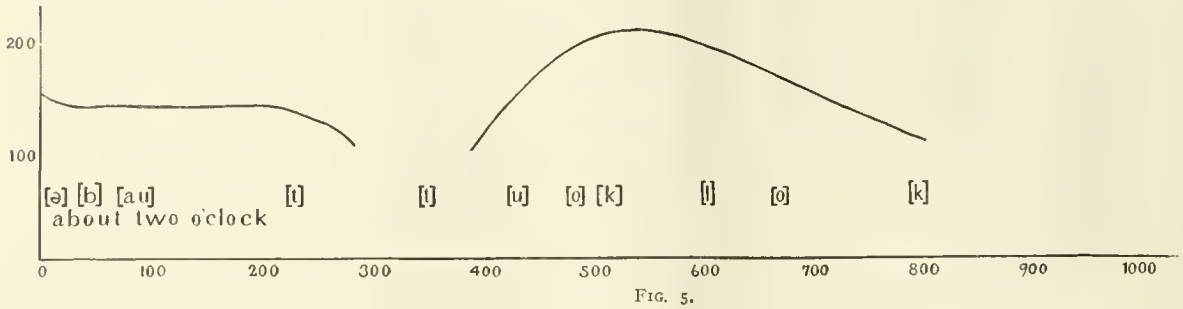

Fig. 5.

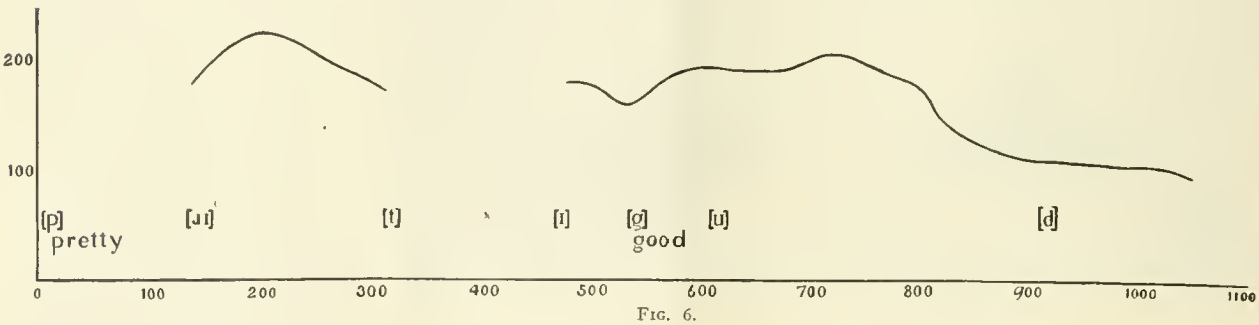

Fig. 6.

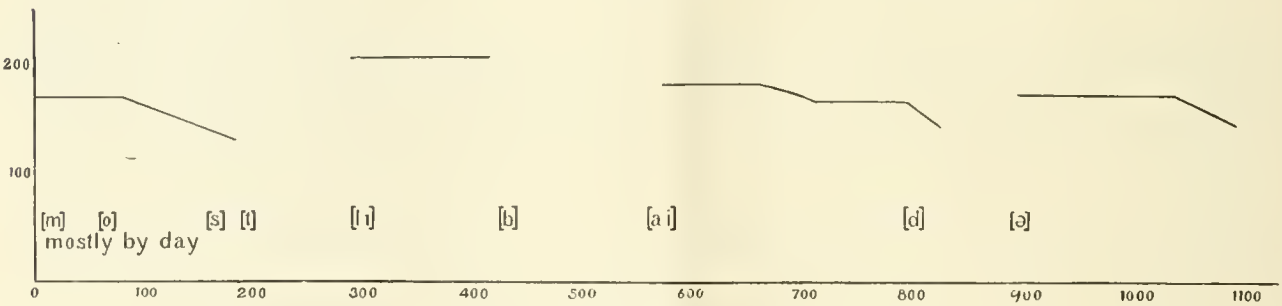

Fig. 7.

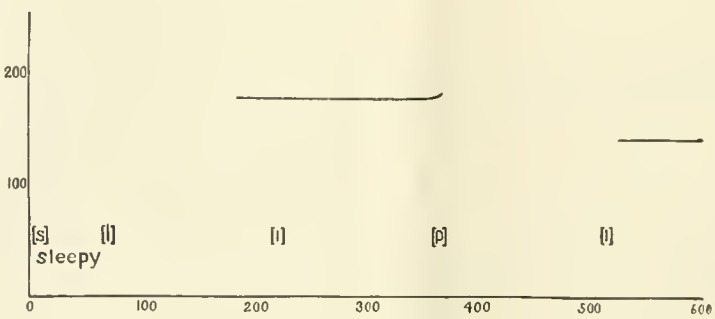

Fig. 8.

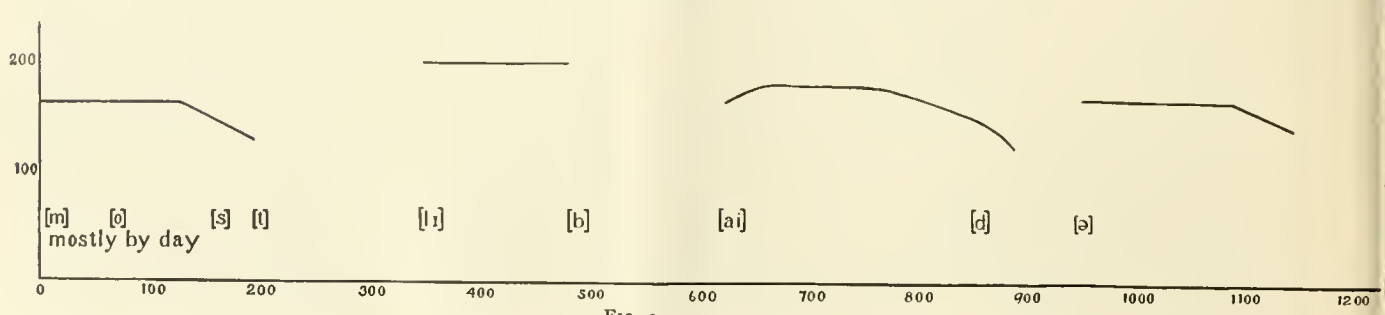

Fig. 9.

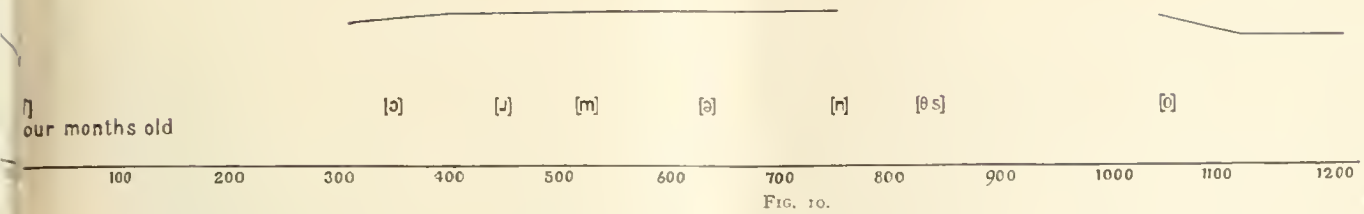

FIG. 10.

least several years, even in the absence of fits, showing perhaps that even a prolonged absence of fits in epilepsy does not really indicate that a cure has been accomplished. The diagnostic and prognostic value of the epileptic voice sign is obvious. Further studies upon the subject are being made.

By appropriate exercises epileptics can learn to speak normally. The voice readily relapses to the epileptic type through negligence, but the cure can be kept complete if the patient will present himself at regular intervals.

NOTES.

1. This research is the first one to appear from the experimental laboratory (in charge of Dr. Scripture) of the Neurological Department of Columbia University, Dr. M. Allen Starr's Service. Part of the work was done in the physiological laboratory (Prof. Curtis) of Columbia University.

2. At a meeting of the N. Y. Neurological Society, April, 1907, Dr. Scripture gave an account of the method employed, and illustrated it by voice records in general paresis. A detailed account of the apparatus and methods of measurement is given by Scripture in Untersuch. über d. Vokale, *Zt. f. Biol.*, 1906.

3. Scripture: Elements of Experimental Phonetics (Yale Bicentennial Publication), Ch. XXXII., and Researches in Experimental Phonetics (Carnegie Institute), Ch. IV.

WHAT FACTORS ARE NECESSARY IN ADDITION TO ASEPSIS TO SECURE HEALING BY PRIMARY UNION?*

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How often does one hear the occasional operator bemoan his inability to get primary union, even with the most elaborate precautions to preserve asepsis? And how often is the sterility of the materials questioned, the possibility of the nurse having failed of her full duty in preparation, the presence of an ungowned spectator as a source of infection, etc.? The explanation is sought in a "break" somewhere in the chain of asepsis. If an operation be done in a private house, in unaccustomed surroundings, there is a considerable possibility of not obtaining complete asepsis. If it be done in a well-ordered operating room, where the advantage of sterilization of dressings under pressure is to be had, as well as the "team work" and facility of a staff accustomed to working together, I believe that any practical break in the asepsis rarely occurs. What is the explanation, therefore, of inability to obtain primary union under conditions which we may be sure are what are ordinarily understood to be completely aseptic? I shall enumerate the several most important factors which I believe to be necessary to secure perfect healing in addition to initial asepsis.

First of all, while I would not be misunderstood as decrying consistent asepsis in the slightest, I believe that much of our aseptic technique is carried to an absurd degree, is often inconsistent in the lacking of one or more essentials, and is made so unwieldy that the other factors which I shall mention are necessarily crowded out. Why was it possible for Lawson Tait to obtain such excellent results without antiseptics and with ordinary tap-water, unfiltered and unsterilized? I think it was, without question, because he was essentially and consistently clean in the first place, and chiefly because he had learned how to handle tissues with a minimum of traumatism; that he knew the limit of toleration of tissues—their resistive power, in other words—and kept safely within this limit. It is to emphasize this latter side of the technique of successful surgery, as distinguished from the former, or aseptic, side that is my endeavor tonight. One might say that it was impossible to have too much of what is included under the term "asepsis," and that is in a general way true. But in another way it is not true. I have seen in a hospital connected with one of our large medical colleges half a dozen people enveloped in caps, gowns, and rubber gloves to do a prostatectomy on a patient with an infected bladder. All this array was unnecessary to secure the desired result in such a case, and yet, of course, it was difficult to depart from the accepted routine, and only goes to show that our regular methods of training physicians and nurses emphasize especially the extrinsic details, so to speak, of aseptic surgery. The intrinsic details pertaining to the handling of the wound itself are too often made to take a very secondary place in the means to obtain primary healing, so weighty and numerous are the other details. When a large incised wound, which has been closed hastily in an emergency on the street or in the woods, where all aseptic externals are lacking, heals by primary union, great surprise is often felt that such a thing can be possible, but the lesson is too little heeded. I was much impressed to see a well-known operator go through his morning's work of five or six laparotomies without a change of the white, short-sleeved coat that he wore, and with only a constant and thorough cleansing of his ungloved hands at the city water tap, the water, however, being known to contain no colon bacilli. This operator's record for primary union is probably equal to that of any. His clean and gentle handling of the tissues, his care in tying ligatures and placing sutures were in constant evidence, and while I believe his methods of asepsis were essentially correct, he was laying more stress upon what I have termed the intrinsic details of his work. Personally, I am a firm believer in the necessity of rubber gloves for the average man; but I am not at all doubtful that the operator who handles tissues with great care may get most excellent results without them, provided he constantly and consistently keeps his hands clean at all hours of the day, using gloves when under the necessity of handling pus. I am persuaded, there-

*Read before the Long Island Medical Society, June 2, 1908.

fore, that we need to emphasize in the training of internes certain of these intrinsic essentials, even if we crowd aside some of the accepted extrinsic essentials.

First of all, when an incision is being made, we should avoid all unnecessary clamping of bleeding points. Capillary oozing and bleeding from small vessels do not require clamping, and soon cease spontaneously. The energetic interne often spends time and obstructs the operator in putting artery clamps unnecessarily upon such points, feeling that the assistant who can snap the largest number of clamps on in a given time is doing greatest service to the operator. On the contrary, and more important still, it inflicts added traumatism, and requires the leaving of a greater amount of ligature material in the wound for the tissues to care for.

The next important matter is that all bleeding points should be seized neatly and exactly, and no large masses of tissue clamped off to undergo necrosis later, and tax the phagocytic power of the tissues. Vessels may often be seized before being cut through, but the two clamps upon a vein crossing the incision should be placed close together, not at a distance apart, as the knife can easily sever between them, and a smaller stump will be left to be ligated. It should always be kept well in mind that the ability of any wound to care successfully for dead aseptic material left within it is limited, and the less necrotic material left the greater the chances of primary union. I think it important, so far as possible, to avoid leaving considerable masses of crushed and strangulated tissue immediately beneath the skin, as such tissue is more prone to become infected from the neighboring organisms within the deeper skin-layers. As an artery clamp, I prefer the pattern of Kocher, with a sharp, toothed point by which a vessel may be accurately seized and crushed. Often no ligature is required after the use of such a clamp on small vessels, although I prefer as a rule to ligate nearly all points clamped, and to clamp few points.

The tying of the ligature is a point of great importance. The majority of men will tie off the tissues at a distance from the point of the clamp, and thus strangulate surrounding fat and fascia to a much greater degree than if the ligature be given its first tie on the tip of the clamp, and allowed to slip over the clamp upon the extreme end of the tissue caught as this first tie is tightened. The ligature should be trimmed off short for all ordinary vessels, though for arteries of considerable size three ties of the catgut ligature should be taken and the ends left a little longer. For superficial veins and arteries, I frequently use but one tie of the catgut, a half-knot, clipping the ends very short, and if it be drawn up very steadily and firmly it will not slip off. Catgut is dead animal tissue rendered aseptic, and the amount of it left in the wound should in every way be reduced to a minimum. I have long noticed the great difference in the amount of dead material left to the care of the wound where the points I have mentioned in the clamping, the tying, and the cutting of the ends of the catgut were carefully observed. Of course, no wound can be more than relatively aseptic, as absolute asepsis is not practicable, and the more dead or devitalized material left in a wound the more easily is bacterial development made possible.

Another important point lies in the proper sponging of the wound. A common habit of inexperienced assistants is the wiping of a rough gauze sponge across a wound, very much as one would rub off the external skin. Such practice produces trauma of the superficial layers of the delicate tissues of the wound, and devitalizes them to a certain degree. A sponge should be laid gently and firmly against the exposed tissues and quickly removed, without any rubbing or scrubbing.

Irrigating fluids should be used as little as possible. Aseptic surgery presupposes that no corrosive antiseptics be washed over tissue surfaces to injure them, but saline irrigations are also unnecessary, and, with the additional sponging required, only add to the handling of the tissues. Blood has bactercidal properties in itself, and there is no necessity of removing it when not in considerable amount.

The tying of sutures so as to avoid tension on tissues is one of the most important of the points I have to mention. Tension is invariably harmful whenever used, and is always done at the risk of inducing suppuration. A moderate tension is required in suturing the muscle to Poupart's ligament in a radical operation for inguinal hernia, and tension is necessary in closing large gaps, as in operating for large umbilical hernia. But all such tension must be reduced to a minimum, for with tension there is surely constriction and necrosis of tissues, and the production of a favorable culture medium for any accidental infection. It is useless to attempt impossibilities with tissues, and the efforts one often sees made to drag tissues to distant areas at the expense of their blood supply are foolish in the extreme. Buried sutures of absorbable material should be tied with little tension, as well as superficial and skin sutures, in order to make provision for the resulting edema which follows, adding to the tension and the dangers of necrosis. The areas of irritation and suppuration seen about skin sutures are not so much due to the mere presence of germ-life in the skin as to the fact of tension and necrosis rendering germ activity possible. Skin may be brought into good coaptation by loose but even suturing, the atmospheric pressure assisting in holding the lips of the wound together, combined with firm, even pressure of dressings. Personally, I seldom use a subcuticular suture, as I believe the dangers of skin infection are only theoretical if tension of the skin sutures be avoided. As a rule, I think that a wound may be more evenly sutured with an interrupted skin suture of fine silk or horsehair, and that such a suture permits of an escape of serum from the lips of the wound, which is often an advantage. The subcuticular suture does not prevent a scar, as one usually finds as much scar formation in after months with them as with wounds sutured otherwise, except that the scar-points of the needle holes are lacking.

It is not my intention in a paper of this length to cover my subject exhaustively. It is necessary to say that I consider rubber gloves, caps, and masks essential in every operation where asepsis is to be maintained. There is no known means to render the human skin aseptic, and therefore the use of gloves, with all their alleged dangers, brings one nearer the aspetic ideal. One accustomed to gloves can use them safely and to great advantage. That an effective mask should be worn I consider most essential. The human mouth is a veritable breeding-ground for germs of all kinds, including virulent pus-forming organisms. I have presumed in the consideration of my subject that these essentials of asepsis are made use of, and it is the discussion of factors apart from asepsis that are necessary to the obtaining of primary union to which I

am limited. There is one factor which it is difficult to discuss strictly from the standpoint I have chosen, and that is catgut. Whether catgut as prepared by the many methods in vogue is truly aseptic I cannot say. Doubt has been expressed by some as to whether it is possible to sterilize catgut at all, so as to maintain its tensile strength and its other necessary physical properties. However that may be, it would seem from surgical experience that catgut subjected to a sufficiently high degree of heat for a sufficient length of time may be rendered aseptic, and any spores it may contain be destroyed. Catgut prepared with chemicals without heat is said to be found lacking in complete sterilization, the chemical antiseptics not penetrating to the center of the strand, permitting spores to remain there alive. If this be actually the case, it would seem from the very large and successful experience of surgeons with bichloride-alcohol gut, iodine gut, iodoform gut, and silverized gut, that the antiseptic penetrating the outer layers of the gut is sufficient to prevent the development of spores as the gut disintegrates in the tissues. Spores will not develop from such gut in culture media incubated for long periods in the laboratory, unless in some manner the antiseptic be removed or neutralized. It is my personal opinion that the results obtained with the standard preparations of catgut vary with the technique of the operator more than with the method of preparation. Operators have reported long series of good results with preparations of gut which, without question, have not been sterile, and surgeons have even been known to use unprepared and unsterilized catgut with resulting primary union. But no chance should be taken with catgut which has not been prepared by a method which experience has shown to be completely protective against tetanus, the greatest of all the dangers which may lurk in catgut. My own experience with iodine catgut prepared by the method of Claudius, with the modification of using it dry, as suggested by Moschowitz, has been all that could be desired. In a long series of operations I have failed in no instance to obtain primary union where there was not a well-explained cause for not obtaining it, which had been anticipated. My experience fully verifies the claims of Moschowitz that it is absolutely sterile, difficult to infect, does not act as an irritant upon the tissues, and that it is so easily prepared that only gross carelessness or ignorance would permit gut prepared by this method to be otherwise than safe. While my experience with iodine gut prejudices me in favor of an antiseptic catgut, I may say also that I believe a careful observance of the suggestions which I have laid down in this paper will produce equally good results with aseptic gut, or antiseptic gut prepared by other methods. Iodine gut does not retain its tensile strength indefinitely, and should be used within a month or six weeks. In my hospital work I have used only the iodine gut, and an antiseptic chromic gut prepared with bichloride of mercury and alcohol. In my outside operations I have had essentially the same good results with an aseptic gut prepared by one of our best known producers. In no instance have I used a gut larger than No. 2 in size, and as a rule for ligatures I have used No. 0 and No. 1. Fine sizes of catgut, like fine horsehair may be used only by those operators who cultivate a firm and steady tension in making the tie. There are few strands of catgut of these sizes that cannot be broken with an abrupt pull, and especially in attempting to make the second tie of the knot too tight. But fine sizes of good catgut have large tensile strength if the pull be a steady one. If for any reason I prefer a heavier or stronger ligature than No. 2 gut, I use the gut double, its absorption being more ready in the tissues with less likelihood of irritation than if a larger strand be used. The matter of sizes is important, as different makers number the gut differently. One should become accustomed to use certain sizes for certain parts of his work, and see to it that these sizes do not vary. Only by routine accuracy in such matters can the same results be uniformly obtained. It is my custom in all important ligatures to make a third tie upon the knot, as I have known ligatures and sutures to untie after the gut had become swollen in the fluids of the tissues. This practice with small catgut has never given me any trouble.

Next to the suggestion of the use of antiseptics by Lister, nothing in the technique of surgery has been so important as that second suggestion by the same great surgeon, of catgut as an absorbable ligature. Wherever possible, catgut should take the place of nonabsorbable ligatures and sutures when buried in the tissues. Correct methods of the use of catgut are worthy of the most thorough study.

With improved technique and facilities, it has been only rarely my experience in recent years to meet with cases of such lowered resistive power that clean wounds would not heal by primary union. That such cases exist there is no question, but care in the handling of tissues reduces their apparent numbers greatly.

In considering my subject with you this evening I have told you nothing new, but have brought up a few points which I think need occasional discussion. It is greatly to be regretted that there is such lack of uniformity in our hospital methods throughout the country, and that the pursuit of new methods and fancies often obscures the everyday essentials which are absolutely necessary whatever be the methods used. It is essential that the body tissues be always treated with a gentle hand, whether in the taxis to reduce a hernia, in the dressing of a wound, or in the course of an ordinary operation. If tissues be treated roughly, harm of one kind or another will result, which no amount of antiseptic or aseptic form will offset.

1145 Dean Street.

PRELIMINARY NOTES UPON A CASE OF LEPROSY APPARENTLY CURED WITH THE X-RAYS.

By VICTOR G. HEISER, M.D.

PASSED ASSISTANT SURGEON, P. H. AND M.-H. S.; DIRECTOR OF HEALTH AND CHIEF QUARANTINE OFFICER FOR THE PHILIPPINE ISLANDS.

The patient in question was admitted to the San Lazaro Leper Hospital, Manila, P. I., August 12, 1906, with the following history:

Leon Liuanag, male, aged 20; unmarried; Filipino; laborer; uses tobacco moderately; uses no alcohol; good habits; present residence, No. 28, Calle Alejandro VI, Sampaloc, Manila.

The parents are alive; the father is in the provinces, suspected of having leprosy; mother is well; has one brother, alive and healthy; no sisters.

The patient has had no previous diseases of importance; venereal history is negative.

Two years ago he noticed a swelling on the upper lobe of the right ear. This swelling was reddish in color, not itchy nor painful. He treated it with family remedies, but it continued to grow worse, spreading all over the ear. Three months after the

first lesion appeared on his right ear, he noticed also a macular lesion on his lower lip, reddish in color, not anesthetic, not itchy nor painful, which continued to grow slowly. He made no attempt to treat this second lesion. He says that he had had no other symptoms since the appearance of the disease.

Physical Examination.—1. General. Development and nourishment, fair; reflexes, negative; glands, negative; genitals, normal.

2. Head. Scalp, normal; eyes, negative; above left eyebrow there is a small round tubercle, reddish in color, but not anesthetic, not itchy nor painful; nose—the tip shows a reddening, and it is shiny in appearance, and the alaenasi are infiltrated; mouth—the border of the lower lip shows from the middle portion to the right angle, a macular lesion, red in color, not anesthetic, not itchy nor painful, but with slight infiltration, and measures about two cm. by 6 mm.; ears—left, normal and about 4 cm. in length; the right ear is hypertrophied and measures 7.5 cm. in length, and about 4 cm. in width; reddish brown in color, and its lobules show some breaking down of the tissues with some suppuration; outer portions of eyebrows very thin; rest of face, normal; neck, normal.

3. Chest. Skin, normal, except that the back shows several round white spots which are somewhat anesthetic; development and expansion, good; heart, normal; lungs, normal.

4. Abdomen. Skin, normal; organs, normal.

5. Extremities. All are normal.

On September 27, 1906, he presented the appearance shown in Figure 1.

Treatment was begun November 5, 1906, from which date the lesions on his head were exposed every three days to *x*-rays for ten minutes at

Fig. 7.—Before treatment.

a distance of 25 centimeters from the tube. The intensity of the light employed was just sufficient to give a distinct outline of the bones of the hand. The regular Gundlach tube and a 45 cm. spark induction coil and a mercury turbine interrupter were used. From November 21 to January 21 the treatment was the same with the exception that his head was placed within 18 cm. of the tube. During this period he commenced to show considerable improvement, in that the lesions, most noticeable in the right ear, were rapidly growing smaller. From January 21 to February 8, 1907, he was exposed at a distance

Fig. 2.—Showing results of treatment.

of 12 cm. from the tube. From February 8 to February 26, he was exposed every two days at a distance of 12 cm. From February 26, 1907, to July 1, 1908, every two days at a distance of 25 cm. for ten minutes.

During June, 1907, the affected parts presented almost a normal appearance. The lepra bacillus was difficult to demonstrate and many specimens were often necessary in order to find it. During January, 1908, the case was apparently cured from a general clinical standpoint, the infiltrations had entirely disappeared, there were no anesthetic areas, the ears were normal in size, and the cosmetic effect was practically perfect, so far as the leprosy was concerned. No lepra bacilli could be demonstrated at the site of the leprous lesions at which they had heretofore been found, but *they could be found in scrapings made from the nasal septum.* Shortly before this period, yaws made its appearance among the inmates of the Leper Hospital, and he also contracted this disease soon afterwards.

Between January and June, 1908, repeated microscopic examinations were made, and lepra bacilli could be found only in specimens taken from the septum of the nose, and during the latter part of this period, it became more and more difficult to find them even there. From June 15, 1908, to August 1, 1908, the date of the last observation, it has been impossible to find lepra bacilli in specimens taken from any portion of his body, and he presents the appearance shown in Figure 2.

MEDICAL RECORD.

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RECENT PROGRESS IN OUR KNOWLEDGE OF SYPHILIS

THE discovery of *Spirochæta pallida* by Schaudinn and Hoffmann and the application of serological reactions to the diagnosis of syphilis by Wassermann have rapidly placed this disease among such affections as are capable of being studied by the experimental methods that have been so productive of results in other infectious diseases. However uncertain is the precise rôle of the spirochete in the causation of syphilis—uncertain, because the requirements of the Koch circuit have not yet been completely fulfilled so far as the growth of the organism outside of the animal body is concerned—the results of animal experiments have shown without any doubt that secretions containing the organism are capable of producing syphilis in apes, and localized specific lesions in rabbits and other animals. The one possibility, namely, that the spirochete is a symbiotic organism simply accompanying the real excitant of the disease that has so far escaped detection, is of course to be kept in mind, but the value of the demonstration of the spirochete in the clinical and experimental lesions of the disease is not lessened by the existence of this possibility.

Wassermann's reaction, on the other hand, is quite independent of one or the other excitant of the disease: it depends upon the use of the extracts of organs of syphilitic fetuses, and the presence of the toxins of the disease in such extracts is of course admitted whatever may be the final source of them. That the reaction possesses a value far beyond the mere diagnosis of individual cases of acquired syphilis is shown by J. Bauer in the *Wiener klinische Wochenschrift* for September 3, 1908. Bauer tried the reaction in over two hundred newborn children and obtained a positive result in twenty-two cases. Not only every clinically diagnosable case of inherited syphilis gave a positive reaction, but many doubtful cases were proved to be syphilitic by the result of the test. The importance of these results can hardly be overestimated: they mean, on the one hand, that a positive diagnosis of inherited syphilis may be had in every case where doubt had previously existed and, therefore, treatment may be early instituted; on the other, that two great sources of syphilis insontium, the infected wetnurse and the syphilitic baby, may be early recognized and properly guarded against.

Bauer tested as far as possible the parents of the syphilitic children for the presence of the disease and the results were highly interesting, throwing light as they do upon the well-known phenomena of immunity to syphilis in the mother of a syphilitic child and in the children born of syphilitic parents but who have not inherited the disease—phenomena noted by Colles and by Profeta and often known by their names. The mothers of syphilitic children gave positive reaction for the disease even though clinically they were quite free of all signs and symptoms of it: the fact of Colles' law seems to depend, therefore, upon the presence of latent syphilis in the mother. The same cause explained the seeming immunity of children to infection with syphilis, the presence of the disease in them being shown by the positive reaction for the specific antibodies of syphilis though clinically they too seemed to be free of the disease.

These data afford evidence of the great impetus given to the study of syphilis by the work of Schaudinn, Hoffmann, Wassermann, and many others. Early diagnosis means early treatment and, in many cases, the prevention of the spread of the disease. It is quite possible, too, that the ability to study the disease in animals may result in the discovery of more effective or at least more rapid methods of cure than the use of mercury and the iodides, whether such cures depend upon newly discovered drugs or the preparation of antitoxic sera. The loss of life, health, and happiness, to say nothing of the great economic losses, suffered by mankind because of this protean disease is so appalling that all possible encouragement and help ought to be given to the workers employed in the task of discovering new means of recognizing and fighting syphilitic infection. It is therefore much to be regretted that the general public is not as educated in regard to the nature of this disease as its importance demands, and that many of the medical profession look upon it merely as a venereal affection which is a fit sequel of the debauches of the criminal and the unprincipled. It must ever be remembered that not a small number of the syphilitic patients have acquired the disease innocently, that innocent wives are often infected by their husbands, and that inherited syphilis strikes down or cripples innocent children. Syphilis, like tuberculosis, is a great plague of mankind, and it is the duty of the profession not only to search for the best means of recognizing and treating the disease, but also to educate the public in its individual and social prophylaxis, and in the means of preventing its spread, so that results similar to the striking effects of such education in the case of tuberculosis may be speedily attained.

THE RIGHTS OF THE SANE.

MENTAL aberration is enormously on the increase in all civilized countries. Perhaps the chief cause is the love for urban life which distinguishes the present generation both in America and in Europe. Living in towns undoubtedly changes an individual's characteristics, and will, in time, change the type of the human product. In no country has this fact been more clearly demonstrated than in Great Britain, where the type of man has altered almost beyond belief within the past fifty years and is still altering. In place of the phlegmatic undemonstrative self-reliant Briton of the old days, different conditions of living have evolved the present-time

high-strung, nervous, almost hysterical, inhabitant of British towns. Insanity has certainly increased in America and in Great Britain *pari passu* with the congregation of great masses in the towns, living at high pressure in regard to business and amusement. The future generation of civilized beings tends fair to be more prone to mental disorders than the preceding, as its members will have inherited various nervous traits in an exaggerated form. A writer of some note predicted a short time ago that if affairs progressed at the rate they had been progressing recently, the insane in England would outnumber the sane, and Lord Roseberry but a few weeks ago pleaded that the insane should not be permitted to be an affliction and a danger to the sane.

There are said to be many in Great Britain who act on the principle that the world is made for the inefficient, the sickly, the foolish, and the mad, and that taxpayers and workers should be considered only after the interests of semi-lunatics and the unfit have been attended to. Matters may not be so bad as this, but it is obvious that affections of the nervous system and madness have developed to an alarming degree within recent years. How often does one hear that a prominent business or public man has broken down and has to be recuperated by the rest cure or the primitive life cure, or some similar method?

Our courts of law are not infrequently employed in trying the cases of rich degenerates who have broken the laws of the country, and who in a less sentimental age would have been given but short shrift, but to whom now is extended pity unbounded; and, as a rule, they get off scot free. To observe the audiences also when such a case is being tried is sufficient proof that degeneracy is prevalent. Indeed, there is no need whatever to heap up facts to show that mental instability is a feature of the times, the magnificent buildings for the reception of the insane in New York State alone would be proof enough.

Given, then, that insanity is prevalent and that nervous complaints of every description are more than prevalent, is it true that in America, as well as in Europe, too much consideration is paid to the unfit, and that the sane have to suffer for the insane? No one would argue that we ought to revert to the custom of times long past, when the doctrine of the survival of the fittest was in practical application, but it is, at any rate, a matter open to doubt if we are not coddling the useless too much nowadays. It is quite right that the sick and helpless should be aided, but there is a limit to such assistance, and it is by no means certain that we are not going too far in the other direction. The strong and self-reliant are those who will win in the long run, and to teach the masses to be slack and placid is to court disaster.

In this country the infusion of the blood of strong and healthy stocks from Europe has kept the balance up to the present time fairly well, but unfortunately now the character of immigration has greatly changed. Instead of the strong, sturdy Scandinavian and German, the country is being flooded with far less desirable races, some of whom are parasitical in tendency, who never get further than a large town, and who help to swell the mass of mental, physical, and moral incapables abounding in these places. So long as the class of immigration is what it is, so long will degeneracy and mental disorders flourish. America, as well as Europe, has her problem of insanity to solve, and she may find that it is not the wisest way to meet it by treating the sufferers from nervous complaints with too much consideration and deference.

THE FOREST FIRES.

It is difficult for one who has not been through the Adirondack region recently to conceive of the barren waste which large areas now present as a result of the devastating fires. In two whole townships of Franklin County there is hardly a stick of live timber standing. The entire region is full of smoke. Homes, institutions, camps and property of all kinds have had a narrow escape. Some dwellings have been burned, but fortunately there has been no loss of life so far as known. It is hoped that out of the recent experiences, ultimate good will come. It is useless for the State to establish forest preserves and then allow them to be burned up by the careless railroads. The latter are now hard at work but they have been too late. As long as coal-burning locomotives are permitted to run through the forests just so long we shall have fires. To substitute electricity would be impracticable, but it is perfectly feasible to use oil-burning engines. In fact one branch of the principal line through the woods is so managed now and it has had a practical immunity from fires. The Public Service Commission has recently made an inspection of the fire district and doubtless measures of relief will be brought before the Legislature next year. This State originally had a grand endowment in the way of forests and if they are to continue to serve as a place for regaining health and energy it is high time that something be done to care for those which remain. It is useless for the railroads to throw the blame on careless campers. That the latter are entirely guiltless no one would assert, but the former are the sinners in nine cases out of ten. Many fires breaking out a long distance from their tracks have been started by them originally, for burning brands are blown sometimes for miles and thus a new series of fires is started.

It is poor policy to send patients to the Adirondacks if they are to be blinded with smoke, which also irritates their throats, and when all they can see are large blackened areas which make "mountain scenery" a mockery. It is for the interests of the railroads themselves to conserve the woods. So also the lumber companies should be prevented from leaving the waste products of their cuttings—the "slash," as it is called—to rot on the ground and add just so much inflammable material to a possible fire. Every physician, every mountain visitor, and every lover of nature should bring to bear all possible influence upon those in charge of legislation so that wasteful and dangerous methods of managing our forests should cease. At present we are feebly striving with effects instead of removing the causes. The experience of the general government has shown that constant patrol is the only efficient remedy against fires. The present warden system is too slow in getting into action in case of a

large fire. As it is now in the Adirondacks, no one pays any attention to a fire until it gets under a great headway. Private owners can look out for their preserves but the State should be equally provident with its own acres.

Tuberculin Reaction and the Nervous System.

The wide popularity which the recently introduced local reactions to tuberculin have enjoyed has led to renewed attempts to explain the general nature of the effect exercised by tuberculin upon the skin of tuberculous patients. Thus v. Pirquet has written very convincingly in defending his view of the matter according to which the phenomena of the tuberculin reaction are caused by the interaction of the toxins in the preparation and the antibodies developed in the organism during the disease. But a number of very interesting observations reported in the *Münchener medizinische Wochenschrift* for September 29, 1908, by Moro, who introduced the "percutaneous" reaction to tuberculin into practice, seem to require other explanations than that proposed by v. Pirquet. Thus in several of Moro's cases after the inunction of some tuberculin ointment into the skin the specific reaction to tuberculin appeared not upon the site of application but upon the corresponding area of integument on the opposite side of the body. Several other patients, in addition to the typical local reaction, showed a disseminated eruption elsewhere on the skin. Still others presented girdle-like eruptions reaching across to the middle line of the body, very similar in appearance to the well known eruption of herpes zoster. Inunction of plain lanolin led to the appearance of the reaction on the skin thus treated, if at the same time another spot was rubbed with the tuberculin ointment. In general, these and similar observations lead Moro to conclude that the nervous system plays an important rôle in the appearance of local tuberculin reactions; the latter are vasomotor phenomena, the nervous system of the tuberculous subjects being oversensitive in a certain specific manner to the action of tuberculin. The appearance of the reaction upon corresponding areas of the skin leads him to conclude that the spinal cord is affected by the stimulus applied at the site of inunction and sends out stimuli along the efferent nerves from the centers affected. That the antibodies of the organism may also take a part in the production of the reactions is, of course, not excluded by the above observations; but that the sympathetic nervous system is involved seems very probable.

Direct Contagion of Typhoid Fever.

In the issue of the *Journal de Médecine de Bordeaux*, for September 20, 1908, attention is called to man as a carrier of typhoid infection. In our consideration of water-borne typhoid and our zeal to purify the water supply we have in a measure lost sight of a number of ways in which this disease may be carried about. Auché says that the curve of water-borne typhoid is peculiar. After a few oscillations there is a quick fastigium. The germs appear only in a transitory way in the water and may not be found when it is examined. Thus there is not a continued increase of infection and the severity of the disease is lessened. Koch thinks that outside the body the germ of typhoid is short lived, especially in water, and man is regarded as the principal carrier of the disease. In epidemics carried in this way the course of the disease is long and the elevation of temperature comparatively low. The patient who is confined to his bed is only slightly dangerous since his discharges may be disinfected. It is the person in the incubation stage of the disease who has already the germs in his intestine who distributes them about. Again in the stage of convalescence the bacilli are still present in the feces and in the urine. Cured patients may carry the germs in their intestines for an indefinite period. Still another class of fever distributors are those who come in contact with the sick and are not affected by the disease, yet carry the germs in their feces. In the patient who is sick the germs are present in the pharynx and mouth, and in the blood. Kissing the patient, or using the same dishes that he has used may transmit the disease. The frequency of chronic carriers of the bacillus is considerable. In these cases the germs are generally carried in the gall-bladder, and there are intermittent attacks of intestinal trouble. Out of 1,700 persons who had never had typhoid fever Klinger found eleven who showed the germs in the intestine. Kayser found twenty-seven out of 1,800 persons. In these persons the bacilli remain in a saprophytic condition. All these facts show how much more difficult is the struggle against the infection of this disease than we have hitherto supposed, and how much more thorough and broad must be the measures taken against it.

News of the Week.

The International Association of Medical Museums held its second meeting in Washington on October 1 and 2, in connection with the International Congress of Tuberculosis. Prof. W. G. MacCallum of Baltimore was elected President to fill the vacancy caused by the death of Dr. James Carroll, the first President of the Association. Dr. Maude E. Abbott of McGill University, Montreal, was elected Secretary. The executive session was occupied by discussions of the function and scope of the Association and the desirability of closer affiliation with the Museums Association of Great Britain and the American Association of Museums. There were many arguments brought forward to show the advantages of such affiliation, but it was felt that the time was not yet ripe for such action. The issue of a Museum Bulletin was discussed, to serve as a pathological clearing house by which scientists could be informed of specimens available for exchange. It was voted that an editorial committee of five members, to include the President and Secretary, be appointed to edit and publish a Bulletin. The question of establishing an Index Pathologicus was also discussed, and was referred to the Executive Committee.

Dr. W. G. MacCallum read a paper on the Preservation of the Results of Research as Material for Medical Museums. He laid especial stress on the systematic preservation of the results of any given piece of research so that they might remain intact as objects of study for any one engaged in a collateral piece of work.

Dr. Maude E. Abbott spoke on the Classification of Museum Specimens. She felt that the Dewey decimal system, which had been employed for some nine years in the McGill Medical Museum, was extremely satisfactory. The advantage of the system was that it supplied a descriptive group number, so that any one specimen might be added at any time without disturbing the sequence of the

consecutive numbers. The figures representing the anatomical classification preceded, those of the pathological classification followed, the decimal point, while the individual specimen was indicated by a small index figure placed at the upper right hand corner of the descriptive number; thus 11.34[1]. Dr. Lamb said that simplicity was the chief thing to be aimed at in cataloguing specimens, and Prof. A. S. Warthin spoke of the difficulty of satisfactory classification because of differences of opinion which exist on theories of disease. Dr. Abbott, in closng the discussion said that the chief point in avoiding complications was not to attempt too minute a subdivision of series, but to use the numbers merely as a key to the systematic arrangement of large masses of material.

Dr. E. Souchon of New Orleans demonstrated anatomical preparations prepared by a method published in the *Journal of the American Medical Association*, August 22, 1908. Dr. Watters of Boston demonstrated the different steps in his method of mounting museum specimens in gelatin (MEDICAL RECORD, December 22, 1906). Dr. J. G. Adami of McGill University, Montreal, read a paper by Mr. E. L. Judah on methods of mounting moist specimens in square glass jars, on frames, and under clock glass, etc., the chief purpose of the demonstration being to show some of the finer practical points in the technique. Mr. F. Izzard of Cambridge, England, described a rapid method of macerating bone, by which the process of bleaching is completed in a very short time. Dr. A. S. Warthin demonstrated a new square museum jar which, by the use of sheet rubber and a wooden clamp frame, might be closed without the use of cement. Dr. Maude E. Abbott demonstrated a series of specimens of anomalies of the heart from the Army Medical Museum, and the museums of McGill University and the Johns Hopkins Hospital.

Protection of State Charitable Institutions Against Typhoid Bacilli Carriers.—The New York State Board of Charities has adopted a suggestion to the State charitable institutions under its supervision that they retain in quarantine inmates who have recovered from typhoid fever until bacteriological examinations demonstrate that they are no longer carriers of the typhoid germ. It also suggests that attendants who have recovered from typhoid fever shall not return to duty until they are certified by a competent bacteriologist to be free from the bacilli of that disease.

Stonywold Sanatorium Threatened.—The forest fires in the Adirondacks have caused a great deal of damage this fall, and last week reached almost to the buildings of the Stonywold Sanatorium near Lake Kushaqua. A call for help was sent to Utica, and a number of firemen were dispatched to aid the fire fighters at the sanatorium. Their combined efforts, aided by the dying down of the stiff wind which had been blowing, finally resulted in beating the flames back. In the meantime preparations had been made to remove the patients if necessary and a train of cars and engine was in waiting at a siding.

Bubonic Plague Stamped Out in San Francisco.—Because of the greatly improved conditions in San Francisco, orders have been sent from the office of the Surgeon-General of the Marine-Hospital Service to discontinue the disinfection of vessels leaving that port. For more than a year all outgoing vessels have been fumigated for the purpose of killing rats to prevent their conveying the plague to other ports, domestic and foreign. There has now, however, been no death from plague in the city for eight months. Numbers of rats have been trapped or killed and examined each week, and but two showing infection have been found since July 13. Since August none has been found.

Cholera on United States Transport.—A private soldier is reported to have died of cholera on the United States transport *Buford* during her voyage from Manila to Nagaski, at which latter port she has been detained. There are said to be other cases on board. The situation in Manila in regard to the disease is so far improved that the sailors of the visiting fleet are to be given shore leave.

Tuberculosis.—The Commercial Club of Chicago, with that public spirit which has actuated it in so many movements looking to the betterment of the citizens of Chicago, is taking an active part in the effort to eradicate or minimize tuberculosis in this city. The members of the club are requesting special inspection service, and whenever necessary will put their places of business in proper sanitary condition. The club also recommends that its members contribute as their means may afford to the splendid work of the Chicago Tuberculosis Institute.

Death Rate in New York.—For the week ending October 17, the death rate in the entire city was 14.39 per thousand, as compared to 16.43 for the same week in 1907. The total number of deaths was 1,220 for this week in 1908, and 1,350 in 1907. There were 23 deaths from typhoid fever, an increase of 6 over last year, and 88 deaths from violence, an increase of 7. Among children under one year of age, there were 287 deaths in 1907, and 278 in 1908; under five years, 447 deaths in 1907, and 383 in 1908. In the tenement houses there were 594 deaths in 1907, and 521 in 1908.

Christian Science Death.—Coroner Van Patten is investigating the circumstances surrounding the death of a twelve-year-old child of Mount Vernon, N. Y., on October 20, of typhoid fever, after she had been treated for eleven days by Christian Science "healers." A physician was called in the day before the child died.

Race Suicide in France.—The depopulation of France is proceeding at an amazing rate. The vital statistics for last year show a reduction in the birth rate even below the figures of 1906, with an increase in deaths. There were 32,878 less births in the entire country in 1907 than in the preceding year, and 13,693 more deaths. There was an excess of 19,920 deaths over births. In 1906 the ratio of births was 215 to 10,000 of population; in 1907 it fell to 207. The falling-off took place in eighty-two departments, while five showed a slight increase. The decline of births in the outlying rustic regions is most alarming. The excess of deaths occurred in fifty-five Departments, that in the Seine, which is practically Paris, being the largest. From 1901 to 1905, inclusive, the population of France showed an average increase of eighteen a year for each 10,000 inhabitants. In 1906, this dropped to seven; and last year it changed to a decrease of five in 10,000. This is race suicide with a vengeance.

Dr. William T. Bull of New York has been seriously ill for some months and his condition has caused great anxiety. Recently he was moved from his home to the sixteenth floor of the Hotel Plaza, where he could obtain quiet and better air, and a slight improvement in his condition has been noticed.

Dr. William Osler, candidate for the Lord Rectorship of Edinburgh University, was defeated at

the election which took place on October 24, Mr. George Wyndham, M. P., receiving 826 votes to Dr. Osler's 614. Mr. Winston Churchill was also an unsuccessful candidate, receiving 727 votes.

Removals.—Dr. R. J. E. Scott has removed to 107 West Seventy-eighth street. Dr. Carlos MacDonald has removed to 15 East Forty-eighth street.

St. Luke's Hospital Election.—The fiftieth annual meeting of the Board of Managers of St. Luke's Hospital was held on October 21. Mr. George Macculloch Miller was re-elected president of the Board. The report acknowledged the receipt of legacies and gifts during the year amounting to $281,552.

Boston Floating Hospital.—During the past summer the Boston Floating Hospital, with a staff of sixty nurses and seventeen doctors, gave 18,648 days' service to their beneficiaries. Two classes of patients were treated. Those who spent their time continuously at the hospital received 7,116 full days' service of twenty-four hours each. The other class of patients go on board early in the morning and spend the day, and these received 5,440 days' service, while the mothers accompanying them amounted to an aggregate of 5,381, each being fed and cared for during the day. Well children too small to be left at home in cases where mothers came with sick children numbered 711. Over 90,000 separate nursing bottles of carefully prepared and modified milk and liquid food were furnished by the laboratory.

Chicago Hospitals to Merge.—An amalgamation of three south and west side hospitals, Chicago, has just been effected. The Central Hospital Association is the name under which the new régime is to be brought about. This Association has acquired control of the Central Hospital, the Woman's Hospital, and the Illinois Hospital. It is proposed to increase the capacity of these hospitals at once by the erection of a new wing at the Woman's Hospital, together with a nurses' home at the same location. The officers of the Central Hospital Association are: Dr. Beacon, *President;* Dr. J. S. Burkholder, *Vice-President;* and Dr. Fred M. Doyle, *Secretary*. Dr. Stuart Johnstone and Dr. George G. Hinn are members of the Board of Directors. The staff of physicians and surgeons for the associated hospitals is now in process of formation.

St. Luke's Annex Dedicated.—The new $600,000 addition to St. Luke's Hospital, Chicago, known as the George Smith Memorial, was dedicated recently by the Right Reverend P. Anderson, Bishop of the Protestant Episcopal Church. Later there was a reception for the surgeons and physicians connected with the hospital, as well as one for the medical profession of Chicago.

The McKinley residence in Canton, Ohio, has been opened to the public under the name of the Mercy Hospital. It is under the charge of Sisters of Charity, will accommodate about thirty patients, and has been completely equipped by donations from the people of the town.

Examination of Internes for the City Hospital.—There will be an examination of candidates for the position of Interne of the City Hospital of New York on November 7, at 1:30 P.M., at the hospital, Blackwell's Island. Further information may be obtained from the chairman of the executive committee, Dr. Joseph Collins, 37 West Fifty-fourth street.

Ether Day Celebration.—The sixty-second anniversary of the first administration of ether for surgical purposes was celebrated at the Massachusetts General Hospital on October 16. During the morning clinics were held and demonstrations given in the amphitheater. At the afternoon exercises Dr. William H. Welch of Baltimore delivered an address on "Surgery as Affected by Ether Administration."

Swindler Arrested.—A man believed by the police to be one known to them as the "fake radium cure man," was arrested in New York last week, and charged with having perpetrated a swindling scheme through the mails. The complaint charges that he represented himself in circular letters as a celebrated London specialist, and in that rôle succeeded in duping a large number of sick persons throughout the country. The "radium cure man" is said to have already served fourteen months in Joliet prison, eighteen months in an English prison, and eight months in the New York penitentiary on similar charges, in the last case for extorting nearly $10,000 from a patient for alleged radium treatment.

Medical Association of the Southwest.—At the third annual meeting of this Association, held at Kansas City, Mo., October 19-21, the following officers were elected: *President,* Dr. Jabez N. Jackson of Kansas City, Mo.; *Vice-Presidents,* from Arkansas, Dr. St. Cloud Cooper of Fort Smith; from Oklahoma, Dr. M. A. Kelso of Enid; from Kansas, Dr. M. L. Perry of Parsons; Texas, Dr. Joseph Beckton of Greenville; *Secretary-Treasurer,* Dr. F. H. Clark of El Reno, Oklahoma. San Antonio, Tex., was selected as the place for holding the next annual meeting.

The New York State Nurses' Association held its seventh annual meeting in Buffalo on October 20. The following officers were elected: *President,* Mrs. Harvey D. Burrill, Syracuse; *First Vice-President,* Miss Anna L. Alline, Albany; *Second Vice-President,* Miss Ida M. Root, Gloversville; *Treasurer,* Miss Lina Lightbourn, Syracuse; *Secretary,* Miss Grace Arnold Knight, New York City.

The Iowa Association of Health Officers held its annual meeting at Des Moines on October 15 and 16. Dr. M. C. Terry of Brighton was elected president of the Association; Dr. Swazey of Decorah, vice-president, and Dr. Fred Albert, secretary and treasurer.

The Mississippi Valley Medical Association at its annual meeting in Louisville, in October, elected the following officers for the ensuing year: *President,* Dr. J. A. Witherspoon of Nashville; *Vice-Presidents,* Dr. Louis Frank of Louisville and Dr. Albert E. Sterne; *Secretary,* Dr. Henry E. Tuley of Louisville; *Treasurer,* Dr. C. S. Stanton of Chicago. The next annual meeting will be held in St. Louis.

The Lexington County (S. C.) Medical Society held its annual meeting and dinner on October 5, at Lexington. The following officers were elected: *President,* Dr. W. L. Kneece, Baxter; *Vice-President,* Dr. R. E. Mathias, Irmo; *Secretary and Treasurer,* Dr. J. J. Wingard, Lexington. Dr. Wingard has been secretary of the association since its organization four years ago, when the total membership was only five.

The Norfolk and Portsmouth (Va.) Medical Society held its annual meeting on October 13 at Norfolk. The election of officers for the ensuing year resulted as follows: *President,* Dr. W. L. Harris; *Vice-Presidents,* Dr. S. H. Graves, Dr. Joseph Grice of Portsmouth; *Secreary,* Dr. R. L. Payne, Jr.; *Treasurer,* Dr. D. Lee Hirschler. The society decided to hold one meeting each week in the future instead of one meeting a month as has been the custom.

The Eighth District (Texas) Medical Society met in Victoria on October 9, for the annual meeting. The election of officers resulted as follows: Dr. E. A. Malsch of Victoria, *President;* Dr. A. L. Lincecum of Louise, *Vice-President;* Dr. C. W. Letzerich of Sublime, *Secretary and Treasurer.* Wharton was chosen as the next meeting place.

Car Smashes Ambulance.—Ambulance No. 2 of St. Vincent's Hospital while answering a call on October 18 was struck and demolished by a Ninth avenue surface car. The driver was badly bruised but the doctor on the 'bus escaped without injury. The crossing where the accident occurred is a dangerous one, and the cars are supposed to stop before reaching it, but according to witnesses this is not always done.

Obituary Notes.—Dr. Alonzo Brayton Ball of New York died after a short illness in Boston, on October 24, aged 68 years. Dr. Ball was born in this city February 10, 1840, and was graduated from Yale University in 1860, and from the College of Physicians and Surgeons of New York in 1863; he then served for two years on the house staff of the New York Hospital. For some years he was visiting physician to Bellevue Hospital and Professor of Clinical Medicine in the College of Physicians and Surgeons, and at the time of his death was Emeritus Professor. He was also a member of the New York Academy of Medicine, the Association of American Physicians, and the County Medical Society, and consulting physician to St. Luke's and the General Memorial Hospitals.

Dr. Josiah F. Kennedy of Des Moines, Iowa, died at Los Angeles where he had gone for his health, on September 26, aged 74 years. Dr. Kennedy was graduated from the New York University in 1858, and was a member of the American Medical Association, editor of the Iowa Health Bulletin, and an acknowledged authority on hygiene and sanitary science. He was for many years secretary of the State Medical Society and of the Polk County Medical Society, and for twenty-two years was secretary of the Iowa State Board of Health. He was connected with the State University of Iowa for two years as Professor of Obstetrics.

Dr. Carl M. Sears of Paducah, Ky., died on October 1, from burns resulting from the explosion of a gasoline heater, aged 27. He was graduated from the Baltimore Medical College in 1904, and was a member of the Kentucky State Medical Society.

Dr. Turner Anderson of Louisville, Ky., died suddenly on October 9, at St. Mary's and Elizabeth's Infirmary, aged 66 years. Dr. Anderson was graduated from the Cincinnati College of Physicians and Surgeons in 1862, and later studied at the University of Louisville, from which he received the honorary degree of Doctor of Medicine in 1889. He served during the Civil War as Surgeon Major of the Twenty-eighth Kentucky Infantry. He was a member of the American Medical Association, the Kentucky State Medical Association, and the Mississippi Valley Medical Association, and was for some years on the teaching staff of the Kentucky School of Medicine and the Louisville Medical College.

Dr. John E. Parsons of Ayer, Mass., died at his home on October 9, aged 72 years. He was graduated from the Harvard Medical School in 1863, and served during the Civil War as medical officer, and later as assistant surgeon of the Twenty-eighth Massachusetts Volunteer Infantry, and as assistant surgeon in the United States Navy. He was for many years a member of the school committee of Ayer, and a trustee of the public library.

Dr. T. Haven Dearing of Braintree, Mass., for many years a resident of Boston, and one of the oldest practising physicians of the State, died at his home on October 15, aged 83 years. He was a graduate of the Harvard Medical School, and for six years was professor of surgery in the College of Physicians and Surgeons of Boston. He was a veteran of the Civil War, a member of the American Medical Association, the Massachusetts Medical Society, the South Norfolk Medical Society, and the Harvard Alumni Association. He was a member of the State Legislature in 1889.

Dr. George A. Fairlamb died at Bellefonte, Pa., on October 12, at the age of 82 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1848.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

PROPOSED STEP TOWARDS COMPULSORY NOTIFICATION—INDIAN SANITARY REPORT—FURTHER NOTES FROM THE OPENING ADDRESS OF THE SESSION.

London, October 9, 1908.

The Local Government Board is about to take a notable step toward compulsory notification of consumption. At present this disease is not included in those which the local authority of a sanitary district can make compulsorily notifiable. But a voluntary system has been adopted in some places with good results, and a few have obtained special acts authorizing them to adopt compulsion. As it is impossible to do this universally without new legislation, the Local Board having power to issue orders respecting Poor Law administration has decided to issue such an order in this case. It will direct the medical officers of the service when the Medical Officer of Health requests them to do so, to send him the names and addresses of all consumptives within forty-eight hours of the disease becoming known to them. Thus the Medical Officer of Health will have all the advantages of the compulsory system so far as Poor Law patients are concerned as soon as he asks for it. This will certainly affect many tuberculous patients—probably many more than might be supposed.

Over one-third of the deaths from tuberculosis in London take place in the Poor Law infirmaries and most of them had been under the care of the parish doctor in their own homes long before they were admitted to the infirmaries. They too are among the most dangerous cases as regards the public health, and it is among them that the disease finds most of its victims. Their unsanitary homes, with their overcrowding, their bad environment, their offensive habits, particularly spitting, are the things that invite the disease. Infected matter is scattered in large quantities, and pending larger powers this attempt to cope with the evil ought to produce some benefit. The local sanitary authorities will be able to help the most helpless. The Medical Officer of Health will ascertain from reliable informants the distribution of the disease in his district and be able to take prompt action to check it. Notices can be served as to obvious defects and the remedies required to meet them. Disinfectants can be supplied to the patient and family. In some cases change of air or admission to a sanatorium may be offered. It may be admitted that voluntary notification has succeeded to some extent, and it is obviously an advantage for those endeavoring to restrict the disease to be informed of its presence in any house.

A report on the sanitary measures taken in India during 1906-7 has been issued and contains details of the sickness and mortality among the military and civil population, also special sections dealing with the medical institutions, vaccination, and other preventive measures. The year 1906 was unhealthy for all classes, the rates of hospital admissions, mortality, and invaliding among European troops being all higher than in 1905. The report further deals at some length with the report of the Plague Commission and also with the preventive measures which are being taken against the spread of other infective diseases.

Following the address of Mr. Rudyard Kipling,

which I reported last week, Dr. A. M. Kellar, B.Sc., delivered the introductory lecture proper at the Middlesex Hospital. He glanced at the development of medicine as a science from early times, touching on the great names from century to century until he came to Lord Lister's theory, founded on the researches of Pasteur. In connection with this he mentioned the introduction of zinc chloride by Campbell de Morgan of the Middlesex Hospital. This was interesting in reference to the ionic treatment, as recent experiments show zinc to be the best coagulating agent. He mentioned a very successful piece of work carried out this year by one of the staff of this hospital, who had discovered how to obviate the terrible effects of a blocking of the axillary lymph ducts by cancer. In reference to preventive medicine he recommended the endowment of professorships, though without much hope, as British statesmen are very parsimonious toward any learning except elementary education. After the lecture many visitors inspected the alterations in two surgical wards prepared for septic cases. It is thought that every improvement has been made and that they are now second to none.

A rather excited controversy has been provoked by the Charity Commissioners respecting the Weir Hospital. The late Mr. Benjamin Weir left £100,000 for a cottage hospital, or other medical charity, for the benefit of the inhabitants of Streatham, where he long resided. The committee and trustees proposed to contribute half the amount to the Bolingbroke Hospital, which is not in the parish. Opposition was naturally raised to this and the Charity Commissioners have proposed a new scheme, which still sanctions the diversion of part of the funds to another parish, contrary to the directions of the testator. An indignation meeting followed when attention was called to the new scheme as one diverting from the parish its rightful funds, and calling on the Borough Council and Committee to take all steps necessary to defeat the scheme, including an appeal to the law courts, and promising the active support of the residents. The Prime Minister, the Home Secretary, and other authorities are also appealed to.

Sir John Broadbent gave the address at St. Mary's Hospital and dwelt on the advances made in recent years, remarking that whereas in surgery the greater the advance the wider the field for the surgeon, in medicine by a curious irony of fate the greater the advance the more limited becomes the scope of the physician. As a result of bacteriological progress and sanitary precautions plague and cholera can get no foothold in this country. Typhus is practically extinct, and typhoid is becoming so. Smallpox would be stamped out but for recent retrograde legislation. Diphtheria has lost its terrors in the presence of serum treatment. Consumption may be under control in the near future. He looked forward to some Utopian era when a host of other diseases which he specified would become rare. Unhappily, the tendency of the British public was to take to the so-called secret remedies advertised in a bare-faced manner in the daily press. These, which cost from three to five farthings per box or bottle, were sold at two to three shillings or more, giving the vendors a profit calculated at two and a half millions of pounds sterling. This is the key to the falsehood so profusely scattered by the press.

Professor Macalister at Kings College took a kindred subject for the address and dwelt on the far-reaching effects of the Darwinian theory. The medical curriculum had been year by year developing by a process of evolution. Anatomy, instead of being the dominant, almost the only subject, had to take its place as one of five sciences in which the practitioner must be proficient. In no other profession was a fundamental knowledge of so many sciences necessary. His advice to the student was to see that the foundations of his technical knowledge were sound, otherwise the superstructure must be weak. No one could hope to master all the sciences, or even to know one as it ought to be known. In the one he had been teaching for forty-eight years he seemed only to be now beginning to sound the depths of his ignorance. Students were sometimes too much spoon-fed by teachers and knowledge so acquired was apt to make only a transient impression on their memory.

At University College Sir Edward Fry made a pleasant speech to the students, in which he reminded them that medicine set before her followers a higher ideal than gain, thus differing widely from commerce. Gain was a legitimate outcome of medical work, but must always be a secondary object—not the primary one. No profession had a more honorable history; it went back at least to the early Greek physicians, and its demands on its followers were not merely great, they were continually increasing. Every true student should say with Solon: "I grow old always learning many things." Moreover, medicine made a demand for moral character. Patience, self-denial, sympathy, and truthfulness were required. As a judge he might perhaps venture to say that he did not find science always in her best robes when she came into court. To hear two experts give precisely opposite opinions was apt to raise a doubt whether science was really existent, or, if so, deficient in truthfulness.

At St. George's Hospital Dr. Slater dilated on the importance of laboratory methods. The knowledge obtained in the laboratory, he said, came to fruition in the wards. Until recently the laboratory had been the handmaiden of the wards, but with the recent developments it seemed to him that the position was becoming reversed. Consultation had ceased to be desirable and had become necessary. It seemed to some as if the immunizator was to be the physician of the future, but he thought there was a want of perspective in such a view. All diseases were not infective, and microbes were not the all-in-all of pathology. The ferment was already above the horizon and threatening the supremacy of the germ. There were regions in which errors in cell metabolism played the principal part. Laboratory work in the last thirty years had rendered practical services which at one time appeared to have only theoretical interest. There were visions of modern therapeutical results far different from the empiricism of the past.

At Guy's Hospital on the 1st inst. Sir R. Douglas Powell delivered an address to the students on "A Just Perspective in Medicine," in which he pointed out that increasing number and complexity of specialties make it necessary that all who practice should cultivate the power of seeing things in their due perspective. He pointed out, too, that there is a temperature proper to each febrile disease, just as the normal temperature is proper to health. In practice they would have to use measures to moderate an excessive temperature because the excess tended to injure the structure of organs—not merely for the sake of lowering the range which might be normal in the disease. He then noticed the work that has been accomplished as to immunity, both natural and acquired, and spoke of it in reference to specific diseases as seen in practice. Some of the cases might be explained by former attacks of which the patients were unconscious and others perhaps by accidental inoculations. Here he mentioned the danger of relapse in phthisis—not so much from a new infection as by the recultivation of localized dormant tubercle through congestion provoked by other septic organisms.

OUR CANADIAN LETTER.

(From Our Special Correspondent.)

MEDICAL COLLEGES IN CANADA—DECREASE IN NUMBER OF STUDENTS—REFORMS URGED IN MEDICAL EDUCATION—SHALL A DEGREE LICENSE TO PRACTISE?—WAR ON ABORTIONISTS—VISIT OF FRENCH SCIENTISTS TO CANADA—AGITATION FOR DOMINION BOARD OF HEALTH—DEATHS IN THE PROFESSION.

The medical colleges at all the university centers in Canada are now open. In nearly every institution there is a marked decrease in the number of students entering the first year. This is generally accounted for by the present financial stringency, although some ascribe the falling off to the criticism excited by the difficulties and length of time—five years—required for completing the medical course in Canada. In the Province of Ontario it is pointed out that there are too many examinations and that it is unfair to demand that the student must pass through not only the ordeal prescribed by the University, but immediately afterwards present himself for the examinations of the Medical Council.

Considerable interest has recently been taken in discussing questions relating to medical education in Canada. Several have expressed the view that the medical degrees of the various universities should confer upon the holder the right to practise his profession in the Province in which he has been educated. In the Province of Ontario all graduates are placed on a level and must pass the examinations of the Ontario Medical Council. Sixty per cent. of the graduates of the University of Toronto failed to pass at the annual examinations of the Medical Council in 1908, and not a few are now advocating that the inde-

pendent examination test should be given up and that the University of Ontario should be allowed to grant the license to practise, as is now done in some other provinces. In the Province of Quebec examiners appointed by the Provincial Medical Council cooperate with examiners appointed by the universities and take joint control of the annual examinations. This provides one test for both the degree and the license, and it is made in the presence of two sets of examiners—one appointed by the University, the other by the Medical Council. It is argued that if the Quebec plan of licensing practitioners was adopted in Ontario complete medical reciprocity between Great Britain and Canada would follow. The medical graduate would not only secure his degree, but in addition be licensed to practise his profession and be registered as a legally qualified practitioner in Great Britain and Ireland. All these privileges are now enjoyed by the medical graduates of McGill and Laval in the Province of Quebec. The advantage is clearly, therefore, in favor of endeavoring to secure for Ontario graduates the same privileges as those enjoyed by the graduates in the sister province. Many favor the change now proposed and are endeavoring to secure united action by the Ontario universities and the Ontario Medical Council to establish the combined examination test, which, it is urged, would be a sufficient guarantee of the competency of candidates. At present the indications point to some medical changes being likely, but in any event nothing will be done to lower the high standard which Canadian universities have set and maintained for medical graduation.

The medical profession in Canada has recently been brought into unpleasant notoriety by the comments of the daily press in alluding to some arrests which have been made in some of the larger cities, of physicians charged with procuring abortion. It was openly stated that some legally qualified practitioners have engaged in this practice and the Medical Council of Ontario was urged to investigate and have the names of all offenders removed from the official register. This attack on the part of the press excited considerable comment, and at a recent meeting of the Medical Council it was by resolution declared: "That the attention of the Ontario Medical Council having recently been called to the prevalence of crime against the unborn, when the Council's detective becomes aware of such a case, he be instructed to lay the matter before the Prosecutions Committee, who will after careful inquiry pass on the evidence, when deemed advisable to the Discipline Committee for action." If a medical practitioner is convicted of a felony his name is at once struck off the register. There is no option in such a case, and whenever a name is removed for such a cause it is never restored. If the offender attempts to practise again he is liable to both fine and imprisonment. The voice of the whole profession in Canada has been aroused lately as never before on this question. The fullest expressions have been made in such a way that there is no mistaking the position taken against abortion. It is urged that every physician should refuse to accept a case (married or single woman) if criminal abortion is asked for. It is also urged in the recent discussions at many medical societies that when a physician is called in to a case of abortion in which the initial stage has been brought on by the patient herself, by one of her lay friends, or by some irregular practitioner, the case should not be accepted without consultation being at once called for. It is held that while a physician may lay down his own life for his neighbor, he should not imperil his own name and injure his family through lack of professional caution in securing further professional advice. The manly, straightforward manner in which the members of the medical profession in Canada have expressed themselves on this subject is most creditable and the Medical Council of Ontario will not hesitate to enforce the most severe penalty on any registered practitioner lending himself to such work.

Montreal and Toronto extended hospitality to the official delegates from France to attend the tuberculosis congress at Washington. The party, numbering twenty-eight, spent several days in Canada. The medical profession of Toronto gave the French scientists a most cordial welcome. After a drive about the city they were the guests of the Dean of the University at luncheon, and afterwards attended a reception at the Academy of Medicine. In this way over two hundred of the medical men of Toronto were given an opportunity of meeting and welcoming the visitors. In the evening the guests were tendered a dinner by the President of the Academy. The visitors expressed delight with the generous hospitality extended to them while in Canada.

As a result of the recent meeting of the Health Congress at Winnipeg there is at present an earnest expression in favor of establishing a National Board of Health for Canada. Hitherto it has been argued that health affairs must be managed and controlled by provincial boards, each province having its own health regulations and administration. It is now urged that the law should be changed so that there shall be a central board to which all the provincial boards shall report. With such important matters as defective and diseased immigrants, the control of tuberculosis, the pollution of streams, and the sanitary inspection of railways, it is urged, there is a wide field for useful work by a national board of health. It is felt by many who recognize the necessity for such an organization that the time is now opportune to advocate this reform.

Several prominent members of the medical profession in Canada have died recently. Dr. George Hodge, Dean of the Western University, London, Ontario, and Professor of Clinical medicine in that institution, will long be remembered for those personal qualities which won for him the esteem of a large circle of friends. His untimely death leaves a vacancy in the Western University, to whose interests he was greatly devoted. Dr. William Hattress was one of the best-known medical officers in the military service of Canada, and while in the discharge of duty at the tercentenary celebration at Quebec a few weeks ago he was taken ill with pleurisy, from which empyema developed. His sudden death came from embolism. Dr. Angus McLennan, who was a member of Parliament, returned from his duties at Ottawa, to his home in Nova Scotia enjoying good health. While addressing a public meeting in his native province he was seized with an illness which in a few days terminated fatally. In Parliament he was ever ready to support measures calculated to benefit public health.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 15, 1908.

Acute Poliomyelitis Following Tonsillitis.—K. Emerson records the case of a boy of eight years, who, after a wetting, developed an ordinary tonsillitis, with rather toxic symptoms for the apparent severity of the lesion. A mixed infection was found in the throat cultures, but no diphtheria bacilli. Under simple remedies he was up and about the next day, but remained cross, irritable, and easily fatigued. Five days after his tonsillitis, he had a tingling in his left hand, felt also in the arm, with headache on the sixth day, left shoulder and posterior cervical region ached on the seventh day, and he became feverish. When seen again by the author the general condition suggested meningitis. On the tenth day paralysis of the deltoid and left upper arm was complete, and two days later he could only weakly flex the left fingers. From this time he gradually improved. The points of interest are the connection of the spinal malady with the antecedent tonsillitis and the very gradual onset of the paralysis. In the usual form of acute poliomyelitis the paralysis usually develops abruptly and is at its maximum intensity during the early days of the febrile disturbance. The author believes that the occurrence of the spinal so soon after the tonsillar attack suggests the possibility of a common etiology.

The Principles Underlying the Treatment of Acute Intestinal Obstruction.—C. L. Scudder's paper is based on a study of 121 cases from the clinic of the Massachusetts General Hospital. The paper is largely statistical and gives a thorough exposition of the subject. The first division of the cases is into nonmechanical and mechanical. The nonmechanical group is subdivided into (1) cases associated with abdominal contusion, (2) with abdominal inflammatory processes, (3) with pneumonia, (4) with acute nephritis, and (5) after clean laparotomy wounds, due primarily to trauma or unrecognizable sepsis. The mechanical group concerns volvulus, and formerly this was foremost in the surgeon's mind, but we now recognize many other factors. In every mechanical case we have an obstruction to the passage of normal bowel contents and also to the circulation in the bowel wall. Symptoms are out of all proportion to the first factor and to the second we must look for the rapidly developing symptoms in some cases. The author goes at some length into the consequences of this obstructed gut-wall circulation. The important and startling clinical fact is the profound intoxication, the toxemia, and the general sepsis. The cause of the toxemia is an acute infection from the damaged wall. These two fundamental conceptions must underlie and be the basis of intelligent treatment. In a suspected case no cathartics should be given by the mouth. Massage should be avoided, food withheld, and no water swallowed. Morphine

conceals symptoms and must be avoided. Early diagnosis permits early operative relief. Special attention is called in cases of intussusception in children to the significance of sudden screams of the child, the characteristic pallor, and the vomiting. We should always carry clearly in our minds the possible types or varieties of intestinal obstruction from the acute pyloric stenosis of early infancy to the chronic obstruction from carcinoma in old age. The two great classes: (1) The nonmechanical; the distended, paralyzed intestine associated with an acute infection; (2) the mechanical; the kinks and twists of coils held snugly against one another; the bands from old inflammatory processes; the intussusception of childhood; the volvulus of adult life. In operating the incision should be in the median line below the umbilicus. The following general rules are given: (1) If the patient is very ill it may be wise to simply, by local anesthesia, open the presenting distended loop and tie in a curved glass tube. This may relieve the immediate distention and allow gases and liquids to pass by what otherwise might become a permanent kink or twist. In such a case no attempt should be made to find the seat of the obstruction at the primary operation. These are desperate cases. (2) Upon opening the abdomen in a case which will permit of more prolonged operation, the collapsed gut should be looked for and followed to the seat of the obstruction. It is difficult to handle distended intestine. The band should be first divided. The bowel above the obstruction must then be emptied of its contents. (3) If the situation is like the following there must be taken into account another factor. A boy, operated upon for acute appendicitis. Drainage is employed. Recovery. Four weeks subsequently acute intestinal obstruction occurs. Operation finds a loop of gut, a foot and a half long, constricted but evidently viable. There are no gross evidences of peritonitis. The bowel is freed, cleansed, and replaced within the abdomen. All is aseptically done. Four days later, because of a persistence of symptoms, the abdomen is reopened, septic peritonitis is found, and subsequently death occurs. The factor to be regarded is the permeability of the intestinal wall. (4) If the gut is evidently dead and there is a thrombosis of the mesenteric vessels, resection of the dead gut must be made. More harm comes from resecting too little intestine in these cases than too much. It does not add to the shock of resection to resect a few inches more. Sound tissue is thus surely reached and the thrombosed mesenteric border is avoided. If the individual is too ill to make an immediate intestinal suture, after emptying the proximal gut thoroughly and flushing it out if wise, the two divided ends should be attached to glass tubes and drawn outside the abdominal incision or well into it, after having caught together the mesenteric borders of the gut. At an early date, four or five days later, when the patient has partly recovered from the initial shock, an anastomosis should be done. In general, operative measures are directed to the relief of the local obstruction; to the diminishing shock by ridding the individual of poisonous intestinal contents, the source of infection; to the early reestablishing of the intestinal canal; to the counteracting of the infection received; to the closure of fecal fistulæ; to the closure of herniæ.

New York Medical Journal, October 17, 1908.

The Cure of Inguinal Hernia Under Local Anesthesia.—A. S. Morrow describes the anatomy of this form of hernia, advocating the use of a freshly prepared 0.2 per cent. of cocaine in hot normal saline for the skin anesthesia and double this strength for deeper infiltration. He gives a detailed description of the operation, specifying just where to make the injections, how to direct the needle, etc. As regards pain caused, he says that the variation in sensitiveness to pain of different patients is so great that it is difficult to make a definite statement in this respect, but adds that in no instance has the patient done more than give facial or verbal expression of the pain. There has been no writhing or squirming about. The advantages of this method are thus specified: (1) No danger from a general anesthetic. (2) Lack of disagreeable after effects for the same reason. (3) Fewer cases of suppuration because in this method gentle handling of the tissues is imperative, hence there is a minimum amount of trauma inflicted. (4) Under local anesthesia the integrity of the nerve supply to the inguinal region is preserved; hence there is less danger of recurrence. (5) For strangulated hernia local anesthesia is especially adapted. These cases are generally toxic and in a precarious condition. A general anesthetic adds the dangers of great shock and of the patient's drowning in fecal vomit. His closing statement is that a local anesthetic is an ideal one for inguinal hernia, and that in a large proportion of cases the operation may be performed absolutely without pain, and at most the pain inflicted during the entire operation will be less than that produced in opening an abscess or an infected finger.

Artificial Hyperemia and Its Therapeutic Application (After Bier).—A. B. Jackson gives a general description of the Bier method, dwelling on its mode of production, devices used therefor, and general therapeutic application. He refers to two personal cases in which it was employed. The first case was that of a young woman with an infected finger in which hyperemia was induced by prolonged wrapping of the finger with a bit of rubber tubing. The case did badly, but improved promptly under the customary wet dressing. The author mentions the case simply as an example of "how not to do it." In the second case, that of a man with an infected thumb, the bandage was applied lightly above the wrist and the patient's pain relieved almost at once. Three hours later the entire hand was slightly hyperemic, but still free from pain. The bandage was removed for about one-half hour; pain began in fifteen minutes. The bandage was again applied, and twelve hours later the patient felt no pain, but still had a marked hyperemia of the hand. For three days the infection was treated by ten-hour stasis and two hours' rest for two periods of the day, and at the end of that time there was no pain or swelling; still neither had incision been made nor wet dressing applied. The author adds that he has treated many cases of acute and chronic arthritis with the stasis bandage, with good results. At first the pain is relieved and motion restored by the solvent effect of the hyperemia. He has had no experience with hot air apparatus, because in neither hospital nor private practice has he had the facilities for applying this method for the production of active hyperemia. Certainly in cases of acute or chronic arthritis, active hyperemia should be employed for its absorptive effect for short periods, after a prolonged application of passive hyperemia by the stasis bandage. In arthritis he has been accustomed to apply stasis bandage for twelve to eighteen hours daily with an intervening period of rest. The bandage is always applied so lightly as to give no inconvenience. In several instances, after the patient is up and moving about, he has shown him how to apply the bandage, and in most cases he has been greatly benefited by his instruction.

Neuromuscular Coordinations Having Educational Value.—L. H. Gulick thus states the four headings under which are classified the major objects for which muscular exercise is taken: (1) Medical education. Under this heading come orthopedic exercises, exercises to develop cardiac power, the reeducation and development of a paralyzed member or of a tabetic, etc. (2) Organic or hygienic education, the general purpose being to increase the general functions of the body, such as circulation, respiration, digestion. This is ordinarily spoken of as "general exercise." (3) General neuromuscular education. This consists of the bringing to complete function those general neuromuscular coordinations that are desirable for the individual to possess. (4) Special neuromuscular education, which may be needed for some specific activity or occupation, such as playing the piano, typewriting, playing billiards, handwriting. In expanding his subject he shows (1) the unitary character of our neuromuscular as well as other acts; (2) their existence in racially old combinations; (3) the hereditary character of these coordinations, or at least a strong tendency toward them, and (4) that on them is built up our mental, moral, social, and ethical life. We should therefore in our physical instruction educate (1) in physiological units and (2) toward racially old and inherited tendencies. The proper curriculum should be along the following lines: In the unguided plays of babyhood no instruction is necessary. Opportunity for free activity, rolling, kicking, and the like is enough. The impulse within the child will lead him to perfect such mechanisms as are then developing. Following these come the games and sports of childhood. Here the child needs help. In old communities, suitable games are passed on from generation to generation of child life without adult aid; but in a country like ours, particularly in our great cities, made up largely of peoples from different countries, different villages, these play traditions are lost. They need to be restored to children by skillful teaching; not by formal instruction, but by that informal leadership which the well-equipped adult can give.

Journal of the American Medical Association, October 17, 1908.

Gas Cysts of Intestine.—J. M. T. Finney reports a case of this rather rare condition in man, and discusses its literature, etiology, pathology, diagnosis, and treatment. The patient was operated on for gastric cancer, a gastroenterostomy being performed, and before closing the abdomen a routine examination of the intestines revealed a curious soft multilocular cystic growth, which was found attached to the ileum about one foot above the ileocecal valve. The numerous cysts were grouped together and varied in size from microscopic to as large as grapes, air escaping with an audible sound on puncture. Some of the cysts were pedunculated; they completely surrounded the intestine, and the whole mass was surrounded by a thin, web-like structure, suggesting an old, partly organized peritoneal exudate. There was no evidence that it encroached on the lumen of the bowel. There were no symptoms that could be referred to this growth. The case is, he thinks, the first reported in this country. The chief interest is in the etiology, which is still obscure, but may yet be elucidated, perhaps from the study of the same or a very similar condition repeatedly observed in pigs, in which it seems to be more common than in man. Gas cysts also sometimes occur in the vagina and bladder of pregnant women, disappearing soon after delivery. The various theories of the etiology are noticed. Finney rejects the idea of a bacterial origin and inclines to the belief that it is a definite type of tumor the cells of which have the power of secreting gas. No evidence of a bacterial origin was found by Drs. McCallum and Simon, or Professor Welch, who examined the secretion. The contained gas closely resembles atmospheric air. The pathology of the condition is also indefinite, though the histologic findings are rather uniform in all cases. The tumor is very vascular and most observers report finding peculiar large giant cells, containing many nuclei. There is no characteristic clinical picture, and the diagnosis is usually made at operation for some other cause or at autopsy. The case reported is the first one associated with cancer. Not much is to be said as to treatment; obstructive symptoms may call for attention, but usually it is overshadowed by other existing affections.

Gonorrhea Vaccine.—W. J. Butler and J. P. Long report opsonic treatment of gonorrhea in female children in 25 cases. The patient's index was taken every other day with very few exceptions and every dose was administered and regulated according to the index. Usually from one to several indices were taken before the inoculations were begun in order to test the immunity wave for the individual during this time. No local treatment was employed. As controls, the phagocytic count of four healthy boys was taken to get an average normal to compare with that of the patients. It is desirable to take at least four cases as a phagocytic count of healthy individuals may vary considerably. On the average the inoculation had to be repeated every fifth or sixth day. Only one strain of vaccine was employed, the authors seeing no advantage in mixed strains. Twelve acute cases, that is patients coming within a few weeks from their infection, were treated. Nine of these patients recovered after an average of 43 days of treatment. The three who did not recover averaged 38 days. There were 13 chronic cases, in 11 of which the patients recovered after a period averaging 39 days. Five cases, one acute and four chronic, were treated with the Rogers and Torrey serum with pretty uniform negative results. The authors conclude that in the treatment of gonorrhea in female children, gonococcus vaccine is more effective than local applications, which they think in some cases actually delay recovery. In many cases, more particularly those of long standing, the vaccine treatment produces marked improvement and often recovery. This does not hold good, however, in all cases, some requiring a very prolonged course of inoculation. The effective dosage varies in different cases and at different times in the same case. It will be best determined by the opsonic index to gonococcus. They found doses varying from 5 to 50 million very satisfactory. In using the inoculations without the index in these quantities inoculation should be given every fifth or sixth day. Doses up to a 100 million only very exceptionally produce any untoward symptoms, but do not seem more effective than smaller ones.

Hydrotherapy in Scarlatina.—D. S. Hanson advocates the use of the tub bath at 90° F. early in the treatment of scarlatina, especially the severe toxic cases, for the nervous symptoms, although in patients with high temperature in whom severe nervous symptoms are lacking the benefits are nearly as marked. He gives the bath for from five to ten minutes, using, at the same time, gentle friction to the body surface. The bath is repeated as often as necessary to control symptoms and temperature. He has used it this way sometimes as often as every two or four hours for three or four days. If a bath tub is at hand the patient may be lowered into it, lying on a sheet, but in his cases an ordinary wash tub was employed. In order that the thermogenic process may not be interfered with seriously, it is necessary that the body be protected after coming out of the bath.

Diagnosis of Functional Paresis.—P. Zenner has been able to confirm the new sign for malingering and functional paralysis described by Hoover (*Journal A. M. A.*, August 29, 1908), and reports his experience with it in two cases. He remarks that it is surprising that, simple and easy as it is, it had not been before described. He calls attention, however, to certain points to be observed in the examination. The complemental opposition, as Hoover calls it—the pressure of the heel of the apparently paralyzed leg into the bed—may not always be very manifest to the hand placed under the tendo Achillis, but will be more evident to observation of the uncovered thigh or to feeling of the thigh muscles. Hoover says in his article that the movements can be carried out in the reverse order; that if a normal person presses one leg against the couch there will be a counterlifting force observed in the other. Zenner tried this test in a number of persons, both normal and paralyzed, but failed in almost every one till he observed the uncovered thigh or felt for the contraction of the thigh muscles, and then he was able to see evidence of this counterlifting action in every instance. It varies, he thinks, to some extent in different persons, but he thinks that the sign may be of special service in some cases.

Perforative Appendicitis in Pregnancy.—E. A. Babler reports a case of perforative appendicitis complicating pregnancy, successfully operated on, and remarks that this is one of the most serious and fortunately also one of the most infrequent complications that may occur in this condition. He is inclined to think, however, that appendicitis occurs with greater frequency than the tabulated cases would indicate, and that as the accident of perforation fails to occur, they are not always recognized. He does not believe, however, that pregnancy predisposes to appendicitis, though it may precipitate an attack in certain chronic cases. Clinically, it does not differ from that occurring in the non-pregnant, and the diagnosis is not usually difficult. As Webster has said, we must bear in mind the possibility of ureteritis and pyelitis. The mortality is due largely to delay, and early efficient surgical treatment is imperative. If perforation has occurred, and if the abscess is localized, incision and free drainage are indicated. It is better to evacuate an appendiceal abscess before emptying the uterus, since it eliminates the possibility of flooding the free peritoneal cavity with pus. If general peritonitis is present, incision and drainage without disturbing gestation are indicated, provided the pregnancy has not gone beyond the fourth or fifth month. In cases near the end of pregnancy, forced labor is indicated.

Antimeningitis Serum.—F. J. Sladen reports the results of the use of Flexner's serum in twenty-one cases of cerebrospinal meningitis in the Johns Hopkins Hospital. From their experience they give their impression substantially as follows: All cases of meningitis in which the meningococcus is suspected should be treated by lumbar puncture and serum injection as soon as possible. The serum does no harm if the case is not meningococcal, and may do good. The course of the disease is changed by the serum—the long-drawn-out cases are not seen, and the terrible sequelæ are rare. The rapidity of the disappearance of the symptoms and signs with the use of the serum suggests an antitoxic property; the positive chemotaxis for polymorphonuclear leucocytes, and the promoted phagocytosis are the most definite and constant features; finally the reduction in number of the diplococci, the change in the staining properties, and the loss of viability, speak for a bactericidal power, although it is a question whether this may not be explained by phagocytosis. Three of their 21 patients died, a mortality of 14 per cent., as compared with 64 per cent. in patients treated without the serum in previous years. One case of the three was a fulminant case, one was complicated with bronchopneumonia of both lungs when received, and the third patient received his first

injection on the fourteenth day of the disease, when he was unconscious, in convulsions, and practically *in extremis*. Sladen and Parker believe that the serum injections should be made daily until there is a drop in temperature and disappearance of symptoms, indicating arrest; and that it should be renewed at any sign of a flare-up.

The Lancet, October 10, 1908.

An Attempt to Rehabilitate the Permanganates.—E. C. Bousfield regrets that the permanganates have fallen into disuse as a disinfectant and claims that they are still one of our most valuable agents in this respect. He supports his claims by certain statistical evidence. He reminds us that the permanganates have many qualities which, given a reasonable disinfectant power, entitle them to consideration. Their very great power as generators of nascent oxygen, their non-poisonous character, their cheapness, and, lastly, their distinctive color, are all features of value, while they alone possess the power of destroying the odor of putrescent matter and of thus affording, in the absence of odor, a very evident, if somewhat rough-and-ready, criterion of the amount of disinfection which has been effected. Finally, they have the advantage of leaving the substance to which they have been applied, whether solid or liquid, in a condition in which it is incapable of giving rise to disease either by the bacteria contained in it or by their products.

The Serum Treatment of Cerebrospinal Fever in the City of Glasgow Fever Hospital, Belvidere, Between May, 1906, and May, 1908.—J. R. Currie and A. S. M. Macgregor present a report largely made up of tabulated material. In the course of the period referred to 330 cases were treated. Of these 105 received automeningococcic serum. In a few cases the specific organism was not recovered, though the symptoms were typical of the disease. With these exceptions all the cases were bacteriologically verified. Four different sera were used, the first in 20 cases with 13 deaths, the second in 6 with 5 deaths, the third in 20 with 14 deaths, and the fourth in 56 with 34 deaths. In other words, 66 out of 102 died. In the remaining three serum cases more than one kind of serum was used, and 2 died. Of the 225 cases not treated with serum 181 died. Details are given as to site of injection, amount of serum used, etc. The authors declare that their convictions are in favor of the serum treatment.

Division of the Auditory Nerve for Painful Tinnitus.—C. A. Ballance reports one case and illustrates it with an excellent picture showing the relations of the various structures located in the field of operation. He says that he is not aware that anyone has previously employed his special technique in dividing the auditory nerve. Details of the operation are thus given: The dura was opened and the cerebellar hemisphere displaced backwards and inwards by marine sponge pressure. On removing the sponges the cerebellum remained in the retracted position, so that the fifth, seventh, eighth, ninth, tenth, eleventh, and twelfth nerves were exposed to view. The eighth nerve was depressed so as to enable me to see clearly the rounded cord of the facial nerve and to avoid injuring it when dividing the auditory nerve. Then the division of the auditory nerve was easily accomplished. No attempt was made to separate the nerve of Wrisberg from the auditory nerve; indeed, the operator did not see it, no doubt because it was concealed by the arachnoid sheath. There was slight hemorrhage from the auditory artery. On recovery from the anesthetic there was conjugate deviation of the eyes to the left, and the eyes could not be moved towards the right. In about forty-eight hours this movement was again possible, but was feeble and was attended by lateral nystagmus with wide excursions. Convalescence was very slow, the pulse remained at 100°, or over, for some weeks, and there was a little difficulty in swallowing due to paresis of the right side of the palate and of the right side of the pharynx. There were occasional syncopal attacks and also paroxysmal feelings of impending suffocation by which the patient was sometimes awakened at night. There was absolute deafness of the right ear. A preexisting palsy was not increased. Two months later there was still slight paresis affecting the right side of the palate and pharynx. Nystagmus was still present. Respirations were 22 and feeble, pulse 100° and regular. Heart was normal, anesthesia and ataxia absent. In two months more the scalp flap was concave and the painful tinnitus had ceased. There was still some weakness on the right side of the face. The tongue deviated very slightly to the left when protruded. There was nystagmus when looking to the right, but less than formerly, and only slight jerks on looking to the left. The palate, pharynx, and vocal cords moved normally, and there was no longer any difficulty in breathing or in swallowing. The sense of taste was lost along the right side of the tongue. There was an area of deficient sensation (as tested with a camel's hair brush) of about the size of a split pea at the junction of the middle of the posterior border of the right external meatus with the concha. There was no affection of any other cranial nerve. The knee- and ankle-jerks were greater on the right than on the left side. The supinator jerks were equal. The pulse was 60. There were no indications of gross disease and no apparent reason why the patient should not get quite well.

British Medical Journal, October 10, 1908.

Tracheal Insufflation in New-born Infants.—This mode of resuscitation was successfully practised by J. A. Swindale in a case of asphyxia neonatorum. A considerable quantity of blood-stained mucus and discharges was extracted by suction through a soft rubber catheter passed into the larynx, and then several portions of clean air were gently breathed into the child's lungs, some being expelled by pressure after each inspiration. After awhile breathing became normal. Several hours after there was a relapse, but a repetition of the maneuver plus a hypodermic of brandy brought the child around again. Further history uneventful.

Bees' Stings and Rheumatism.—This question is discussed by E. W. Ainley Walker, who has conducted a collective investigation among both physicians and laymen, basing his investigations on (1) a possible relationship between some of the phenomena of acute rheumatism and an abnormal production of formic acid in the body under the action of a streptococcal microorganism, and (2) the popular belief that bee sting poison is protective against rheumatism and may also be successfully employed for its cure. Much of the paper is made up of pertinent matter quoted from other writers and cannot be considered here. The author thinks that owing to the prevalence of rheumatism every remedy proposed should be thoroughly tried out, so that one may finally arrive at some definite conclusion with regard to it. He commends a further trial of the method suggested some two years ago by Couch, who has found formic acid a marvelous remedy in rheumatic conditions and in arthritis deformans. He injects formic acid in a 2 1-2 per cent. solution just under the skin in the neighborhood of the painful joints. A preliminary injection of 5 to 8 drops of 1 per cent. cocaine solution is employed, and then an equal amount of the formic acid solution....larger doses cause painful swellings....Several areas may be injected provided that they do not come within two inches of each other. As many as thirty injections have been made, but, as a rule, twelve to fifteen are sufficient for one day. They should be repeated every day, or every alternate day, till the pain ceases.

The Prevention of Sleeping Sickness.—J. L. Todd speaks of the prevailing views as to the nature of this malady and of its occurrence in the Congo Free State. He says that in that locality it is believed (1) that the rapid spread of sleeping sickness could not be explained by the mechanical transmission of the trypanosome by *Glossina palpalis* alone; and it was suggested on various grounds "that other biting insects might also transmit it." (2) As a result of continued observations it was concluded that *Glossina palpalis* was present or might become present in practically every part of the Congo Free State. (3) Sleeping sickness was found to be extremely rife in villages near which *Glossina palpalis* could not be found at the time of our examination. To prevent the disease infected persons must not be allowed to come in contact with the well. All native villages must be removed from the neighborhood of water courses to clear, high ground, free from flies. The areas surrounding native villages should not be occupied by jungle or by tall, shade-giving crops, such as millet, bananas, or manioc; low-lying plants, such as ground-nuts or sweet potatoes, alone should be permitted there. From observations in the Congo it is, unfortunately, certain that such measures as these, although in themselves admirable, would be quite useless in preventing the infection of a population whose occupation normally takes them to localities where the fly exists. It has been noted that communities of paddlers or rubber-collectors are seriously infected, although tsetse flies are never seen within their villages. Again, although as a general rule the clearing of underbrush from about a ford, or a group of buildings, will render the locality comparatively free from flies, it will never completely do so.

Book Reviews.

Ueber den Einfluss der Geschlechtsfunktionen auf die Weibliche Kriminalität. Von Dr. jur. Siegfried Weinberg, Berlin. Halle a S.: Carl Marhold Verlagsbuchhandlung, 1907.

Arndt has said that we are what our sexual organs make us. This exaggerated statement has some basis of truth in abnormal mental states in women, as is well known; and the writer gives us some statistics to show the influence of sexual function in female criminals. An interesting medicolegal borderland study.

A Practical Guide to the Examination of the Ear. By Selden Spencer, A.B., M.D., Instructor in Otology in Washington University. St. Louis: C. V. Mosby Co., 1908.

This is a clinical guide originally prepared for medical students in Washington University, which fact leads one to believe that otology receives much greater attention in that institution than in most medical schools. The plates, five in number, showing the gross anatomy of the ear, are large and definite, while the dozen illustrations are good enough for the purpose intended, although they would not pass muster in a more pretentious volume. Common tests of hearing are briefly described, and there is a chapter on surgical anatomy with reference to the various methods of attacking the mastoid.

A Short Practice of Midwifery. Embodying the treatment adopted in the Rotunda Hospital, Dublin. By Henry Jellett, B.A., M.D. (Dublin University), F.R.C.P.I., Gynecologist and Obstetrical Physician, Dr. Stevens' Hospital; ex-Assistant Master, Rotunda Hospital; Censor and Examiner in Midwifery, Royal College of Physicians, Ireland; formerly Vice-President British Gynæcological Society; late University Examiner in Midwifery and Gynecology, Dublin University; late Externe Examiner in Midwifery and Gynecology, Royal University of Ireland. With a Preface by Sir W. J. Smyly, M.D., F.R.C.P.I., late Master of the Rotunda Hospital. Fifth Edition, Revised. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co., 1908.

This is a handy volume of six hundred pages, and presents the subject of midwifery in a practical way. The opening chapter considers asepsis, the author believing in the routine use of gloves and decrying the use of prophylactic antepartum and postpartum douches. A brief outline of the bony pelvis, the fetal membranes, and the anatomy and physiology of the fetus are then given. The rest of the book considers the practical questions of diagnosis and management of pregnancy, labor and its management, various complications and anomalies of delivery, and postpartum phenomena, diseases, and treatment. Infant feeding and infantile diseases are considered in the later chapters, and an appendix containing the statistics of the Rotunda Hospital for the last seventeen years ends the book. The author is an earnest opponent of "meddlesome midwifery," and recommends the substitution of external for internal manipulations, both in the diagnosis and in the technique of deliveries. He would measure the merits of a practitioner by the infrequency of postpartum hemorrhage, and therefore gives much attention to the third stage of labor. In the practice of infant feeding the author follows Holt, and, indeed, reprints the latter's tables of proper percentages of cow's milk to be used for artificially-fed infants. The book is a very attractive one, and should prove useful to students and to practical obstetricians; the theory of this branch of medicine does not enter into its scope. The reviewer would call attention of the reader to the many titles following the name of the author, which constitute almost a *curriculum vitæ*, and would ask whether a reform is not needed in this matter of enumerating the past and present positions, honorary titles, and appointments conferred upon the authors of medical books.

Diseases of the Nervous System. By H. Campbell Thomson, M.D. (Lond.), F.R.C.P.; Physician to Out-Patients at the Middlesex Hospital, Dean of and Medical Tutor in, the Middlesex Hospital Medical School; Physician to the Bolingbroke Hospital and to the Hospital for Epilepsy and Paralysis, Maida Vale. With 8 Colored and 12 Black-and-White Plates, and 101 Figures in the Text. Chicago: W. T. Keener & Co., 1908.

The author states in his preface that the experience on which his book is founded has been obtained for the most part at Maida Vale and at the Middlesex Hospital clinics, both of which are known to be extensive fields, affording adequate material. The main facts of neurology are clearly and concisely set forth, profuse illustrations acceptably replacing long descriptions or adequately representing conditions briefly stated. Indeed, the illustrations are one of the most attractive features of this small publication. They are all good, not the least useful being the outline figure drawings on which are shown at a glance a summary of the principal symptoms of a disease. This should be very helpful to the student. In the chapter on the reflexes the author states that the Oppenheim response is obtained by stroking the inner side of the leg. Here, we are taught to elicit it by stroking the tibialis anticus. Some of the later methods of treatment, such as nerve grafting, now an established operation, are not mentioned in relation to peripheral palsies, except those of the face and arm. Other recent treatment is not mentioned; *e. g.*, craniectomy in meningeal hemorrhage of the new-born; nerve grafting in anterior poliomyelitis and in infantile cerebral palsy. On the whole, however, the book is a condensed and convenient one, more useful to the student perhaps and general practitioner than to the neurologist.

Diseases of the Spinal Cord. By R. T. Williamson, M.D. (Lond.), F.R.C.P., Assistant Physician, Royal Infirmary, and Lecturer in Medicine, Victoria University, Manchester. With 183 Illustrations and seven Plates. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, 1908.

The author states modestly in the preface that his work is not intended to furnish an exhaustive account of spinal diseases, but to be of service rather as an introductory textbook. His classification, for descriptive purposes, is on a symptomatological basis. Spinal tumors, for example, are described in the section entitled "Diseases Causing Symptoms of a Transverse Lesion of the Cord"; syringomyelia and poliomyelitis, under "Diseases Causing Atrophic Paralysis"; disseminated sclerosis, among "Diseases Giving Rise to Spastic Paralysis," and tabes in the section devoted to "Diseases in Which Ataxia Is a Prominent Symptom." Descriptions are clear and sufficiently comprehensive, and the book is fairly well up-to-date. Each description is followed by a list of references to articles and works which the author has found of most service in preparing the book. The chapter on traumatic affections of the spinal cord is very brief. There is an appendix comprising notes on the more important methods of staining for microscopical study. The illustrations are from the author's own drawings and photographs and microphotographs of cord sections. The book will be found convenient and valuable to the clinician for reference and to the student for systematic study.

The Thirteenth Greatest of Centuries. By James J. Walsh, M.D., Ph.D., LL.D., Acting Dean and Professor of the History of Medicine and of Nervous Diseases, Fordham University School of Medicine; Professor of Physiological Psychology at St. Francis Xavier's and Cathedral Colleges, New York. With Illustrations. New York: Catholic Summer School Press, 1907.

To those who are wont to think that the nineteenth was the greatest of centuries that have been, and that the twentieth is destined to be greater yet, the title of this work will perhaps seem presumptuous, and they will be inclined to regard the book itself, without reading it, as composed in laudation of the "Ages of Faith," in order to please the members of the Catholic Summer School. But even if one approaches the book with this prejudice, a reading of it will convince him that the author is justified in his title, and that in many respects this was one of the greatest, if not actually the greatest, of the centuries that the world has seen. This century saw the foundation of the universities and their development in the establishment of the various schools of science, theology, medicine, and law, and it also saw the establishment of schools of arts and crafts such as the world has never since seen. It was also the age of cathedral building when many of the most magnificent examples of Gothic architecture were erected. Nearly all of the grand English cathedrals were building in that epoch, and they were built by local craftsmen, for each city was too busy with its own work to lend its artists to other cities. In literature the thirteenth century saw the "Chronicles of the Cid," the "Niebelungenlied," "Reynaud the Fox," the "Romance of the Rose," and the "Arthurian Legends"; it was also the age of the Trouvères and the Troubadours, the Meistersingers and the Minnesingers, and Dante was composing the Divinia Commedia at its close. Among the painters were Cimabue and Giotto, among the scholars St. Thomas Aquinas, who taught the conservation of energy and the indestructibility of matter; Duns Scotus, Albertus Magnus, and Roger Bacon. It was in this century that the signing of Magna Charta took place, the first English Parliament met, and the English common law took form, and in the other countries of Europe the foundation of liberty and of the rights of man were laid. Many other things are recorded by Dr. Walsh in this most interesting book to justify his claim that, measured by the work accomplished in every branch of human endeavor and by the uplift of mankind and the promotion of human happiness, the thirteenth century was indeed great, if not the greatest of all.

Society Reports.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-first Annual Meeting, held at Baltimore, Md., September 22, 23, and 24, 1908.

The President, Dr. E. Gustav Zinke of Cincinnati, Ohio, in the Chair.

Arteriosclerosis of the Uterus.— Dr. Charles M. Rees of Charleston, S. C., pointed out that (1) sclerotic changes in the arterial supply to the uterus were probably of greater frequency than had generally been observed. (2) A pathological change might take place in the uterus independently of general arteriosclerosis. (3) From the frequent physiological changes to which the uterine blood supply was subjected, and the resistance offered, sclerotic changes were favored. (4) That sclerosis and even changes advanced to atheroma with calcareous deposits in the arterial walls of the uterine arteries were found localized in the uterus. (5) These changes occurred in the vast majority of child-bearing women about the menopause. (6) Arteriosclerosis of the uterus might be the cause of alarming hemorrhages, which were uncontrollable by any of the ordinary measures, and hysterectomy was necessary to save life. (7) Hemorrhages caused by arteriosclerosis of the uterus usually came on at the cancer period of a woman's life and could not be differentiated by any other means than hysterectomy and microscopical examination. He emphasized the following facts: (1) That a diagnosis of arteriosclerosis of the uterus was difficult to make, and could only be made where it was possible to exclude every other cause of hemorrhage from the uterus, and by microscopical examination of scrapings from the uterus in which sclerosed capillaries were found, or finally from sections of such a uterus after its removal. (2) Arteriosclerosis, as a definite cause of hemorrhage from the uterus, appearing in women between the ages of 40 and 50, and among those who had borne children, was of greater importance than had generally been determined. (3) That in a fair proportion of cases the hemorrhages from the uterus were in themselves sufficient to endanger the life of a woman and could be made to yield only to hysterectomy. (4) That, with the uncertainty of diagnosis, even after examinations of a section from the cervix and scrapings from the uterus, which showed no evidence of malignancy in women who between the ages of 40 and 50 had borne children, and suffered with frequently recurring hemorrhages, hysterectomy was justified.

Dr. C. C. Frederick of Buffalo, N. Y., said he had seen several cases in the past two years of persistent bleeding in which there was no great enlargement of the uterus, and there was no evidence of any fibroid growth, and likewise no evidence from the scrapings of any degenerative changes in the uterus indicative of cancer. Repeated curettage failed to control the hemorrhage. In these cases he had done vaginal hysterectomy.

Dr. Hugo O. Pantzer of Indianapolis, Ind., said that the frequency of this affection was much greater than was commonly believed, and there was no doubt that many of these patients could be relieved by operation.

Dr. Frederick Blume of Pittsburg, Pa., had operated on three cases of arteriosclerosis of the uterus by the vaginal route by the clamp method in the last two years.

Dr. John A. Lyons of Chicago reported a case of arteriosclerosis of the uterus in which hysterectomy had been recommended by others, but he succeeded in relieving the patient by electricity, using forty milliamperes for from 5 to 10 minutes at a time, the duration of the treatment extending over a month or more, at the end of which time the hemorrhage ceased.

Dr. Charles G. Cumston of Boston said that some years ago he read a paper entitled "Hemorrhagic Metritis," and in it he gave the pathological findings which were chiefly arteriosclerosis of the small vessels of the uterine parenchyma, likewise considerable sclerosis of the uterus. He advised and practiced at the time vaginal hysterectomy, but was vigorously sat on as being too radical.

Dr. Albert Goldspohn of Chicago called attention to the difficulty of making a diagnosis in cases of arteriosclerosis of the uterus; consequently, there was danger of treating some cases under a mistaken diagnosis. Actual cases of arteriosclerosis of the uterus should be treated by hysterectomy, and nothing else.

Hysteria as the Surgeon Sees It.—Dr. A. Morgan Vance of Louisville related a number of interesting clinical instances of hysteria simulating grave organic lesions. He spoke of the methods of cure which he attributed to the power of suggestion and an attitude of command as the controlling elements in vanquishing the obsession of the victims. He suggested the necessity of alertness to avoid error in diagnosis, and attributed his quick and certain success in diagnosis and treatment of some of these cases to that alertness bred of the rivalry in diagnosis which came within his fortunate experience early in his medical career.

Dr. Herman E. Hayd of Buffalo emphasized the difficulty attending a correct diagnosis in cases of hysteria. Everyone had seen patients who had been sadly neglected, and who had been treated for all kinds of hysterical symptoms, when there was really not only one pathological condition at the bottom of them, but various pathological conditions making the case extremely complex; therefore, the reason why so many of these neurasthenic, hysterical, and neurotic women were not cured was not because they had not received good surgery, but because they had not had enough good surgery.

Dr. Charles G. Cumston of Boston had found that the quickest way to make hysterical patients walk, who thought they had hip-joint disease, was to mention in their presence that high amputation was the proper thing, and in a case he recalled, the patient was able to walk in a short time afterward.

Dr. John A. Lyons of Chicago took issue with Dr. Hayd that there was always marked pathology in these hysterical patients, and supported the views advanced by the author of the paper. He believed that in many instances the hysteria could be relieved by suggestion, and cited at length a case that came under his own observation in support of it.

Dr. Roland E. Skeel of Cleveland said that there were two factors in many cases, namely, that while there might be minor pathology, it was only recognized by the patients themselves by reason of over-excitable and over-sensitive nerves, and that physicians really overlooked these two factors. These minor pathological conditions could be found if they were sought for.

Comparative Merits of Abdominal Celiotomy and Colpotomy in the Treatment of Intrapelvic Abscess.— Dr. W. S. Smith of Baltimore read a paper on this subject. He said that if one considered the improvements that had been made in surgical technique, together with the striking results obtained in pus cases by the Fowler postural treatment and the Murphy irrigation, the mortality plea lost much of its significance and force. Recent experience in this connection on the part of the author had been instructive and satisfactory. In the last 110 laparotomies which he had done, there had been no mortality. Of this number, 53 were performed for intrapelvic pus. Drainage was indicated and used in 10 instances, and the Fowler-Murphy treatment was resorted to twice. During the same period of time there had been but 10 colpotomies, and 2 of these were followed by the abdominal operation.

Dr. Charles L. Bonifield of Cincinnati said that vaginal incision was of great importance in selected cases, and the earlier one could get at pus behind the uterus and drain it, the less damage would be done to the uterine append-

ages, and the more hope there would be of curing these patients without a radical operation. Under the most favorable circumstances it was the exception rather than the rule that these patients were cured by this simple procedure. Personally, he had almost completely given up conservative surgery in cases of inflammatory disease of the appendages. Conservative surgery as regards the tubes was more frequently successful than that with regard to the ovaries. In cases in which he had left part of an ovary, the patients usually returned for a subsequent operation.

Dr. Albert Goldspohn of Chicago said that vaginal drainage was permissible in acute pelvic conditions, and the cases amenable to this operation were those in which the focus of pus was located in the pelvic cellular tissue—a parametritis. Intraperitoneal suppurative conditions were not usually benefited very much by vaginal drainage, but more radical measures were needed.

Dr. C. C. Frederick of Buffalo said that in pelvic abscess he preferred the vaginal route for drainage, and then, if necessary, a more radical operation could be done at a later time.

Dr. Frederick Blume of Pittsburg said he had resorted to vaginal incision and drainage in the cases under discussion, and later, if the patient returned, he performed an abdominal operation.

Dr. Joseph A. Hall of Cincinnati said that many pelvic abscesses were the result of tuberculosis, and many of these abscesses were caused by the gonococcus. Vaginal section accomplished much good in some of these cases, but in others more radical operative measures were indicated.

Dr. Louis Frank of Louisville said there could be no question as to the advisability of vaginal incision and drainage in acute pus collections as a temporary expedient. His experience, however, was that in some cases in which it was done abdominal section was required later.

Dr. Joseph H. Branham of Baltimore called attention to the virulence of infection, saying that in some cases the degree of virulence was slight, while in others it was great. As there was a great difference in the degree of virulence of the infection the treatment should vary in different cases.

Dr. Smith, in closing the discussion, said he had not been convinced of the importance of removing a healthy tube, even though the infection was of gonorrheal origin. He thought that a thorough curettement of the uterus and careful exsection of the diseased tube would result in a permanent cure, and there was seldom any necessity for taking out a healthy tube even in gonorrheal cases.

A Simple, Certain, and Universally Applicable Method of Preventing the Serious Accident of Leaving a Sponge in the Abdomen.—Dr. H. S. Crossen of St. Louis, Mo., said that security against this fatal accident was counted one of the unsolved problems of abdominal surgery. The method he had used during the past two years was practically automatic, applicable in emergency work in the country as well as in hospital work. It insured the removal of all gauze without particular attention on the part of anyone. It consisted in the elimination of all detached pads and sponges and the utilization of ten-yard gauze strips, each strip packed in a convenient bag in such a way that it might be drawn out a little at a time, as needed.

Mobility of the Patient After Laparotomy.—Dr. Walter B. Chase of Brooklyn, N. Y., contributed a paper on this subject, in which he stated that (1) the early dictum of the rigid immobility of the patient after laparotomy—yet too much in vogue—was wrong in principle and injurious in practice. (2) Limited mobility of the patient, active or passive, within rational limitations, was admissible and desirable whenever the comfort and advantage of the patient were thereby promoted. (3) The cardinal prerequisites to prompt healing of wounds were perfect coaptation, perfect rest, and freedom from infection. (4) The sitting up of the patient in bed or out of bed the day after the operation, being around the ward the following day, and leaving the hospital for ordinary exercise at the end of a week, was not compatible with sound surgical procedure, even though, in individual instances, satisfactory recovery had followed. (5) By ignoring the pathological conditions present, the burden of proof, that the phlebitis was not due to infection, nor that the mischief attending thrombosis and embolism was not a result of too early mobility of the patient, rested with the advocates of the new departure.

Dr. Albert Goldspohn of Chicago said it was wrong to encourage patients to get up on the second or third day after laparotomy, as it was necessary to wait until cicatrization was fairly complete, and this did not occur in less than about ten days

Dr. Daniel H. Craig of Boston stated that the mobility of a patient after operation had a relationship to the postoperative complications of phlebitis and thrombosis, and he believed that early mobility of patients lessened the liability to these complications.

Extrauterine Pregnancy.—Dr. Herman E. Hayd of Buffalo, N. Y., classified his cases according to their clinical manifestations: (1) The tragic or cataclysmic class, where there was free hemorrhage going on into the peritoneal cavity, with no tendency to localization. Here an immediate abdominal operation was recommended. (2) The cases where a small rupture had taken place and where hematocele more or less circumscribed developed. In this class vaginal incision and drainage was advised, if the pregnancy was not advanced beyond the sixth week, or if the blood clot had not become too firmly organized. (3) Those cases which had gone on to the second and on to the fourth or fifth month, when rupture took place, but the fetal product continued to grow on account of the new attachment it made. (4) Those cases which had gone on to the development of a pelvic abscess with broken-down fetal products in the mass. (5) Those cases which had gone on to term and were delivered by operation when the child was viable, or where the child had died and undergone mummification or calcification as a lithopedion.

Advanced Ectopic Gestation, with Living Child, with Report of Three Cases.—Dr. X. O. Werder of Pittsburg read a paper with this title, in which he said that all these cases began as tubal pregnancy. The time of rupture could be estimated from the history of every case. In none of the cases was the diagnosis attended with great difficulty. Having in the prophylactic instrumental compression of the abdominal aorta a safe and reliable means to prevent the so much dreaded placental hemorrhage, which had really been the principal stumbling-block in the surgical treatment of advanced ectopic gestation, there seemed to be no longer any just ground for other than radical operation in this condition, consisting in the complete extirpation of the gestation sac with living placenta, an operation which in his opinion was the only proper and correct surgical procedure for these cases.

Ectopic Gestation.—Dr. Charles L. Bonifield of Cincinnati divided cases of tubal pregnancy into five classes. (1) Those in which a slight hemorrhage occurred at an early period, six to eight weeks, and killed the ovum. Such an ovum with the blood-clot might be absorbed and the patient regain her health. He reported a case representing this class. (2) Those in which the rupture occurred a little later than eight to ten weeks. In these the hemorrhage was so profuse as to cause well-marked classical symptoms, but was not so profuse as to menace at once the life of the patient. (3) Those which were in immediate danger of death from hemorrhage. This class was not numerous, but it gave rise to practically all the argument as to the relative virtues of immediate and deferred operations. The best course to pursue in the treatment of these cases was to operate at once if the hemorrhage was in progress when the operator saw the

ease, and to defer operation if it had ceased. (4) Cases in which a living fetus had developed to the sixteenth week or later. About fifteen years ago he operated on such a case at the sixth month. The child died in a few minutes, and the mother only survived twenty-four hours. Her death was due to loss of blood caused by the separation of the placenta from the intestines and omentum, to which a large part of it was attached. (5) When the physician has to deal with a dead fetus which has attained an advanced stage of development. The death of the fetus rendered the operation safer for the mother, provided it was not undertaken until a sufficient time had elapsed for a change to take place in the placenta. He had operated on two such cases.

Dr. Albert Goldspohn did not think that all cases of extrauterine pregnancy should be operated on at once. Cases of tubal abortion, in which the ovum slipped out of a somewhat dilated abdominal end of the tube, did not bleed very much, nor did they produce profound shock. On the other hand, it was not safe to assume that in ruptured tubal pregnancy hemorrhage was going to stop, hence it was necessary to operate.

Dr. C. C. Frederick had operated 133 times for ruptured ectopic pregnancy. There were cases of tubal abortion where the amount of hemorrhage was so small and finally ceased, that eventually the women got well without operation.

Dr. Henry Schwarz of St. Louis said there were several cases on record in which women with tubal pregnancy went to term. He had himself operated on such a case. The sac was removed in its entirety, and then opened, disclosing a mature macerated male fetus above the average weight.

Dr. A. B. Miller of Syracuse said that no one could lay down any law which would guide the ordinary practitioner as to the time for operation as he came in contact with these cases.

Dr. Walter B. Chase of Brooklyn said that every case must be a law unto itself as to whether to operate or not.

Dr. Miles F. Porter of Fort Wayne, Ind., said that if a surgeon were called to see a man or woman with a history that she had received a stab wound in the neck and she had symptoms of bleeding to death, naturally he would search for and tie the bleeding vessel. This was the thing to do in a case of ruptured ectopic pregnancy in which hemorrhage was going on.

Dr. Thomas B. Noble of Indianapolis believed in immediate operation in cases of ruptured extrauterine pregnancy, for the reason that if the information went out that these cases were to be treated by procrastination until the diagnosis was certain, these patients would be tinkered with by general practitioners, and the specialist would only be called in to sign a death certificate.

Dr. Frederick Blume emphasized the importance of differentiating what cases should be operated on and which should be left alone.

The subject was further discussed by Dr. Francis Reder and Dr. Roland E. Skeel, and then the discussion was closed by the authors.

Acute Pancreatitis.—Dr. Louis Frank of Louisville said that pancreatic disease until recent years had been very much neglected, and referred to the growing importance of its study. Pancreatic diseases were not all incurable. He referred to the anatomical and etiological factors concerned. He laid stress on the necessity of early recognition. After describing the symptoms he spoke of the treatment as being surgical, and in order to be effective it must be prompt. He reported three cases on which he had operated.

Abscess of Gaertner's Canal.—Dr. Magnus A. Tate of Cincinnati spoke of the rarity of this condition, and reviewed the literature of the subject. He reported the case of a woman 36 years of age, who for some years had had a number of very peculiar attacks. The trouble began with a pain in the pelvic region accompanied by rigors, this being followed by distinct chills, rapid pulse, and high temperature. This would last from a few days to a week or two, then there would be a vaginal discharge of a little pus, which was always followed by a subsidence of symptoms, and an apparent recovery would ensue. There was some tenderness elicited over both the right and left lower sides of the pelvis. After complete anesthesia a vaginal examination disclosed a small anteverted uterus, but no tubes or ovaries could be palpated. On the right wall at a central point between the anterior and posterior vaginal walls was found a decided thickening, and on tracing it up, it felt like a ridge of massed tissue which passed up to the side of the cervix in the vaginal vault. He opened the posterior cul-de-sac, and after packing some gauze in the back of the uterus he opened up this ridge of vaginal ligament as far as he could. The following day the gauze which had been placed in ridge tissue was bathed in pus which was constantly being discharged. The temperature subsided and patient recovered.

Cesarean Section.—Dr. C. C. Frederick of Buffalo gave a résumé of the present status of this operation, and said that until within recent years it was appealed to only as a last resort in obstetrical delivery The consensus of opinion was now becoming favorable to cesarean section as being preferable in contracted or deformed pelves to protracted high forceps operation, version, symphyseotomy, or pubiotomy.

The Development of the Human Ovum During the First Eight Weeks of Pregnancy.—Dr. Henry Schwarz of St Louis called attention to the fact that all textbooks of obstetrics described the ovum and fetus at the end of ten periods of twenty-eight days each, and they all, without exception, declared the ovum to be of the size of a pigeon's egg, and the fetus of a length of 7 to 10 millimeters at the end of the first lunar month, that is to say, before the woman's menstruation was overdue. The fact was, the youngest ovum on record, that of Peter, which was the size of a hemp seed, was found when menstruation was three days overdue, and belonged therefore to the middle of the fifth week of pregnancy, or to the beginning of the second lunar month. At the end of the first lunar month the ovum was still a very small body, and passed through the uterine end of the tube just about the time when menstruation became overdue. All ova varying in size from a millet seed to a hen's egg belonged to the second lunar month, and their description had to be rearranged. He believed that ovulation, as a rule, preceded menstruation, and that the impregnated ovum dated from the first menstrual period which had been suppressed; that during the first lunar month of our present counting pregnancy existed only during the last few days, and that during these days the ovum migrated through the tubes without noticeable increase in size, reaching the uterine cavity about the day of the expected menstruation, and there casting off its shell of zona pellucida, as demonstrated by Spee for the ovum of the guinea-pig.

President's Address: Solving the Problem of Obstetrics.—The president, Dr. E. Gustav Zinke of Cincinnati, reviewed at length some of the important events in medicine and surgery of the last one hundred years. He compared the old and new methods of managing the pregnant, parturient, and puerperal states. Reference was made to the changes in the practice of midwifery within the last fifty years. There was practically no improvement in the maternal and fetal mortality and morbidity of midwifery during the last twenty years. The present rate of obstetric mortality followed immediately that of tuberculosis. Eclampsia, placenta prævia, oblique and transverse presentations, narrow and contracted pelves, were conditions which precipitated in every instance a conflict unto death between mother and child. The problem of preventing this conflict was gradually being solved by the aid of anesthesia, antisepsis, asepsis, the forceps, sym-

physeotomy, pubiotomy, hebotomy, and cesarean section. The gradual elimination of the induction of premature labor, prophylactic version, the high forceps, and perforation of the living child had begun. The problem of obstetrics would be solved when the custom of sending the pregnant and parturient women—victims of complications—to a maternity had become an established practice.

Intraligamentous Fibroids.—Dr. JOHN F. ERDMANN of New York said that during the past seven years he had operated upon 61 cases of fibroids, doing 48 hysterectomies and 13 myomectomies. Of this entire number he met with 5 cases of intraligamentous fibroids, one of which was a case of multiple fibroids of the uterus, with two discrete ones in the right broad ligament. The remaining four were true intraligamentous fibroids in the full sense of the word. None of these intraligamentous masses in any of the five cases had any association with the uterus, except one, in which the association was due to an inflammation occurring in the pelvis, and an exudative or plastic adhesion to the uterus was evident. In 4 of these cases the tumors were hard or of the same consistency as ordinary fibroids. In the large round one the feeling was of a decidedly soft nature. The author reported the five cases in detail, with recovery in all of them.

Uterine Fibroids Complicating Pregnancy.—Dr. WILLIAM J. GILLETTE of Toledo, Ohio, read a paper on this subject in which he reported cases. The points he desired to bring out were, that in the presence of a pregnancy, should (1) operations for the removal of fibroids be limited to the fifth month, and if not, and limited to any time, what should that time be? (2) That not only pedunculated and subperitoneal tumors might be removed, but interstitial as well, without the interruption of pregnancy (3) That even very small fibroids may be so situated as to become of lethal significance. (4) That fibroids tumors might practically disappear at this time or shortly subsequent to it. (5) The possibility of the removal of pedunculated fibroids during labor, allowing it to progress naturally.

Myoma of the Cervix Uteri.—Dr. FRANCIS REDER of St. Louis made some remarks on this subject, reported cases, and exhibited specimens.

Ovarian Cystoma Complicating Pregnancy.—Dr. CHARLES G. CUMSTON of Boston, Mass., said that the indication for operative interference during pregnancy was usually the severity of the symptoms. The cyst should be removed by abdominal incision or posterior colpotomy, according to the situation and size of the neoplasm. Cooling of the abdominal cavity was to be avoided during operation, as it was an important factor in the production of premature labor. The favorable results obtained when operation was done during the first few months of pregnancy were not accidental, and a timely removal of the cyst might prevent threatened miscarriage. Operation should be advised as soon as a diagnosis of cyst had been made, in order to avoid complications due to the presence of the tumor during pregnancy, labor, or the post-partum period.

Subdiaphragmatic Abscess.—Dr. JOHN W. KEEFE of Providence, R. I., defined an abscess of this character as a collection of pus, or pus and gas, which lay in contact with some portion of the under surface of the diaphragm. It was rarely the result of a traumatism, but was generally due to some previously diseased condition. The author reported six cases, and the main facts which he emphasized were the avoidance of the transpleural route; the dangers attending the use of the aspirator needle and the unnecessary resection of the ribs; the advocacy of exploratory abdominal incision, with drainage through the same or in the tenth or eleventh interspace, in the post-axillary line.

Injuries to the Bladder Taking Place During Hernia Operations.—Dr. ROLAND E. SKEEL of Cleveland, O., said that since the appearance of Bruener's article in 1898 and Moynihan's in 1901, bladder herniæ were apparently increasing in frequency as shown by 144 cases collected since 1896, as compared with the 181 in the literature previous to that date. These herniæ were no more frequent than before, but present methods of operating as well as increased care in looking for them accounted for the more frequent report of such cases. The cases reported showed a large proportion not diagnosed until operation, and unfortunately a great number were not recognized until the bladder was injured and a fair per cent. were not recognized even at the time of injury. Many of these cases were artificially produced by traction upon the sac and efforts to place the ligature high up resulted in catching the bladder wall in its bite. In addition to the ordinary method of recognizing the bladder by the appearance of the prevesical fat and the large veins on the fundus, the administration of methylen blue for a day or two previous to hernia operations would cause instant recognition of the bladder injury if it occurred Such a routine measure was justified by the fact that the mortality rate for hernia operations was practically *nil* aside from accident.

Surgery of the Spleen, with Special Reference to Trauma; A Method of Encapsulation.—Dr. WALTER C. G. KIRCHNER of St. Louis reported twenty-two cases of injury to the spleen treated by splenectomy and other methods. After describing the various symptoms of injury to the spleen, the writer described a method of treating hemorrhage from the spleen by encapsulation. In this operation the spleen was brought forward and delivered into the wound as in splenectomy. Wide sutures were inserted through the spleen to approximate the fractured or cut edges, and these sutures were also used to retain the omentum which was wrapped over the spleen to form a sort of capsule The organ was then replaced in the splenic fossa, and held in position by means of packs.

Treatment of Typhoid Fever Perforation.—Dr. JOHN D. S. DAVIS of Birmingham, Ala., had operated in ten cases of typhoid fever. In nine perforations were found. Of this number there were eight recoveries and two deaths. One typhoid case was operated on, with recovery, in which no perforation was found. Two were perforations of the ileum; one had a perforation in the ileum and at the base of the appendix; one had two perforations of the colon, ascending and transverse; four were appendicular, one of which later had a perforating anastomosis between the ascending and transverse colon. In the last fatal case there were two perforations in the ileum. All the cases were drained except the one in which no perforation was found. Incision in the outer border of the right rectus fascia was made in each case. In one case the pus was mopped out and drainage effected through a stab wound. He recommended the Murphy method in treating many of this class of cases, with accumulations of pus, large or small, particularly where there was not much fecal extravasation.

Some Old Fallacies in Retroversion Surgery Revived.—Dr. ALBERT GOLDSPOHN of Chicago, in a paper on this subject, said it was an anatomical fact that the round ligaments of the uterus, irrespective of what might be their normal function ordinarily, were the only available means or medium for a harmless and permanent cure of retroversion in fruitful women, because they alone among the various uterine attachments were a part of the uterus itself and as such underwent evolution and involution with that organ during and after gestation. Years of abundant clinical experience had set forth the great value practically of this anatomical fact. This experience had been dearly paid for by numerous shameful parturient deaths from dystocia following vicious surgery for a minor ailment that, in itself, would never cause death. Nevertheless, two articles had recently appeared that rather ignored the above-mentioned experience, and advocated principles and procedures which gynecologists had threshed out and discarded as old straw some time ago.

Typhlitis.—Dr. John A. Lyons of Chicago said that all cases of typhlitis and perityphlitis need not necessarily be secondary to appendicitis. He reported a case of abscess of the cecum in support of this claim. The patient had suffered for several months from what were supposed to be recurrent attacks of appendicitis, and during the last one the speaker found the patient had suffered (1) from sudden severe abdominal pain; (2) nausea and vomiting; (3) general abdominal sensitiveness over the appendix, and (4) elevation of temperature to 102° F., soon after the onset of the severe pain. These were Murphy's cardinal symptoms for appendicitis, and making a diagnosis of appendical abscess because of a large fluctuating mass involving the entire iliopsoas region, he ordered the patient to the hospital, and after a hurried preparation made an incision over the tumor, when, to his surprise, he found a large abscess of the cecum. The appendix was in its usual position and apparently normal in every respect, excepting where it was about to be involved at its extreme distal end in the perityphlitic inflammation. After cleaning out the abscess cavity, cutting away all gangrenous, loose, and raw edges, he removed the appendix, which, upon examination, proved to be normal, except as above noted. A peculiar feature followed the operation, in that the patient, who had suffered from childhood with enuresis, wetting the clothes both night and day, had been entirely relieved of this annoying condition, it not having recurred, whereas it was frequent in occurrence before the operation. The author accounted for the cure of the enuresis by saying that ganglionic sympathetic fibers joined to the fourth sacral nerve, which latter supplied the neck of the bladder, must have been released from abnormal pressure by the complete cure of the inflammatory product.

Repair Rather Than Removal of the Generative Organs of Women.—Dr. John E. Cannaday of Charleston, W. Va., discussed the advisability of trusting pelvic inflammation, especially that of the gonorrheal type, to nature, and treating the results of infection by operation, if need be, later. He spoke of the need for treating certain cases of infection in accordance with the social condition of the woman. The time requirements of palliative treatment were being extended. He pointed out the advantages of not operating until physiological resistance to infection had been well established. Much of the so-called palliative treatment was useful only as a means of diverting the mind of the patient. Subinvoluted prolapsed organs after suspension and perineorrhaphy would, as a rule, be speedily restored to normal size by the relief of congestion incident to malposition. Local infections might be best attacked by local applications. Repair rather than removal was to be commended in general.

Experiments Upon Animals Relative to the Question of Abdominal Supporters After Laparotomy.—Dr. Robert T. Morris of New York described a series of experiments which he had conducted upon animals which showed that it was unnecessary to subject patients to the annoyance of abdominal supporters so frequently as was commonly proposed. The author did not employ them in one per cent. of his laparatomies.

The following papers were also read: "Factors of Safety in Abdominal Operations, Based on Operations," by Dr. Geo. W. Crile of Cleveland, O.; "Report of a Case of Gastric Tetany; Operation; Recovery," by Drs. John Young Brown and William Engelbach of St. Louis, Mo.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. William H. Humiston of Cleveland, O.; *First Vice-President,* Dr. James Edgar Sadlier of Poughkeepsie, N. Y.; *Second Vice-President,* Dr. William A. B. Sellman of Baltimore, Md.; *Secretary,* Dr. William Warren Potter of Buffalo, N. Y.; re-elected; *Treasurer,* Dr. X. O. Werder of Pittsburg, Pa., re-elected.

Fort Wayne, Ind., was selected as the place for holding the next annual meeting; time, third Tuesday in September, 1909.

AMERICAN ORTHOPEDIC ASSOCIATION.

Annual Meeting Held in Chicago, June 4 to 6, 1908.

Henry Ling Taylor, M.D., of New York, President.

Thursday, June 4—First Day.

Present-day Needs of an Orthopedic Service.—Dr. Henry Ling Taylor of New York delivered the presidential address, entering this as his title.

Treatment of Joint Tuberculosis by Marmorek's Serum.—Dr. Albert H. Freiberg of Cincinnati read this paper, reporting the progress of cases described at last year's meeting, and giving some new cases treated since.

The Treatment of Some Types of Rheumatoid Arthritis.—Dr. Frank E. Peckham of Providence presented an account of the results of the treatment of villous, atrophic and infectious arthritis by means of electric and other baths, vibration, and gymnastics.

A New Treatment for Old Tuberculous Sinuses.—Dr. John Ridlon and Dr. Wallace Blanchard of Chicago were the joint authors of this paper, which was read by the latter. The treatment consisted in injections of bismuth and vaseline emulsion.

Dr. Emil Beck spoke of some of the limitations of the method, so as to put orthopedists on their guard against them. He thought, however, that its use was not attended with much danger, there having been no bad accidents from it. It should not displace other methods.

Dr. H. Augustus Wilson thought that a fluid which melted at a low point was better for small sinuses.

Dr. Gwilym G. Davis of Philadelphia asked whether any bad effects were likely to arise from the use of paraffin and vaseline, these being mineral in character and apparently almost unabsorbable. He had not used bismuth, but had used a mass of iodoform, wax, and oil of sesame or olive oil.

Dr. Freiberg had used for several years a thin suspension of bismuth for the purpose of diagnosticating the extent of these fistulous tracts. He thought, however, that as long as destruction at the seat of disease was going on, it would be useless to close the fistula.

Dr. Philip Hoffman of St. Louis wondered whether some of the many sinusus shown in radiograms of such cases might not be dissection-sinuses produced by the force used in injecting the bismuth.

Dr. Rugh stated that, in the postmortem examination of a part of the face that had been injected subcutaneously with paraffin for the correction of a deformity, it had been found that nature was appropriating the material by throwing out new tissue through the injected mass, thus making it actually a part of the body.

Dr. Blanchard said that the bismuth was not intended as a treatment for the tuberculosis, for which the patients were being treated at the same time by other means. He had found no bad mechanical effect from the injections. The method was not used in cases of acute inflammatory conditions, but only for old chronic sinuses. He saw no reason for changing the formulas employed.

The Influence of Weight Bearing on the Treatment of Tuberculous Joint Disease.—Dr. Virgil P. Gibney of New York presented this paper.

Deformities in Feeble-minded Children.—Dr. E. H. Arnold read a paper on this subject. Conspicuous findings were the following: the preponderance of females, the high percentage of Hebrews, the comparative sterility of the parents, the large number of families having more than one defective child, the fact that instrumental delivery was a possible cause in some cases, the large proportion of mouth-breathers, the tardy beginning of walking and talking, the prevalence of left-handedness, the fact that very few feeble-minded children escaped deformity, and the conclusion that most of these deformities were acquired and due to habit. He then considered the prophylaxis in some of these conditions, and the value

of educational measures in forming good habits and overcoming bad ones.

Dr. Bert E. McKenzie of Toronto believed that instead of one of these conditions being dependent upon the other, both were due to a common cause—a brain-lesion at some time, and frequently before birth. In correcting these deformities, he depended greatly upon education, upon which he laid great stress. If he could not have the co-operation of the patient, as is impossible in the feeble-minded, he hesitated to enter upon the more distinctly surgical aspect of the correction of deformities.

Dr. Young said he would like to have the attention of the profession called to the fact that forceps was often used unnecessarily, and its use often resulted in the deformity of the child.

Mr. Ernest Muirhead Little of London said that in a certain proportion of spastic cases the pressure of the forceps probably caused the lesions with which the surgeon had to deal.

Tuberculin in Orthopedic Surgery.—Drs. John Joseph Nutt and T. W. Hastings read this paper. The report was based on twenty-two cases of joint tuberculosis, and the details of the administration of the tuberculin were fully described.

Mechanical Lesions of the Sacroiliac Joints.—Dr. Ralph R. Fitch reported twenty-two cases, divided in groups according to etiology. Treatment began with support, and he described a method of applying plaster of Paris jackets with the back in a hyperextended position, without special apparatus.

The Nonoperative Treatment of Fracture of the Femoral Neck.—Dr. A. M. Forbes referred to the grave prognosis in medial and intracapsular fractures, and the decreasing tendency to osseous union as the fracture approached the smaller portion of the neck near the head. A consideration of the anatomy of the fracture and the anatomical principles of treatment and a critical review of the methods of treatment that had been advocated led him to conclude that under certain forms of treatment there was probably a more hopeful prognosis than most surgical writers indicated.

Dr. Hoffman gave the details of several cases in quite old ladies treated by the Whitman method some time after the occurrence of the accident with good results. He thought that if good union could be secured under such adverse conditions, to get it must be merely a matter of technique. He remarked that a person inexperienced in the application of the plaster of Paris could make the patient very uncomfortable. Pads should be used, and then the patients were more comfortable than with the old traction method. They could be shifted around in bed, and bed-sores did not occur.

Dr. Aaron J. Steele of St. Louis considered fracture of the thigh-bone to be due to old age, at which period changes had taken place that caused the thigh to be broken very easily. He referred to what might be called a figmental ligament, a thickening of the capsular ligament running along the under side of the neck, and said that when the thigh bone was fractured from a slight cause in elderly people, the figmental ligament might act as a splint and hold the parts of the bone together. If in such cases the patient were confined to bed and slight traction made, the union would probably take place without much trouble.

The Cause of Atrophy in Joint Disease.—Dr. Arthur T. Legg read a paper giving the results of a comparative study of the atrophy of disuse alone and that caused by joint irritation. The results of animal experiments led him to conclude that, since the atrophy of disuse was brought about in a complex way by the vasomotor system controlling the nutritive equilibrium of the body, the atrophy seen in joint disease was brought about in the same way; namely, through functional inactivity.

The Anatomy of Congenital Dislocation of the Hip.—Dr. W. G. Turner discussed some of the anatomical causes predisposing to the occurrence of dislocation, and the importance of proper fixation adapted to anatomical conditions. He demonstrated the class of cases in which the axillary abduction position is indicated, and showed diagrams of seven cases illustrating the varieties of skeletal variations previously discussed.

Friday, June 5—Second Day.

Actinomycosis of the Ribs and Vertebræ.—Dr. James K. Young said that in this case there was no history of exposure to the contagion. The disease began with difficulty of deglutition. A large scapular abscess was followed by infection of the ribs and dorsal vertebræ. An operation was performed, a description of which was given by the author; but the disease continued to extend, and had a fatal termination.

Myositis Ossificans.—Dr. Charles F. Painter described two principal types of this disease, the progressive and the traumatic, and reported two cases, considering the etiology, the gross and microscopical pathology, the clinical course, the operative and medicinal methods of treatment, and the prognosis.

Blastomycosis Resembling Bone Tuberculosis.—Dr. Edwin W. Ryerson of Chicago, said that the first patient, a young man, apparently suffering from an old knee-tuberculosis, had an acute localized suppuration in the outer malleolus, followed by similar affections in many other joints. The second case was that of a young man with apparent dorsal Pott's disease and pulmonary tuberculosis, who developed typical blastomycosis. Both cases were fatal, and an autopsy was obtained in each.

Bone Fragility and Eburnation of Rickets.—Dr. Wallace Blanchard said that rachitic bone might be so friable that the long bones of the legs would break under the body weight, or with a change of diet and environment might eburnate in two months to nearly the solidity of adult bone. He presented cases showing a quick change of bone structure from extreme friability to comparative solidity and strength.

Dr. Fred H. Albee opened the discussion on this symposium by adding two more cases of myositis ossificans to those reported by Dr. Painter, exhibiting *x*-ray pictures. In the second case there was no history of injury, and no pain; just a flexion deformity at the knee-joint.

Dr. Riely described a case that he had seen and believed to be myositis ossificans. There were flat, hard plates at various portions of the body, some of which were permanent and some transient. The patient had had rheumatism and had rheumatic endocarditis.

Dr. Little referred to one of Dr. Blanchard's cases, in which, after an operation for bowlegs, a knockknee had appeared, resembling a case of retrogressive rickets. He believed such cases to be more common than was generally supposed. Some surgeons believed them to be cases of osteomalacia, and not rickets; but the postmortem microscopical appearances in one of his cases had been those of rickets. He asked for the experience of the members in regard to the prevalence of late rickets, and also desired to know whether they thought it of any use to do an osteotomy in such cases.

Dr. Painter said that he had had an undoubted case of osteomalacia some years ago, and had lately had one of adolescent or recrudescent rickets. Both had developed at about the age of puberty, and in both the attempt to take out the bend proved fruitless. He thought that recrudescent rickets was a form of osteomalacia.

Dr. H. L. Taylor mentioned a peculiar case seen by him and Dr. Albee within a few weeks, in which the diagnosis of myositis ossificans was made, but in which the *x*-ray disclosed a needle.

Dr. Davis thought that the condition known as Madelung's disease might be a condition of late rickets. In this disease subluxation occurred at some points, progressing

to a moderate degree, and then remaining stationary. He had had such a case in which good union was secured after osteotomy.

Dr. Blanchard, in closing, said that he had believed it to be thoroughly understood that adolescent rickets was different in nature and pathology in every respect from infantile rickets.

Some Notes on Fibrous Ankylosis of the Knee.—Mr. E. Muirhead Little of London said that in the majority of cases of stiff knee the ankylosis was fibrous. He then considered the cause and the symptoms of the condition. The treatment differed in its objects in the upper and lower limbs. In the former, free mobility was the greatest desideratum, while in the latter, a firm support to the weight of the body was the thing wanted. The worst cases of fibrous ankylosis must be treated the same as bony ankylosis. Excision of the joint should not be done before the age of fourteen; and even then, the epiphyseal lines should be respected. Mr. Little had not found pins, nails, screws, or wires necessary in the case of the knee. He quoted some illustrative cases.

When Is Bony Union Complete After Excision of the Knee?—Dr. J. T. Rugh of Philadelphia after a review of the literature of the subject and an exhaustive consideration of all the facts, formulated the following conclusions: (1) Writers and operators differed as to the length of time fixation or retention apparatus should be worn after excision. (2) Flexion deformity was much more likely to occur before twelve years of age, when union was fibrous or cartilaginous. (3) Bony union was more probable after this period, by reason of the increased activity on the part of the osteogenic tissues. (4) Deposit of bone normally took place more slowly in the epiphysis, because of the histological structure of the parts. (5) Intrinsic influences might and did retard the process of healing after excision. (6) Extrinsic factors also delayed the ultimate bony union. (7) Bony union after fracture of the shaft of a long bone was not complete for from nine months to a year, and it would require nearly as much more time for completion in the epiphysis. (8) During operation sufficient periosteum should be preserved to cover entirely the line of contact of the excised parts, and accurate coaptation and as nearly absolute fixation of the bone-ends as possible should be secured. (9) Fixation should be maintained for a period of at least one year, and probably nearly two years, after excision, to avoid the danger of flexion or other deformity.

Dr. Walter G. Stern of Cleveland asked what had been the experience of the readers of these two papers in resection for flail kneejoint after infantile paralysis and for a bad position after rheumatoid arthritis. He had had humiliating experiences in both classes of cases.

Dr. Young said that when his attention had been first attracted to the operation of osteotomy above the knee for ankylosis with deformity, he had not thought a great deal of it; but that after having performed it on children from twelve to fourteen years of age with satisfactory results, he had become much in favor of the Ollier operation. He believed that in future the opening of the kneejoint would be a frequent procedure.

Dr. Robert Osgood said that he had excised the knee in a case of what was supposed to be rheumatoid arthritis, and in which the microscopical examination had seemed to make this diagnosis certain. The patient had now a stiff, solid knee.

Dr. Little said that when the case was fairly put to them, the patients did not like the idea of an operation that would cause them to have a stiff knee. He had found that in infantile paralysis the bones united well, although he had had one very bad experience after having done an arthrodesis of the ankle, and a subsequent arthrodesis of the knee. The extra strain on the popliteal muscles had produced a gangrene of the front of the foot. He did not consider Ollier's an ideal operation, because, instead of correcting a deformity, one was adding another deformity to that already existing.

Dr. Rugh said that he had done excision of the knee for a case of infantile paralysis in a woman of forty-eight years. He had had no experience with excision after arthritis deformans. He believed in promising the patient bony union after a period of about two years, although fibrous union might occur in from four to six weeks.

Preliminary Report of a New Operation for Arthritis Deformans of the Hip.—Dr. Fred H. Albee described this operation, and said that firm ankylosis was produced with the leg in a corrected position. He reported five successful cases. All the patients had been incapacitated for some months or years. One did not require any elevation, while others were wearing up to half an inch on the heel of the affected leg. In every case the pain had been entirely relieved.

Dr. Arnold said that he had seen one of the cases previously and operated upon it. In the *x*-ray picture taken at the time, he could not distinguish any osteophytes. The operation was at first quite successful; but later, walking up stairs had begun to make the patient tip forward.

Dr. Young said that after excision the joint was not so stable as after Albee's operation, although the motion is good.

Dr. Turner thought it would be of extreme value to the Association if Dr. Albee would report upon the condition of these patients at the next annual meeting.

Dr. Painter said that the Murphy operation did not give enough motion to be of much value, excision was fruitless, and osteotomy was unsatisfactory when much deformity was present.

The Question of Balance and a New Form of Shoemaker's Last.—Dr. Ansel G. Cook of Hartford read these communications. The first was an elementary study of the balance of the human body and its relation to the balance of shoes, including rules for designing or for judging of the efficiency of shoes. The second was a further extension of the usefulness of plaster of Paris, enabling the orthopedic surgeon in a measure to escape from the thraldom of his shoemaker.

Dr. Ridlon said that instead of using a board to step the foot on when making the cast, he used a piece of sheet steel, bent according to the height of the heel needed for each particular foot.

Dr. Riely said that he used aluminum for the same purpose. He had found that the use of a bandage around the plate and the foot had tended to flatten the arch and spread the heel.

The Operative Treatment of Bony Ankylosis of the Knee, Hip, and Elbow Joints.—Dr. J. B. Murphy of Chicago described an operation by which he prevented bony union after operating on the knee joint, by the interposition of a flap of muscular tissue, with fat and fascia between the divided ends of the bone. This resulted in the production of a sliding joint with a pseudo synovial membrane. The lateral ligaments were completely excised. The treatment was also applicable to the elbow and hip. He also described a process of injection by which he rendered joints immune to infection. The solution injected consisted of formalin and glycerin. In every case prepared in this way there was an entire absence of inflammatory reaction.

Dr. Young asked why Dr. Murphy removed the lateral ligaments entirely. He thought that if they could be saved it would be an advance in the treatment of the condition.

Dr. De Forrest Willard of Philadelphia also thought that when both these ligaments were removed the joint would not be strong enough to support the body satisfactorily.

Dr. Ridlon asked whether Dr. Murphy's results were usually good in cases of gonorrheal inflammation of the joint.

Dr. Davis said that the crucial test of the operation was in the knee joint, and he desired to see a perfectly good result in this joint. He had operated on a case according to Dr. Murphy's procedure, but, instead of transverse division of the patella, had used lateral incisions, turning in lateral flaps. He got too much motion; so he excised less in the next case, getting a better result. In his next cases he excised still less, and did not get good enough motion. He said that he could not succeed in striking the happy medium. He did not see the necessity for removing the lateral ligaments.

Dr. Gibney asked about the use of formalin in complete ankylosis of the joints with bony union. He thought Dr. Murphy was right in taking out all that could be taken and covering the bone completely with the flaps.

Dr. Cook said that where there are two extremes there must be a mean, and he felt sure that Dr. Davis would finally succeed in striking it.

Dr. Murphy, in closing, said that he had a positive conviction that he could produce a practically perfect, freely movable joint, because he had done so. He did not dare to leave the lateral ligaments in, and he felt that what he did leave was enough to insure good motion. In cases of gonorrheal infection he did not follow out a different procedure from that employed in other cases of bony ankylosis. It was only necessary to avoid infection of the joint.

Paralysis of the Shoulder, with Especial Reference to Its Mechanical Treatment.—Dr. David Silver of Pittsburg first considered the relative frequency of paralysis of the upper extremity, and the reason for the regression of the paralysis in the arm and for its more frequent persistence in the deltoid. He reiterated the principle of relaxation in the treatment of paralyzed muscles, and described its application to the shoulder by means of a simple and comfortable appliance. Cases treated by this method were reported and photographs of them exhibited.

Presentation of Apparatus.—Dr. Phil Hoffman exhibited a modified osteoclast; and Dr. Compton Riely, a new osteoclast, a safety paralytic knee-brace lock, a combination clubfoot shoe and brace, and a clubfoot brace.

Dr. Little exhibited drawings of his osteoclast, which he had not brought with him.

Dr. Ridlon criticised all three osteoclasts and said that he preferred the Gratin.

Dr. Ryerson said that with the lever osteoclast one was liable to keep on pressing after the leg has been broken, and to push the fragment through the skin.

Dr. Wilson was pleased with the Little osteoclast, which he considered the simplest, most efficient, and easiest to manage of any he knew of. He would not use it for adult bones, however.

Dr. Hoffman said he had used his instrument five years. He said that the bearings of his osteoclast were as strong as those of the Gratin, and that it would break bones as easily. It was the other parts that were lighter, thus making his instrument portable. It was much simpler than the Gratin, and could be taken apart and cleaned. It was also much cheaper.

Dr. Riely said that the lever of his osteoclast could be released instantly. While it might be a little trouble to place the leg in the rings, there was no danger of its being caught there.

Operative Treatment of Intracapsular Fracture of the Hip Joint.—Dr. C. G. Davis of Philadelphia reported three cases in which, by open incision, the edges of an ununited fracture were freshened, and then the limb was put up, in the abducted position, in plaster of Paris. The result in the first two cases was good. The third patient could walk without support on her discharge from the hospital, but subsequently had an attack of rheumatism in the operated leg, requiring her to use crutches.

Dr. Wilson said that he had reported a case in which a nail had gone further than he intended, and had penetrated the acetabulum without causing any alarming conditions. He thought that this result must have been the reason for his success in other cases. In the case reported the patient was so pleased with the result that she refused to have the nail removed. He had not intended the nail to be so long, but had miscalculated, not having allowed for the pushing of the separated fragments together in the process of driving home the nail.

Dr. Stewart L. McCurdy of Pittsburg said that if the nail was within the capsule, and if the force used had been considerable, the ligamentum teres would be injured and its nutrition destroyed, the nail remaining in the joint as a foreign body. He had removed the nail in three cases in which this had happened and caused great pain. The patients all made a good recovery.

Dr. Peckham wondered whether it would not be a good thing to make the nail purposely long enough to go into the acetabulum.

Dr. Willard described a screw invented by one of his assistants. The screw part was made of ivory and the head of brass. The head was removed and the ivory subsequently became a part of the bone.

Surgery of the Motor Peripheral Nerves.—Dr. Alfred S. Taylor said that the application of surgery to peripheral nerves was based upon the power of nerves to regenerate, the power of one nerve to assume vicariously the function of another nerve of the same type, and the persistence of muscle for the regenerated nerve to act upon. The time that had elapsed since the onset of paralysis was of variable importance, while the condition of the paralyzed muscles was of prime importance. Accessory factors influencing the results were contractures of muscles and ligaments and undergrowth and deformity of bones, especially at the joint ends. He described the technique in end-to-end suture (nerve-crossing, if necessary), various methods of lateral anastomosis, and bridging and transplantation.

Dr. Ryerson did not think Spitzy's method of nerve transplantation very rational; and he considered Murphy's procedure very dangerous. He did not feel that one was justified in taking off healthy nerves to attach to a diseased one. He suggested the use of the dog's artery instead of catgut in the brachial plexus cases.

Dr. Charles E. Thompson of Scranton, Pa., said that he always employs catgut in his work. He described an operation done for nerve injury in each of five cases. The result in four of these was very satisfactory. The fifth was a case in which the spinal cord had been completely crushed. Dr. Thompson freed the two nerves on each side and traced them out along the ribs. He then drew them in, passed them down, and united them to the nerves below the injury. Nothing of the ultimate result could be known because the man died of an abdominal injury received at the same time as the injury to the cord.

Operation for Burn Scars.—Dr. Stewart L. McCurdy of Pittsburg described this operation, which consisted in extending cicatricial bands across joints by splitting them along the crest from end to end, and cutting to the right at a right angle from the end of the first cut, and to the left at the other end. The flaps thus made were dissected loose from the deep tissues. As the contracted portion was extended, the angles of the flaps dropped into the corners left by the end or right-angle incision.

Etiology and Treatment of Lateral Curvature.—Dr. P. W. Nathan stated as his conclusion that abnormal weight-bearing could not be the cause of spinal deviation. Static conditions were never responsible for organic or structural lateral curvature. These were caused by a distinct pathological process, which appeared at puberty and, after running a definite course, disappeared and left the spine deformed. After the disease had run its course, the deformity was incurable, although the posture might be improved.

Dr. McKenzie said that he had seen a well marked case of lateral curvature in an infant.

Dr. Lovett said that other statistics than those used by the author of the paper showed that a great many cases of lateral curvature appear before the age of ten years. He suggested that the condition may follow empyema, the curvature being to the sound side of the chest, and may also follow infantile paralysis of the muscles of one side of the back. He thought a great many curves were due to structural causes.

Dr. Sherman said that he had written a paper a long while ago, stating his view that scoliosis was due to a condition in the bone, probably rickets. This would give a basis for the structural change, followed by the definite deformity.

Dr. Nathan, in closing, said that the statistics quoted had merely confirmed his own findings. He admitted that empyema and infantile paralysis did sometimes produce scoliosis. The remainder of the cases that were not plainly due to rickets he considered to be those that came on before adolescence and immediately after puberty.

Saturday, June 6—Third Day.

The Mechanics of the Shoulder Joint from an Anatomical Point of View.—Dr. Joel E. Goldthwait of Boston said that the erect position of the shoulder was that of greatest stability, there being from 50° to 60° less motion in the rotation of the humerus in the glenoid cavity than when the shoulder drooped forward. In the latter position the lesser tuberosity of the humerus rested against the coracoid process, which was not above the head of the bone, but in front of it, in this droop shoulder position. This led to irritation at the point of pressure and to inflammation of the coracobrachialis bursa. The restriction of motion at this point that such an inflammation caused, with the change in the angle of the pull of the long head of the biceps tendon, favored and made easy displacements of the head of the humerus.

Dr. Riely said that he had noticed a click in his own shoulder on leaning forward, and was glad to have heard an explanation of it. He asked whether Dr. Goldthwait would advise its being operated on.

Dr. Albee referred to two cases of dislocation of the shoulder in young men, upon whom he had operated by a modified Burrell's method with satisfactory results, neither patient having had any recurrence of the dislocation.

Dr. Arnold had observed that when he had tried to relieve the shoulder from weight-bearing by putting it in a high sling the patients had had more pain than when the arm was hanging down. He was glad to have heard the explanation.

Dr. Goldthwait said that in writing the paper he had had in mind the ordinary spring-back brace. He believed that the ordinary position in which surgeons place the shoulder after traumatic dislocation was not the best position, being equivalent to the forward position of the shoulder. The arm should be tied to the side and rotated outward at a right angle. He said that subdeltoid and subcoracoid bursitis were frequently associated, but that often there was no subdeltoid bursitis. His opinion about Dr. Riely's "click" was that if the condition should go further, so that he could not get his shoulder back, operation would be advisable. The treatment in subdeltoid bursitis, he said, was the same as the treatment of any other bursitis. When an operation was performed, if the patient was not naturally erect, the surgeon should insist upon the shoulder being thrown back.

The Occurrence of Anterior Poliomyelitis in Massachusetts in 1907.—Dr. Robert W. Lovett gave the result of an inquiry addressed to every physician in Massachusetts, asking for a report of the cases seen in 1907. An analysis of 238 cases reported, with regard to distribution, time of occurrence, evidence of contagion, and other factors bearing on etiology, showed that the data obtained pointed to separate foci of infection, with transmission to neighboring towns.

The Necessity for Early Orthopedic Treatment of Poliomyelitis.—Dr. Wisner R. Townsend of New York stated that the majority of cases of poliomyelitis were followed by deformities, practically all of which could be prevented by appropriate treatment. They might occur very soon after the attack. Orthopedic treatment was desirable from the beginning. Statistics were given of the deformities occurring within eight months after the epidemic in 1907 in and around New York City.

Dr. Townsend said that he had never seen one genuine case of complete recovery. The cases in which recovery had been pronounced complete were those in which there had been marked depression and the paralysis had not been relieved, although this weakness had been improved.

Dr. McKenzie described an epidemic of the disease in Canada in 1905 or 1906. He had seen none of the cases during the attack; but the conditions in those that he had seen afterward were similar to the conditions ordinarily following infantile paralysis. He knew of two families having three children each left badly crippled by the illness. In the treatment he laid a great deal of emphasis on education. He cited at length a case to show the effects of educating the child gradually to use apparatus.

Dr. Ridlon said that he had seen during the last four years several cases of anterior poliomyelitis in adults, and he thought that care should be taken not to overlook its symptoms when they appeared in older persons.

Dr. Arnold said that the late epidemic of poliomyelitis had been felt in Connecticut also, where the same phenomena were noted as in Dr. Lovett's cases. He said that the disease also occurs epidemically among dogs, cats, and chickens. He had seen cases of complete recovery, especially in chickens. These epidemics usually occurred in the fall, and wet seasons were prone to bring them about. He suggested the use of these animals for the purpose of studying the pathology of the disease. As a transition between complete rest and putting the child on its feet, he suggested exercise on the floor.

Dr. Sherman referred to the use of electricity in such cases, and said that he regarded it as merely a means of irritating the child. He had always succeeded in getting a fair idea of the child's power to use the various muscles by tickling it or by picking its foot with the end of a match, in order to get it to try to use the muscles. He did not see how faradism to the muscles could affect the condition of the spinal cord, which was the seat of the disease. He suggested that pediatrists should always, when called in to see a sick child, test its power to use its muscles, as well as examine its throat.

Dr. Peckham was in sympathy with Dr. Townsend's plea for orthopedic treatment of these infantile cases, as well as with Dr. Sherman's views regarding electricity. He had quite given up the use of the latter.

Dr. Little said that his experience in England was also that the commonest history in such cases was that the child had gone to bed well and awakened paralyzed.

Dr. H. L. Taylor said that a careful examination of the voluntary power by a competent orthopedic surgeon would usually prove more useful than a report of the electrical examination by a neurologist. He himself had received reports of this kind absolutely misleading in the light of the clinical examination. He had found treatment to be absolutely harmful during the attack and for the first two months afterward, and to be absolutely useless after that time.

Dr. Lovett said that his reason for writing the paper had been to call the attention of the general practitioner to the inquiry, thus enabling them to recognize these cases better. He thought that the most sensible treatment would be to empty the bowels rather than to blister the spine. He thought that the disease was an intestinal infection with an anaërobic bacillus such as might be gotten through milk. He believed that the matter of partial paralysis received too little attention. A muscle might be either partly

or completely paralyzed, or simply stretched and disused. Between the stages of activity and paralysis there was a stage of slight weakness. He thought that more attention should be paid to voluntary attempts to move muscles and less to massage and electricity.

Drop Phalangette.—Dr. Walter G. Stern said that the essential lesion in this condition was a subcutaneous rupture, or an overstretching of the extensor tendon at or near its insertion into the distal phalanx. The deformity was produced by indirect violence, often slight. The power of active extension of the phalangette was lost, and the phalanx dropped down and remained flexed at a right angle. Passively, the finger could be fully extended. In three of his eight cases he had found it necessary to suture. The remainder were treated by splinting for six weeks. These were recent cases, operated on within a few weeks after the occurrence of the injury.

Typhoid Spine.—Dr. George B. Packard of Denver reported several cases.

Dr. John L. Porter of Chicago had found that patients who had left the hospital and returned later usually said that they had had pain in the spine since shortly after getting up. He believed that the severity of the condition was in proportion to the amount of inflammatory reaction. All his patients had recovered under the sole treatment of keeping the patient flat on his back.

Painful Feet of Raynaud's Disease.—Drs. H. Augustus Wilson and Charles H. Muschlitz of Philadelphia presented this paper, which was read by the former. They said that the painful feet of Raynaud's disease were of a peculiar character. The pains were symmetrical, worse in cold weather, easily affected by use, and not immediately relieved by rest; frequently the pain continued for a long time after the discontinuance of the function that had produced it. Characteristic bilateral gangrenous spots developed. The most trivial operative procedures were followed by nonhealing and sloughing. When the nails became loose the nail-beds sloughed more or less extensively if the nails were forcibly removed. Pressure apparatus of any kind was productive of sloughing and gangrenous spots.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Principles of Pathology. By J. George Adami, M.A., M.D., LL.D., F.R.S. 8vo, 948 pages, illustrated; cloth. Lea & Febiger, Philadelphia.

Ophthalmic Surgery. By Dr. Josef Meller. 8vo, 262 pages; cloth; $3.00 net. P. Blakiston's Son & Co., Philadelphia.

Essentials of Surgery. By Alwyne T. Compton, F.R.C.S. 12mo, 428 pages, illustrated; cloth; $1.50 net. W. T. Keener & Co., Chicago.

Consumption; How to Prevent It, and How to Live with It. By N. S. Davis, Jr., A.M., M.D., 12mo, 172 pages; cloth; $1.00 net. F. A. Davis Co., Philadelphia.

Transactions of the American Association of Genito-Urinary Surgeons. 8vo, 414 pages, illustrated; paper. The Grafton Press, New York.

Les Tumeurs du Sein. By V. Cornil. 8vo, 338 pages, illustrated; paper; 12 francs. Felix Alcan, Paris.

International Clinics. Edited by W. T. Longcope, M.D. 8vo, 304 pages, illustrated; cloth. J. B. Lippincott Co., Philadelphia.

Surgery. By John Allan Wyeth, M.D., LL.D. (Univ. of Alabama). 4to, 816 pages, illustrated; cloth. Marion Sims Wyeth & Company, New York.

Zeittafeln zur Geschichte der Medizin. By Prof. Dr. J. L. Pagel. Large 8vo; cloth. August Hirschwald, Berlin.

Bericht Uber den XIV. Internationalen Kongress fur Hygiene und Demographie. By Prof. Dr. Nietner. 8vo, 1,172 pages, illustrated; paper. August Hirschwald, Berlin.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending October 24, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	509	156
Diphtheria	322	17
Measles	133	6
Scarlet Fever	129	2
Smallpox	—	—
Varicella	82	—
Typhoid Fever	84	16
Whooping Cough	26	1
Cerebrospinal Meningitis	9	6
Malarial Fever	—	—
Totals	1294	204

The Vegetable Diet and the Lactofarinaceous Régime in Dyspepsias, Chronic Gastroenteritis, and Convalescence in Infants.—Clemente Ferreira recommends the use of farinaceous preparations in several pathological conditions in infants. In dyspepsias and gastroenteritis we often find that milk is not tolerated. After the symptoms of fermentation have been relieved by the use of the water diet there comes a time when milk will not be tolerated, but will renew the trouble and protract chronic enteritis eternally. Here is the place where the use of vegetable and lactofarinaceous preparations is useful. These substances predigested in the oven act as protectives against fermentation when mixed with milk foods. They are most useful in milk intolerance, recovery from acute intestinal troubles, chronic intestinal troubles, and in the dyspepsias of weaning.—*Archives de Médecine des Enfants.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending October 23, 1908:

		CASES	DEATHS
SMALLPOX—UNITED STATES.			
California, San Francisco	Sept. 12–Oct. 3	7	..
Massachusetts, Lawrence	Sept. 27–Oct. 3	..	1
Ohio, Cincinnati	Sept. 26–Oct. 2	2	..
Wisconsin, La Crosse	Sept. 27–Oct. 3	1	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Aug. 22–29	3	2
SMALLPOX—FOREIGN.			
Arabia, Aden	Sept. 7–14	..	9
Brazil, Rio de Janeiro	Aug. 31–Sept. 13	1,386	568
Santos	Aug. 31–Sept. 6	15	5
Ceylon, Colombo	Aug. 30–Sept. 5	9	11
Egypt, Cairo	Sept. 9–16	1	..
France, Paris	Sept. 19–26	1	..
India, Bombay	Sept. 1–8	..	4
Indo-China, Cholen	Aug. 22–29	1	..
Italy, General	Sept. 13–20	33	..
Naples	Sept. 29–Oct. 4	4	1
Palermo	Aug. 5–12	2	..
Japan, Kobe	Sept. 5–12	1	..
Java, Batavia	Aug. 8–22	9	1
Mexico, Acapulco	Sept. 19–26	3	..
Mexico City	Aug. 8–29	..	16
Norway, Christiania	Sept. 12–19	1	5
Portugal, Lisbon	Sept. 19–26	2	..
Russia, Warsaw	Sept. 22–29	..	4
Turkey, Bagdad	Aug. 30–Sept. 5	19	5
Constantinople	Sept. 13–20	..	12
YELLOW FEVER.			
Brazil, Manaos	Aug. 22–Sept. 5	..	2
Para	Sept. 12–26	2	2
Martinique, Fort de France	Sept. 12–19	3	..
Mexico, Merida	Sept. 19–Oct. 10	4	..
Vera Cruz	Oct. 19–20	3	..
CHOLERA—INSULAR.			
Philippine Islands, Manila	Aug. 22–29	20	16
Provinces	Aug. 22–29	1,103	686
CHOLERA—FOREIGN.			
China, Hongkong	Aug. 15–Sept. 5	10	10
India, Madras	Aug. 29–Sept. 11	..	230
Japan, Moji	To Sept. 16	36	13
Russia, General	Sept. 25–Oct. 1	3,251	2,429
Odessa	Sept. 11–25	11	8
Riga	Sept. 25	1	1
St. Petersburg	To Oct. 3	6,411	2,429
Straits Settlements, Singapore	Aug. 22–29	..	10
PLAGUE.			
Brazil, Rio de Janeiro	Sept. 6–13	1	..
China, Hongkong	Aug. 15–Sept. 5	5	6
Formosa, General	Aug. 8–15	9	2
India, General	Sept. 5–12	2,503	1,581
Bombay	Sept. 1–8	..	22
Rangoon	Aug. 22–Sept. 5	..	36
Indo-China, Saigon	Aug. 22–29	13	12
Japan, Kobe	Sept. 5–12	..	1
Trinidad, Port of Spain	Sept. 26–28	2	2
Venezuela, Caracas	Sept. 22–Oct. 4	2	1

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Original Articles.

THE DEVELOPMENT OF THE LEGAL RELATIONS CONCERNING THE INSANE, WITH SUGGESTIONS FOR REFORM.*

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NEW YORK.

ONE OF THE CONSULTING PHYSICIANS OF THE MANHATTAN STATE HOSPITALS FOR THE INSANE; FORMERLY PROFESSOR OF MENTAL DISEASES IN THE MEDICAL DEPARTMENT OF CORNELL UNIVERSITY; PRESIDENT OF THE NEW YORK PSYCHIATRICAL SOCIETY.

The object of this lecture is to point out the present disharmony between advanced psychiatry and the law, and to call attention to the dry-rot of medical jurisprudence so far as it relates to provisions for the proper commitment or liberation of insane patients, as well as to matters of responsibility and capacity. I would at the same time urge certain reforms in the direction of providing methods of relief, and an adequate and impartial expert system.

In this connection two great problems present themselves to our attention and will be considered to-night. The first deals with the justification of the inevitable restricion of liberty, and the retention and restraint for treatment against the patient's will or choice. The second implies the consideration of diminution or abolition of personal capacity and responsibility by reason of mental disorder.

The former must comprehend the determination of liberty, and therefore a consideration of the individual's rights, and at the same time a reference to the unsettled state of public opinion in regard to mental disorder in general, and what should be done. I shall also refer to the special indications which have to do with the sequestration of the patient. In this connection we are confronted with the popular and general prejudice among ignorant people against hospital treatment, for every one at all familiar with the commitment of insane subjects must know that institutions of this kind are generally regarded only as prisons in which persons are immured after being kidnapped, and that even among some of our judges there is often a disposition to look upon detention in pretty much the same way as they would the infliction of a sentence for wrong-doing, and they are consequently over-cautious. For a long time, and at present, more has been thought of the general safety of the public, and greater attention has been paid to the demands of cranks or ex-patients than to the actual need of the patients themselves. In fact much injudicious and oppressive legislation is due to the agitation of manifestly insane persons who have found the ears of law-makers and reformation societies. Personally I have known of numerous instances where sincere psychopathic patients, replete with delusions, have made untruthful assertions to sympathetic listeners, and it is against this that we have always to be on our guard and to act.

This very making of drastic laws has led to frequent collisions between medicine and law, and it is to be hoped in the future that some form of legislation will supplant that at present in general operation, and the attitude of those who have to deal with the commitment of patients will be rather what Dr. Meyer very happily calls a *reinforcement* of *persuasion* than an arbitrary or punitive action, as it is so commonly supposed to be.

Again, if the community is made to understand that insanity is, after all, a disease like any other, the provision of a temporary method of examination or special quarantine will be accepted as a matter of course, and the patient shall suffer no stigma or disgrace.

In regard to the discussion of the first part of the subject, we find that an appeal to the law, either for the commitment or discharge of patients, is about the first thing that is usually considered, the result being the infliction of a great deal of unnecessary injury to the subject in the way of court proceedings and newspaper publicity. On the contrary, the case of each patient should be first considered by the physician who attended him, in co-operation with those of the asylum to which he is to be sent, and perhaps the State Commissioner in Lunacy, and the latter should be given more power than that with which he is now invested.

The *second* problem, from its very nature, is one of the greatest importance, for it implies the definition of irresponsibility as the result of the insane condition, the consideration of the acts of the manifestly insane, and those which are insane in themselves; the determination whether there is any such thing as absolute responsibility or absolute irresponsibility; a history of the tests of insanity, and their evolution, and whether such tests as have been hitherto used are sufficiently adapted to our better knowledge of to-day.

It will in this connection be seen as well that the new psychiatry has much to do with the modification of our previous ideas regarding the value of testimony and capacity of every kind.

In connection with these two matters our relations with the law are concerned first in the *commitment* of patients, which varies in different states, the preliminaries consisting in either the examination of the alleged lunatic by one or two physicians who make a certificate which is approved by a judge of a Court of Record, or in other states by the testimony or the presentation of affidavits by one or more physicians, in con-

*Delivered at the New York Academy of Medicine under the auspices of the New York Psychiatrical Society.

junction with the next of kin or a self-constituted guardian, and it is requisite that the subject be brought before the judge or jury, unless the latter agree that it is unnecessary because of his condition or the harm it may do him to appear in court. His *removal* from an asylum may consist in the fact that he is either discharged as "cured" or "improved," or he may be allowed to depart on parole, or the ordinary process of *habeas corpus* may be invoked, when he may be either examined by a justice and commission, or, should there be a question of his property, the matter is left to the sheriff's jury. Despite the contention of sensationalists, there are ample laws which, if observed and enforced, would give him while detained the fullest liberty to appeal to the authorities who may be the Governor of the State, the State Commissioner in Lunacy, or any person occupying a judicial position. So far as his written communications are concerned they must be sent either to his family or to the State Commissioner at Albany, and if they are coherent should receive due attention. Of course it will be seen that the responsibility of the superintendent of an asylum is very great, for many of his patients are apt to deluge the mails, if permitted, with incoherent, obscene, and meaningless letters.

As far as my experience goes I do not believe that any patient is ever deprived of the right of appeal, or is ever wrongly kept in an asylum, and with the present careful system of inspection and study upon the part of the State Commissioner in Lunacy and his assistant, and by the physicians of the asylums themselves, no unjustly detained person is likely to escape the notice of these officials. Reference to the reports of the State Commissioner in Lunacy and the Insane Pavillion at Bellevue shows that a very small number of people are improperly committed, or even find their way to the State hospitals. This is the more extraordinary considering the difference of opinion as to what constitutes insanity.

The second problem, as has been said, deals with the impairment of personal capacity and responsibility by reason of mental disorder, and we are at times called upon in various matters of a civil and criminal nature. These legal measures include first the appointment of commissions or committees, and the establishment of guardianship, again matters of capacity so far as the making of contracts by the insane, and their *torts* are concerned, the latter word being used with reference to the malicious acts which persons may indulge in as the result of their mental infirmity, and these may possibly consist in trespass, injury to others, or destruction of property, and other acts which would render a sane person liable to a suit for damages. The contracts naturally may be of the most varied character, and the excuse of incompetence by reason of insanity is often urged as an invalidating factor either by a person who recovers and then seeks to avoid the disastrous consequences of a bargain or sale he has made, or the existence of previous insanity may be urged for the purpose of the annulment of marriage or procuration of divorce. Then again, the psychiatrist is often required to give evidence in regard to the testamentary capacity of those who make wills.

In the matter of the *probation of wills* the attitude of the law is exceedingly unsatisfactory. The two invalidating factors of a will that are generally recognized are the existence of delusions directly relating to the testator's knowledge of the objects of his bounty, and the nature and extent of his possessions, and the law holds that even though a man may be insane and have pathological delusions of various kinds, so long as these do not relate to the two conditions I have mentioned, he is held to have disposing power. The decedent a long time before his death may have even harbored delusions of a systematized character, but so long as they were not directly germane to those who had a right to his consideration, or would prevent him from knowing what he was giving away, his will has been upheld. The existence also of a more or less profound dementia has invalidated such instruments by showing that the testator had not enough power to resist the importunities of others, or that he was, in the eyes of the law, *non compos mentis?*

No one familiar with the disposal of these cases has not at some time witnessed the effect of the recital of a variety of eccentric or credulous acts which have been attributed to an ignorant person, and which have influenced the surrogate or jury to upset a perfectly reasonable and equitable will. In the contest of the will, especially of an old and weak person, the door is opened for the testimony of the ignorant or those possessed of cupidity, who are as apt as not to urge the unconventional acts of an otherwise sane and disposing mind as evidences of insanity. The pity of it all is that the surrogate or jury, who are not judges of psychopathic disorders, are the sole arbiters of what constitutes true mental derangement, and as the law is now constituted there is no adequate appeal.

In criminal matters insanity as a defense is too familiar to at this time need further reference. Not only in civil but in criminal proceedings are we to gauge the defendant's alleged irresponsible condition, but we are to determine the amount of responsibility, and whether, as Mercier puts it, he is "rightly liable to punishment"; to pass judgment upon the worth of the testimony of such a person, and it is even sometimes our duty to investigate the unfitness of a juryman who becomes insane during the course of the trial, as has happened several times in my experience.

Before finally and directly passing upon the matter of insanity as a defense, the alienist may be required either as a member of a *commission* or as an expert to determine whether the indicated person suffers from a mental disorder which will prevent him from properly communicating with those who are to defend him.

In regard to the latter there has been a growing conviction among those concerned in the care of criminal lunatics that the machinery for their disposal is inadequate. It has been the custom, at least in this State, when a person is under indictment and is thought to be insane, for his own counsel or any citizen to move for the appointment of a commission for the purpose of determining whether he is at the time of unsound mind. This commission is appointed by one of the Supreme Court justices, or a judge of one of the lower Criminal Courts, and consists of a lawyer, a layman, and a physician, who are to listen to witnesses and eventually make a report to the judge who appointed them. It will be seen from the constitution of this body that the doctor is always in the minority, and it is often that he is out-voted because his fellow commissioners are inclined to take the popular and hazy

view of what constitutes insanity. Although he is empowered and expected to conduct such an examination as he may see fit, this proceeding makes him in a measure a witness instead of a judge, for he has to explain to his colleagues the significance of the answers he receives or the meaning of the prisoner's actions. This form of procedure sometimes leads to the greatest miscarriage of justice through prejudice, political leanings, or sympathy with the indicted person, and it can readily be conceived how a malingerer may be sent to an asylum until the public excitement has subsided, when he is to be tried for the crime itself. The decision of the commission at this later date may be utilized by the prisoner's counsel, and then has much to do in the way of mitigating the original offense, if not securing an acquittal.

It is to be regretted that under the present system the State Commissioner in Lunacy is permitted to testify as an expert in court, and he is often chosen by one side or the other because of the weight attached to his official title. No matter how fair-minded and honorable such an official may be—and so far as my experience is concerned the incumbents of the office have usually been men of standing and integrity—it must be seen that the position of Commissioner after he has given his testimony *pro* or *con* must be an exceedingly delicate one, as the adjudged lunatic may be committed to an institution which he visits, and as it is his duty to recommend the discharge of sane or recovered patients, it may be conceived in what an awkward dilemma he is placed if he has committed himself on the witness stand, especially if his testimony be to the effect that the person is not insane.

In this connection reference may be made to the abuse of confidence where a physician or an expert may disclose information obtained in confidence. In the case of The People versus Hoch it was held by the Court of Appeals that "The examination by a physician of a person accused of crime at the special employment of people for purposes of prosecution, is not the attending physician of the patient in a professional capacity, and the physician is not rendered incompetent on that ground to disclose information acquired by him in such examination."

While this decision is undoubtedly strictly true and in accord with the law, it may be seen how a disingenuous and prejudiced examiner may pump the prisoner or become the same as any other witness for the prosecution if compelled to testify. When such a physician couples his testimony with that of a general expert character, which is injurious to the prisoner his attitude is a highly dangerous one. Under these circumstances the attitude of the prosecution's expert is as a rule open to the criticism of unfairness and partisanship, and it may be seen how a dishonest man may deny to the suspected person the fair play to which he is entitled, and this is certainly an argument for a neutral board of expert examiners, whose opinions shall be founded upon the conduct of the prisoner, and who shall decide whether he is responsible or irresponsible. In other words, the physician should not be asked to be a detective whose opinion has been developed with guilt in view.

Before proceeding further something may be said about the development of the legal consideration of insanity, and it is hardly an exaggeration to say that little or no change has taken place in the legal estimate of insanity since the days of Lord Hale or Sir Edward Coke, more than three hundred years ago. To say the least, there has certainly been a disproportionate advance when we recognize the strides that have been made in the field of mental medicine. For some inscrutable reason there seems to have been tardy reluctance upon the part of our sister profession to abandon the old idea that existed so long ago that in reality there was but one form of insanity, and that essentially hopeless and continuous: in other words, that the unfortunate subject was in the beginning bereft of his senses or reduced to the level of a brute or wild beast, to be shunned or avoided generally and to be denied all consideration.

In the meantime the study of mental disease has made astonishing advances, and with this we now find that the insane are not merely incarcerated, but intelligently treated. But we still find ourselves hampered somewhat by the inadequacy of the laws and provisions for the proper control of people mentally afflicted, and there is yet no legislation that will enable us to keep non-committed people under observation for more than the present five days, so that it may be determined whether the real malady is one of a temporary nature and better treated in a so-called psychopathic hospital, or sent to a regular asylum.

It is also to be regretted that proper provision has not been made for those whom Bianchi calls *the delinquents*, especially the very young who have criminal tendencies in connection with a form of congenital imbecility. Intelligent care and discipline are needed under these circumstances for the children of the rich as well as the poor, and correctional schools are a vital necessity. As it is to-day, vagabondage, dishonesty, precocious sexual vice, and other early evidences of immorality that are the product of a high-grade imbecility or other defective condition, are not dealt with until the subject is brought into the children's court, or his crime leads to his incarceration in the Elmira Reformatory, the chance being that the evolution of criminal tendencies without restraint for so long a time has terminated in habitual criminalism.

In this connection attention should be called to the large number of paranoiac insane who have been improperly discharged from institutions, or in the past those who have not even found their way there, and are always a menace to the community. Greater supervision of these people is urged upon the city magistrates, for my own experience convinces me that every year numerous prisoners who are sent to the workhouse or penitentiary for short periods of time should rather be given the benefit of asylum treatment and discipline, as they are undoubtedly irresponsible, and belong to the large class of congenital psychopathic degenerates.

I would also urge an improved paternal system and the appointment of visitors or special guardians who shall directly look after the committed person's interests, even where there is no regularly appointed committee of the person, as this class are as a rule poor and have no friends, and their little savings are misused. The time of the State Commissioner in Lunacy and his assistant certainly does not allow them to take the intimate interest that is needed in all patients, and it is for this reason that I would urge a semi-judicial board of active visitors, the members of

which shall be approved by the superintendent of the asylum and the State Commissioner in Lunacy; or an outside board or association may act in co-operation with the Hospital Staff.

The French law provides not only for the voluntary commitment of patients, but for a mode of surveillance of these commitals, while both in France and in England, if an insane person is taken care of at home, he is regularly visited by the authorities, and if in a private or public asylum, he is represented by a provisory administrator, who recovers the sums due to the patient, pays his debts, gives bail, which may not be longer than for three years, and he may even, by virtue of special authority, granted by the president of the civil court, sell the patient's furniture and other effects for his benefit. This administrator in a measure compares with the "guardian of a person" appointed by our sheriff's juries and courts, but there is none of the involved machinery of our system in vogue, and none of the great expense.

The American laws in regard to *divorce* and *marriage* of the insane are in the present shape exceedingly unsatisfactory, and as a rule the Courts are simply guided by the rules of common law. The interposition of insanity, as it is in ordinary contracts, as a factor in the annulment of marriage and the procurement of divorce, is differently considered by many States, and one of them, Florida, afterward repealed a law of this kind that had been made to suit certain temporary exigencies. There seems to be a disposition to regard post-nuptial insanity as a valid cause for divorce, but this appears to be to the writer a brutal excuse, for there is no reason why a man should not take care of his afflicted wife after her marriage just as much as if she suffered from tuberculosis, cancer, or any other physical disease. On the other hand, the laws are lax and variable regarding the failure to apprise one of the contracting parties to the marriage of the previous insanity of the other.

Legislation should be invoked now that our knowledge of the psychoses is so different from what it was even a few years ago, for we now know the importance and possibility of a return in such afflictions as *circular* and *manic-depressive* insanity, and there should be no concealment of the previously existing psychosis upon the part of the contracting parties to the marriage, or on the part of their parents or physicians, through any motives of false shame. If found to be of a deteriorating or recurrent type, its consequences should be pointed out so that an intelligent agreement could be made if the contracting parties chose to take the risk. It is not, however, to be assumed that there is always a deliberate attempt at deception, for many people uneducated in psychiatry may even regard what may be serious periodic seizures as some temporary autotoxic or exhaustive psychosis or some temporary affection.

The experience of a good many years has impressed me with the horrible consequences of this kind of concealment upon the part of worldly or inconsiderate parents, and I have known of several young people whose lives have been wrecked by the espousal of a mate who had presented, previous to the marriage, one or two attacks of periodic trouble, and whose malady later advanced in the conventional way. It is needless to say that the insane person is usually ignorant of the importance of the pre-nuptial psychosis, but the real persons to blame are the parents. At some future time the attention of legislative bodies will undoubtedly be directed to this matter, just as they are to tuberculosis in some of the western States, and the day may not be far distant when the matter of bad heredity may either be made a bar to marriage, or may be properly urged in plea of separation or divorce, if for no other reason than to prevent the perpetuation of a diseased stock.

In the consideration of the laws relating to insanity, we come now to another branch, and that concerns the attitude of the courts in regard to criminal and civil matters where the question of unsoundness arises regarding the individual and his responsibility. I have elsewhere referred to the reluctance of the legal fraternity to avail themselves of the teaching of psychological medicine. Without going into history I may call attention to the fact that as late as 1723 there was no standard of responsibility, and even then Lord Onslow held "that it was not every kind of frantic mood or something unaccountable in a man's actions that points him out to be such a madman as is exempt from punishment. It must be a man who is totally deprived of his understanding and memory and does not know what he is doing any more than an infant or a brute or a wild beast. Such is never the subject of punishment." This way of considering responsibility remained in force until the year 1800, when Hadfield attempted to shoot King George III. in Drury Lane Theatre, when Erskine first laid down the doctrine of delusion as the real test of mental responsibility, and twelve years later, in the Dillingham case, it was held that, though a man might be incapable of transacting his ordinary business affairs, he must also be so influenced by his disease as not to know the difference between right and wrong. This was the beginning of the "right and wrong test" which for a long time, and even to-day with many jurists, simply implies the ability of the arraigned individual to have what might be called a technical knowledge of right and wrong —that is, for instance, that murder is forbidden by law, and that the punishment is death; but slowly, and after a long space of time, other qualifications have been added to the definition of irresponsibility, so that the element of want of control, the inhibition of will power, or the influence of specific delusions pertaining to the crime, have come to be regarded as exculpating factors.

About twenty-five years ago the writer, in the Liebküchner case, in which a woman poisoned her children under the influence of a delusion, made the distinction between a recognition of an *abstract* right and wrong, and the abolition of the applied or personal appreciation of the character of the act through disease and delusion, and the patient was sent to Matteawan, but even to-day there is a disposition to insist upon the antiquated test. In the first trial of Thaw a number of experts retained by the District Attorney certified that the defendant "knew the nature and quality of his act, and that it was wrong," and subsequently expressed it as their opinion that he was insane and paranoiac. Not only must we all be concerned with the impropriety of a medical man taking upon himself to say what constitutes "legal insanity," but we must deplore that kind of "fencing" which prevents the expert witness from admitting that a delusional lunatic

may have a clear knowledge of how an *insane act* is to be performed and that it is technically illegal. In this case medical jurisprudence took a great step backward.

On the whole, however, much progress in the matter of the humane consideration of the irresponsibility of insane people has been made in this country, and many of the courts have shown a tendency to coöperate with our own profession. Recognizing the influence of disease in destroying self-control, in 1844 Chief Justice Shaw, in the case of the Commonwealth versus Rogers, and in 1874 Chief Justice Perly, of New Hampshire, in the case of the State versus Pike, made decisions which illustrate this progressive tendency. It was held in the former case that "a person is not responsible for any criminal act he may commit if, by reason of mental infirmity, he is unable to distinguish between right and wrong in regard to the particular act, and of knowing that the act itself would subject him to punishment; or has no will, no conscience, nor controlling mental power; or has insufficient power of memory to recollect relations in which others stand to him and in which he stands to them; or has his reason, conscience, and judgment so overwhelmed by the violence of the disease as to act from an irresistible, uncontrollable impulse." In the second case Chief Justice Perly charged the jury among other things as follows: "You have only to consider, first, whether the prisoner was laboring under a mental disease, and secondly, such being admitted, whether the acts in question were the offspring of that disease." This seems to be a succinct and strong statement of irresponsibility, and if followed would avoid much of the hair-splitting conflicts which in the end usually involve a theological or metaphysical discussion and leave the jury in a hopeless condition of uncertainty and confusion.

One of the important tests of responsibility, as we all know, is delusion. While false beliefs may be entertained by sane as well as insane persons, of course the former have little or no weight. An ordinary false belief, or one that can be removed by proper evidence, is therefore not likely to be necessarily associated with a condition of insanity, although very often it is rather hard to draw the line between healthy and morbid false beliefs. On many occasions those of us who go upon the stand are asked whether the delusions of certain religious sects are not pathological, as, for instance, the belief in the immaculate conception, the miracles of the Bible, a belief in spiritualism, or even of Christian Science. Of course, preposterous as we believe some of these to be, it cannot be denied that they are held by a large number of good people who are not insane. There is undoubtedly, however, at times, no sharp dividing line between beliefs of this kind, which many people hold to be false or illogical, and those that are essentially abnormal. Putting aside those of the first class, which are sometimes what may be called autodelusions—in other words, erroneous ideas developed and nurtured by the individual himself either as the result of teaching or faith, or because their adoption leads to material and spiritual benefit and comfort, the ordinary false belief may form the *quasi* substantial basis of a distinctly insane delusion, such, for instance, as when a religious man sincerely believes he is commanded by God to kill some other person, or to do some erratic act, or, as has been the case, a man wishes to commit suicide, and, believing it to be a sin, has murdered another person that he himself might be executed by the authorities.

An insane delusion really is a "false belief which exists only in the disordered imagination of the individual," and which cannot be removed by the presentation of sufficient proof. It has by some been more simply defined as a false belief which is the result of disease. It is to be regretted that so far the law concerns itself solely with the pertinency of such delusion to the act in question, when after all it ignores the general disturbance that leads to the formation of this opinion, and the important truth that there are never actually limited delusions, but at some time or other the one in question may be simply a link in the chain of a far-reaching disorder.

The same narrow and hoary views as were held regarding Criminal Insanity as a defense in crime, have been upon the statute books from the earliest times, and are referred to to-day in civil matters.

Can anything be more untrue and illiberal than the antiquated statement in Chitty on Contracts, which is also held by Cowles and Bracton, that it is a well-established rule that a deaf mute cannot make a gift because he cannot express his consent to a gift, and for the same reason a lunatic, or any person of unsound mind, unless he enjoys lucid intervals, cannot make a gift. Again, that a lunatic cannot transact *any* business because he cannot comprehend the nature of the transaction. And still more incredible is the arbitrary legal claim that it is manifest at the outset that idiots and lunatics have no mind and cannot be said therefore to agree in mind in the sense necessary to form a contract."*

Happily this ironclad dictum is not taken literally, for there is a constantly increasing tendency in the way of liberality, to segregate insane acts and to analyze the mental disturbance of the person so as to determine at the time what may be his exact capacity, although there are many jurists, and even members of our own profession, who still believe that if a man suffers from a psychosis, his capacity and responsibility are absolutely abolished in all directions. The term "lucid interval" has been abused by the courts, for it cannot be accepted that any well-established insanity, can be characterized by periods when the mind is absolutely healthy, although to a layman this may be apparent; but as I have said, it should not follow that an insane person may not know the nature and quality of many acts.

When mental disease is studied from the purely psychological standpoint there may be a more rational *rapprochement* between the jurist and the doctor in regard to the conservation of certain faculties, even when there is much general psychic disorder.

Proceeding upon lines which have been in vogue from time immemorial, the terms of our justices are consumed with trivialities, the pockets of our clients are depleted to an unnecessary degree, while in these days of disreputable journalism their affairs are given publicity which can only bring unhappiness and misery to the alleged lunatic and his family, and can do no other good than to gratify the vulgar curiosity of the idle and ignorant. To those familiar with the great trials in this city and elsewhere where insanity is urged as a defense, there must be nothing but disapprobation of the protracted and

*Ordronaux, p. 299.

sensational conduct of capital cases which, as a rule, degenerate into a war between experts and so-called authorities, and where the prosecuting officer or his opponent, as a result of cramming, indulge in a profitless battle of words and crude psychiatry.

Usually upon the testimony of more or less ill-informed or prejudiced people, one side or the other frames a hypothetical question which, judging from its effect upon the experts and the jury, may really be denominated, as it was the other day by an alderman, as a "hypnotical" question. The lawyer, with little or no knowledge of insanity, crowds into this many alleged incidents which have no bearing whatever upon the conduct of the individual so far as real insanity is concerned, and it is usually immediately pulled to pieces by the other side. And then again, we are all familiar with the evils of expert testimony. Even a good and conscientious man can be made to make himself ridiculous by adhering to the legal obligations to stultify himself by the consideration of an incongruous collection of statements. In this connection I cannot too strongly condemn the present system of taking such false experts at their own valuation, and admitting to the courts men who are utterly without qualification, who are ready one day to give "expert testimony" when a gynecological or surgical point is the issue, and the next to give learned opinions about psychiatry.

The difficulties encountered in approaching these matters are largely dependent upon the very rudimentary and insufficient knowledge upon the part not only of the courts, but of the want of familiarity of the general public with insanity, and the paucity of information contained in any legal book, or in the ordinary treatises upon medical jurisprudence. At best the latter content themselves with the classification of fifty years ago, and contain few if any of the representative and illustrative cases which have been reported from time to time, and which review the advanced legal requirements of criminal and civil responsibility.

The public ignorance of insanity is hardly to be wondered at, and, as a rule, there are only retained popular traditions in regard to what constitutes mental unsoundness. It would not be a difficult matter to have the State constitution so amended that inquisitions would be referred always to a commission and jury hearings abolished. Juries of all kinds are apt to be governed by prejudice and sentiment. This is notably the case when the sheriff empanels a petit jury from all sorts of undesirable people. In a recent habeas corpus case where an old woman with a delusional psychosis, who had been incarcerated for many years, came before such a jury, tha body found her sane and ordered her freedom, although a majority of the commission objected. A clever but unprincipled lawyer worked upon the feelings of five of the jury who were "veterans" by showing that "she had been good to the soldiers during the civil war."

In a recent case which was tried by Mr. Justice Truax, in which a paranoiac named Russell applied for a writ of habeas corpus and was given nearly a week and the fullest opportunities for stating his case. Although possessing what might be called the legal instinct, and the highly developed logical sense which goes with reasoning insanity, he gave ample proof that he was the victim of a very complex series of delusions of persecution and suspicion which had existed for many years. While acting as bookkeeper in Sing Sing prison, where he was confined many years ago, he discovered what he supposed to be an error in the accounts, and developed the delusive belief that the prison officials were guilty of theft. This grew into the fixed delusion that his knowledge of the guilt of others had brought down upon him their enmity—that they had tried to poison him or get rid of him so that they might remain unpunished. In consequence he made various charges, and, his insanity being recognized, he was transferred upon a later occasion to Dannemora. From this place he applied for various writs of habeas corpus, and when refused he accused the judges who denied his application of being in a conspiracy with the original criminals, and the Governor of the State himself was believed by Russell to conspire to silence or imprison him. A decent evening newspaper was found to seriously question his insanity, and the justice of the dismissal of the writ, and I have since learned that the expression of the writer of the article simply voices a widespread impression in regard to the case.

But again, our own profession is not entirely blameless in the matter of unsettling public opinion and creating distrust of expert testimony. I know of a case in which one woman was declared insane because she walked in the wet grass (following the treatment of Kneipp), and another sane, or "at least very nearly so," who declared that she was at the same time Queen Victoria, the Duchess of Kent, and the Duchess of Asturia, and, not satisfied with these female titles, she called herself Lord Baltimore.

One obstacle to harmony between courts of law, and those of us who go to court, is the *vagueness of certain terms* which find their way into legal and textbooks. I suppose more discussion has arisen in regard to what "unsoundness of mind" means than any other legal term. Then, too, the terms "idiocy" and "dementia" are often made by members of the legal profession, or held by the court to cover various psychoses with widely different symptoms, and where the influence upon the responsibility or capacity is most important. In country courts especially it is very common to find all insane persons called "demented," and while this is etymologically correct, it is clinically wrong. The advance in our modern study of mental disease has, in the last ten years, absolutely changed the groupings. It will be seen, therefore, that all our old use of terms, especially when we make use of historical cases reported in the language of the trial and legal decisions, and the older textbooks, is likely to lead us into much trouble and confusion.

More full legislation is certainly needed for the care and protection of the so-called *borderland cases* and of the *alcoholics*, for as the criminal law now stands there is a disposition to consider all people responsible who commit crimes as a result of drunkenness. Of course this is based upon the assumption that "men put poison in their mouths to steal away their brains," but here, again, we are often confronted with the existence of psychopathic states due to defective heredity, where at least some allowance should be made for the unfortunate inheritance. The prejudice against alcoholism as a defense really extends to the diseases known as acute or chronic alcoholism, and the only hope of the defense or for the establishment of incapacity or irresponsibility

is where, through a pronounced or continued toxemia or through structural alterations, mental enfeeblement or actual delusions are produced. Of course the difficulty of judging of the extent of mental enfeeblement in all these cases, as well as those due to drug habits, is very great, but we ought at least to recognize, as the French and others do, a limited responsibility or capacity. In criminal cases this is absolutely necessary, for there are not only many psychoses due to intoxication of various kinds, but hysteroid psychoses or states due to autosuggestion, where the extenuation is not complete; it seems, therefore, an injustice here again to apply the hard-and-fast rules of law which exact the arbitrary standard of right and wrong.

What we need is some legal cognizance of, and better measures for the protection of the community, in the vague cases where doubtful responsibility has led to the infliction of insufficient or unsettled punishment; or where the defendant, although believed to be mentally affected, is incarcerated in a prison instead of a criminal asylum. As an example of such a case I may refer to that of "Rousseau," the man who undertook to blow up the steamship *Umbria,* and who placed infernal machines and bombs beneath statues in Washington and elsewhere. A commission subsequently declared him responsible, although they were inclined to believe that he was "medically insane," whatever that may mean. He was sent to Sing Sing, where he now remains, with many others who are controlled as other prisoners are, but who will eventually be discharged. Of course when this occurs the community may suffer from some fresh act of violence or through the dangerous proclivities of the person whose insanity is so imperfectly recognized, and it really seems as if some subsequent espionage was a matter of necessity.

A provision recognizing the limited or partial responsibility has found place in the jurisprudence of most of the foreign courts, but not in our own or those of Great Britain. Legrand de Saulle has insisted upon the presentation of this as a defense, especially in hysterics, and where the psychosis does not imply the total extinction of the ethical sense through disease.

Von Liszt of Berlin has recommended certain measures for the management of individuals of limited responsibility which, though radical, are a decided advance in the right direction. If a person is declared not guilty because of irresponsibility, or if the full penalty is not imposed because of diminished responsibility, the Court is to fix a provisional detention and also to settle the guardianship. The following provisions are recommended:

1. Diminished responsibility with danger to the community demands a lesser degree of punishment.

2. Diminished responsibility with danger to the community demands mild punishment and detention.

(a) If a person is fit to be punished, the penalty is inflicted and the detention interrupted.

(b) If the prisoner is not fit to be punished detention is resorted to immediately and punishment is deferred.

The consideration of the justice of this is not to be gone into here, but Bleuler in criticising von Liszt's plan is of the opinion that it is open to objection because in some cases it implies retaliation.

In other countries greater harmony exists and the machinery of law is much more expeditious than it is with us. Under the English system no matter how insane a man may be, his technical guilt is established by the ordinary rules of evidence, and the consideration of the plea of insanity subsequently receives the attention of the expert sent by the Home Secretary. In Germany and France much more help is derived from alienists in a quiet way than it is here, and commissions with extensive powers settle the question. In France the medical man is prevented from expressing anything more than a full opinion of the purely medical side of the case and making a diagnosis. "He is neither judge, accuser nor defender, but it is the commissioner of police and the mayors in other cities who may order all necessary measures, supported by a doctor's certificate, with the understanding that within twenty-four hours a report must be made to the prefect, who, without delay, shall act thereon."

It seems to me that the first step in advance is an absolute change in the present *expert system,* and that as a substitute therefor experts should be selected by the Academy of Medicine and the Psychiatrical Society, or elsewhere by county socities; that the candidates should receive the approval of the Appellate Division of the Supreme Court upon the production of the necessary affidavits and endorsements as to character and experience, and that from this number appointments should be made at the instance of the trial judges, after conference with both attorneys. The person so selected should make a full examination, not only of all incidents of the patient's previous life, but of all the symptoms and the conditions that might enter into the disputed point. In fact, it should be in every sense a medical examination made by a doctor, and there should be no consideration on his part of the legal aspect of the case. Of course the right of cross-examination would be extended to the expert, who is really, after all, an *amicus curiae.* His compensation should be determined by a regular fixed scale of charges commensurate with his standing in his profession.

The action of the Supreme Court of the District of Columbia in the Schneider case is suggestive of what may be done to avoid a contest of experts.

The prisoner, after having been convicted of a double murder, with a plea of self-defense, was afterwards refused a new trial by the Appellate Court. It was alleged that he at this time began to manifest symptoms of insanity, and at the instance of Chief Justice Bingham and Justices Hagner and Cox, three physicians—of whom I was one—were invited to take testimony, interrogate the witnesses who had appeared at the original trial, and examine the prisoner.*

*An attempt in the right direction has been inaugurated by Justice Warren Foster of the Court of General Sessions of this city in the appointment of a medical commission to determine the mental condition of Charlotte Hitchcock, who killed her husband in November, 1907. Drs. Carlos McDonald, Frank W. Robertson, and the writer were chosen by the Court to take testimony and to report not only upon the condition of the woman at the time of the alleged murder, but at the present time, the purpose being to avoid the battle of experts which has been the feature of recent proceedings in the New York courts, and to take the matter away from a lay jury, who naturally know nothing about psychiatry and who have good reason to discredit all expert testimony when men of apparent equality in professional attainments swear diametrically opposite. If the report of this commission is to the effect that the woman is insane, she is to be committed to an institution, and if not, she is to stand trial in the ordinary way.

In criminal cases where the defense of insanity is urged, the indicted person should be sent to some public institution for the insane for three or six months to be absolutely under the supervision of impersonal observers and visited by the Court's expert, who should from time to time report. No injustice could arise from this measure, for certainly if the defendant were insane this kind of care would be a necessity under all circumstances. If he were feigning it could be readily detected and he would certainly be removed from any help in that direction, or from the assiduous attentions of a certain sensational portion of the press.

An observation law of this kind has been in successful operation for many years in the States of Maine, Vermont and New Hampshire, and within a year or two has been in force in Massachusetts.

In this connection I approach a subject in regard to which I do not wish to be misunderstood. That is the absolute disregard not only of person but of public rights by certain newspapers who are inclined to mold public opinion, perhaps not always deliberately, but in the course of procuring sensations for the idle and unthinking. It is all very well to speak of the so-called freedom of the press, but in several criminal proceedings of late this freedom has degenerated into license, in some cases leading to the hounding and conviction of individuals whose guilt was at least a matter of doubt, or who have been eventually acquitted after a dreadful experience in the death chamber; or, on the other hand, the release of clearly guilty individuals as the result of manufactured maudlin sentiment and misplaced sympathy.

They deal with these things more vigorously abroad, and I am familiar with a case which was recently tried in London where a sensational reporter, who had served his apprenticeship in this country, attempted to influence English public opinion in advance as to the guilt of the prisoner, and was promptly brought to the bar of the court and reprimanded by the Lord Chief Justice, the ultimate result being, as I believe, the passage of an act of Parliament which made it a misdemeanor to interfere in this way with the rights of the prisoner or anticipate the action of the Court. Happily in this country there has been an attempt to meet this evil, and in the Terranova case Mr. Justice Scott vigorously and courageously called attention to the misrepresentation on the part of one newspaper. If most of these cases were tried less publicly, with the exclusion of the photographers, and the sickening screeds of what are known as "lady journalists," there is no doubt that much mischief might be averted and public morality would not be debauched as it is at present. In one case in which I appeared I have no doubt that the defendant, an ignorant young Italian girl, through these agencies and through morbid vanity that had been engendered, had been really placed in a hysteroid condition and was unable to fully appreciate the gravity of her position and properly instruct her counsel. Certainly many civil cases in the nature of hearings, or where a commission is appointed to dispose of the matter, should be tried *in camera*.

In conclusion I may briefly recapitulate, suggesting certain measures and making the following recommendations:

1. There should be obligatory information of the commissioner in lunacy in regard to the existence of all cases of insanity.

2. Though the commissioner in lunacy may have power to license private institutions, he should also be empowered to formulate additional requirements which would put some of them on a much higher standard than they occupy at present.

3. Commitments are chiefly to be looked upon as reinforcements by the judge of the persuasions exerted by the friends, physician, and family of the patient, and should be resorted to only when the latter cannot be persuaded to go to the asylum.

4. Everything should be done to make the appeals of committed patients available. There should be severe punishment for the suppression of letters, or interference in any way with the alleged lunatic's rights.

5. There should be material reform in the attitude of the law regarding capacity and criminal responsibility, insane acts in themselves, in any relation they may have, receiving more weight than heretofore.

6. There should be a departure from conventions in old and arbitrary definitions.

7. Special insane acts should be studied with reference to the crime itself in a way they have not been up to this time.

8. The attitude of the courts should be much more charitable to the medical witness than it is to-day, the intelligent medical man being put in possession of all the facts in the case and not being obliged to answer restricted questions which place him in a false position, and which are deficient in the presentation of the facts.

9. In all matters involving the determination of capacity or responsibility the medical man should be required to prepare a brief which should form the basis of his cross-examination, and this, if necessary, must be supported by extraneous evidence which has received the sanction of the court as to heredity, previous history, and facts communicated by others.

OPERATIVE AND NON-OPERATIVE FIBROID TUMORS OF THE UTERUS.*

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Because of the great frequency of fibroid tumors in women I am led to discuss this question with you to-day. The number of women who suffer from fibroid tumors of the uterus far exceeds the number of those who are afflicted with other varieties of tumors.

While it is said that cancer is on the increase, and has been for a long time, it must be conceded that fibromyoma of the uterus, pure and simple, is still the tumor that is discovered the most often by the general practitioner, in city and country.

The question of operation for the removal of these tumors is of momentous importance to the patient, for she may be a girl of sixteen or a woman of fifty. To mutilate the generative organs of a young woman, who has a small fibroid of the uterus, unsexing her, or at least causing her to be sterile, when possibly she could be blessed by motherhood without it, I say such mutilation is as

*Read at Binghamton, N. Y., at the annual meeting of the Sixth District Branch of the Medical Society of the State of New York, October 6, 1908.

reprehensible as any damage that could befall a woman. Many women are known to carry fibroid tumors of the uterus from puberty to senile womanhood, without prominent symptoms. To say, as some writers do, that all fibromyomata should be removed as soon as diagnosed, is as unscientific as the statement is reckless.

When to operate, or not to operate, must be decided after a painstaking, discriminating diagnosis. Only after one has most conscientiously taken into consideration whether the tumor is simply a fibroid without complications, or whether it has complications or is a mixed tumor, can he decide to operate or not to operate.

I am persuaded that the greatest fault with the major portion of the profession is in overlooking early diagnostic symptoms and signs of uterine tumors, thus neglecting to make, or delaying in making an examination to ascertain the nature of the growth, until it becomes a formidable affair.

Last year at Ithaca, before this branch of the New York State Society, I read a paper on "Fibroid Tumors of the Uterus and Their Treatment," emphasizing the importance of recognizing dysmenorrhea at puberty, as an unfailing indication for an examination of the patient to ascertain and remove the cause of the dysmenorrhea. In that paper I stated that, of the last fifty cases of uterine fibroids seen in my private practice, forty-nine gave a distinct history of dysmenorrhea at puberty. Since that time I can add twenty-two more cases of uterine tumors to my series, and all but two of these gave a distinct history of pain with menstruation at puberty.

Of the seventy-one cases then, there were 95.78 per cent. that suffered pain and only 4.22 per cent. that did not suffer pain at the first menstrual period. What do these cases or statistics teach? Have we not the right to infer from them that, when a girl or woman presents herself to the physician with the history of painful menstruation, there is an abnormal condition of the uterus or endometrium that demands immediate attention, and the condition cannot be interpreted without a thorough examination of the pelvic organs? These statistics lead me to believe that many a woman could be saved the horrors of a uterine tumor, if the cause or causes of dysmenorrhea were removed early.

What physician has not had a patient say to him, while taking her history, that when she was a girl she used to have pain with her monthly sickness, but after her first labor the pain ceased; and then find upon examination a tumor, perhaps no larger than a pea or walnut, or one of considerable proportions? This must be the experience of many a careful observer. What does it all mean? It means, that to neglect the one symptom that is nearly pathognomonic of uterine tumors, is to neglect your patient at the time when prophylactic measures could be instituted.

The statistics associating dysmenorrhea at puberty, or at any other time, with uterine tumors, have been neglected. Such statistics are meager and incomplete. Dr. Cullen, of Baltimore, in a letter writes: "I have no statistics on this subject." Other writers have given nearly the same answer.

However this may be, I hope that the profession will carefully investigate the subject, and as they take the histories of their patients they will definitely ask this question: "With your first menstruation did you have pain?" I am persuaded that dysmenorrhea is an important diagnostic symptom of an abnormal condition of the generative organs, which favors the growth of tumors. The cause of the pain at menstruation, whatever it may be, should be removed at once. I have studied eighty-two histories of adenomyoma as given in Cullen's book on "Adenomyoma of the Uterus." Of these cases in thirteen menstruation was painless, 15.85 per cent.; in fifteen menstruation early in life was painful, 18.29 per cent.; in twenty-one menstruation late in menstrual life was painful, 25.6 per cent.; in thirty-three menstruation was not referred to at all, 40.24 per cent.

If you will carefully follow me you will see that there were thirty-six cases, or 43.9 per cent., in which painful menstruation was mentioned; there were also thirty-three cases, or 40.24 per cent., in which Dr. Cullen neglected even to mention the presence or absence of dysmenorrhea. If of these thirty-three cases there were 43.9 per cent., or fourteen, who, it is fair to suppose, did suffer from dysmenorrhea, this percentage added to the 43.9 per cent. would make 61 per cent., or fifty of the eighty-two cases, who suffered at some time from dysmenorrhea, and 39 per cent., or thirty-two cases, in which menstruation was painless. From the study of this series of cases we can further conclude that if Dr. Cullen had faithfully questioned these patients in regard to dysmenorrhea, he would have greatly increased the percentage of cases in which he would have recorded dysmenorrhea as being associated with uterine tumors.

Taking into consideration Cullen's imperfect records of uterine adenomyomata with the associated dysmenorrhea and those of my own experience (whole number of cases 153, of which 118 had dysmenorrhea), I am led to infer and conclude that, as dysmenorrhea is a symptom of uterine disturbances, it is the duty of a physician to ask for an examination *without delay*, because it portends for that patient, in the future, an operation for uterine tumor.

When will the general practitioner cease to treat dysmenorrhea with morphine, acetanelid, viburnum, whiskey, hot water bottles and many other things too numerous to mention, before he makes a discriminating diagnosis? We must never forget that dysmenorrhea is a symptom and not a disease of itself.

Dysmenorrhea is associated with uterine deformities, and with all pelvic tumors, cancers, adenomyomata, fibromata of the uterus, etc., ovarian tumors, and tumors of the Fallopian tubes. Therefore it behooves a physician not to play at treating dysmenorrhea, but to do business, and if the physician has not the training, courage or ability to do the right thing for his patients he should turn them over to a more competent physician. I never could see why it is not stealing to take a fee from a patient to whom one has not tried, to the limit, to give an equivalent for the patient's dollar, just the same as if one should filch a dollar from a grocer's till.

Whether a certain uterine fibroid should be operated upon or not depends, as I have said, upon a careful diagnosis, just the same as the treatment of any disease is undertaken after a thorough knowledge of the trouble is acquired. It is my opinion that a simple, uncomplicated fibroid never needs to be removed with the knife, but is always amenable to treatment. My conclusion is based upon the fact that the cause of the fibroid is some irritant, histological, mechanical, or chemical. Simple myomata seldom give rise to any symptoms, except dysmenorrhea, a slight change in the odor of the vaginal discharge, and pressure symptoms. Usually, however, the woman becomes nervous. This cannot be attributed, by her, to any defi-

nite cause, and is only accounted for when the interstitial fibroid is found, by examination.

To illustrate: Miss H., age thirty-seven, teacher, family history negative, always well, but somewhat nervous; tongue coated white, appetite good, constipated, urine normal. Had pain at first menstruation, but appears every twenty-eight days; pressure symptoms present, of late odor of vaginal discharge intensified. Examination revealed a uterus enlarged, due to a diffuse, interstitial tendency. One year later the fibroid was distinctly discernible. The diagnosis of fibromyomata of the uterus is attended by some difficulty because of complications, including hemorrhage, which hemorrhage might be due to an adenocarcinoma. A carcinomatous uterus is soft to bimanual examination, a fibroid is hard. Where adenocarcinoma is suspected, a curettage should be resorted to, and some of the scrapings should be examined microscopically. This should also be done in cases of suspected sarcoma. The indication for the removal of such tumors, carcinoma or sarcoma, of course, depends upon the microscopical findings.

The scrapings of the mucosa in simple fibroids and fibroids accompanied by hemorrhage, are those of the normal mucosa, or of atrophy due to pressure. Tumors of the uterus that were nearly always diagnosed as fibromyomata, until Dr. Cullen read his paper on this subject, are really adenomyomata. The distinguishing features in making a diagnosis in this are that the menstrual period in adenomyomata is lengthened, and there is a grinding pain in the uterus and possibly in the back and legs, while in fibroids the hemorrhage may come on in the interim. This is an important point to remember, for all the adenomyomata should be removed with the knife, and only a very small percentage of the fibroids should ever be touched with the surgeon's scalpel.

The operative fibroids of the uterus are: (1) Those associated with carcinoma and sarcoma; (2) all those tumors that are mixed with adenoma; (3) some of those tumors that give alarming hemorrhages; (4) those that are so large that they interfere with respiration and the function of the alimentary canal. These enormous fibroids are now seldom seen, because the surgeon has put in his work before they are allowed to attain large proportions; (5) the submucous variety; (6) the tumor that does not respond to local and systemic treatment after a good, fair trial.

The causes of fibromyomata are known only theoretically. There has been no cause advanced that satisfactorily explains the occurrence of this morbid growth. An unequal division of the chromosomes and cell protoplasm, as mentioned by Müller, is somewhat of a plausible theory, but I am led to believe that there is a cause that exists before unequal cell division is or can be noticed, and that is irritation, which is announced by dysmenorrhea at puberty. My clinical cases assure me that the primary cause is an irritant acting with a congenital condition, which results in overstimulation of the uterine cells.

My reason for thinking in this way comes from the results of treatment, constitutional and local. Out of 71 cases in my own practice, I can report a cure of 47. The rest of the cases remain as follows: One I advised to have an operation, and patient refused; four were operated upon, one by myself doing a vaginal hysterectomy, and the patient lived, the others were operated upon out of town, with two deaths; there are now eleven undergoing treatment, some of them are greatly improved, and about ready to be discharged; the other eight cases have drifted away, but were much improved before I lost sight of them.

I am well aware that many of the best surgeons in the country hold that immediate operation should be performed on uterine fibroids, and advise it because, first, there is but a small death rate from the operation; second, because of the tendency of fibroids to become malignant.

In answer to their first reason, "but a small death rate," I would say, death is not a pleasant thing to contemplate, and just so long as there is an admitted death rate from operations for the removal of uterine fibroids, I contend that the diagnosis should be clear and that the duty of every surgeon should be to withhold his hand until indications are unmistakably those that will warrant the operation, in view of this possibility of shortening a human life. I believe in bold surgical conservatism, based upon accurate knowledge of the conditions present, and actuated, not by commercialism, but by the spirit "as you would have them do unto you." It is folly to think that all uterine myomata even have a tendency to malignancy: it cannot be the fact. The fact is that it is the unrecognized mixed tumor that has a tendency to malignant degeneration, and that these tumors should be removed, there is no doubt, but the simple fibroid should not, because it is not malignant and causes but few symptoms.

I wish to give you the history and treatment of two cases of fibroid tumors of the uterus, from my own practice, because one is typical of the mixed variety, with malignancy; the other is the history of a fibroid, pure and simple.

Case I.—Mrs. H. consulted me July 8, 1908. American; age 41; married; occupation housework; also worked in the shop. Father died of bladder trouble and mother of a tumor in the right groin. Gave birth nine years ago to a full term child, and eight years since to a seven-months fetus. Following this labor she was very ill. Menstruation appeared at 14 years of age accompanied with pain. Menstruation, with pain, was regular until the birth of the first child; after that pain ceased. Had now been flowing for three months, sometimes more and sometimes less freely. Examination revealed a sloughing cervix, also small fibrous nodules in the body of the uterus. The diagnosis was a malignant condition of the cervix, associated with a fibroid condition of the uterus. I advised operation, to which she consented. Vaginal hysterectomy was performed by me July 13. The patient made a quick recovery, leaving the hospital in two weeks. The macroscopical appearance of the specimen confirmed the diagnosis, and the results justified the operation.

Case II.—Miss N. consulted me April 19, 1906. Age 27; servant girl; family history negative. Had symptoms of indigestion; constipated. With first menstruation pain, but the menses are regular in their appearance. Dragging feeling over right hip. Very nervous. Examination revealed an elongated uterus with a small fibroid of the fundus. Treatment was local and constitutional. Recovery was complete in two years.

The results in this case, as in the forty-six others that have recovered in my hands, appeal to my best judgment as a surgeon, in determining operative and non-operative cases. In the morning of life where there is a fibroid, withhold the hand until there is not a vestige of doubt left in regard to the advisability of an operation. In the evening of life, when degeneration of cell tissues is the rule, we need not be so particular in trying to save the gen-

erative organs, because at this time the organs have ceased functioning and to withhold the hand might be to miss giving the sought for blessing to the patient as her sun is setting. She should be operated upon, for she has reached the spot where she should rest.

Conclusions.—1. Dysmenorrhea should be considered a symptom when appearing in any period of a patient's life, justifying a thorough examination of the pelvic organs to ascertain the cause of the pain and its removal if possible.

2. A clear diagnosis and some positive indication for removal of uterine fibroid should be ascertained before surgical interference is resorted to.

3. Mixed tumors of the uterus should always be removed as soon as diagnosed.

4. Simple fibroid tumors should never be attacked surgically, unless in exceptional cases, because they are amenable to constitutional and local treatment.

BITUMINOUS COAL SMOKE: ITS CHEMISTRY AND EFFECTS ON THE HEALTH OF MAN AND PLANTS, WORKS OF ART AND COMMERCE.

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In an endeavor to determine the effects of coal smoke on the health of the community as well as of the individual, it will first become necessary to devote a part of this study to the chemistry of coal combustion, particularly bituminous coal, and the resultant products.

For our purposes we may consider smoke as the sign of incomplete combustion of fuel. During this process, small particles of unconsumed matter are blown into the atmosphere by gases liberated by the heat. In order to secure complete combustion, it is necessary that a high temperature be constantly maintained in order that all constituent gases be raised to the point of chemical decomposition. Bituminous coal contains, in addition to fixed carbon, a compound of carbon and hydrogen. These hydrocarbons are first volatilized by heat, setting free the hydrogen, which then unites with oxygen to form vaporized water or steam, while the carbon is set free. These particles of carbon rendered incandescent by heat, produce the flame. If at this point a sufficient supply of oxygen and the proper degree of heat are in evidence, the carbon will unite with oxygen to form carbon dioxide and the combustion will thus be complete. If, however, an insufficient amount of oxygen is supplied, free particles of carbon will escape, and this is smoke. Smoke is also produced through volatilization of the hydrocarbons, if the heat be less in degree than is necessary to free the hydrogen from the carbon, or if the heat be so intense that the fixed carbon is carried away before it has had time for combustion. This is the commonly accepted theory of smoke production.

In feeding a bituminous coal fire, decomposition will vary with the temperature, parts of the fire distilling off tar vapors rich in the paraffin hydrocarbons and yielding but feebly of gas; decomposition while under the influence of heat, if in contact with air and resultant gases at the surface of the fire bed, is affected by the composition of the coal, amount of air present, temperature, and the action of the products of combustion at the lower part of the grate, all of which make the process a complex one.

Flame is therefore caused by the combustion of gaseous matter. When the oxygen is supplied externally to the combustible gas, a hollow flame results, consisting of two parts, the outer where combustion is taking place, and the interior, which is cut off from a supply of oxygen, and not undergoing combustion, where active chemical changes are taking place under the influence of the burning envelope. Surrounding it, hydrocarbon gases and vapors are broken down and the simple hydrocarbon acetylene is produced. In the outer flame, or envelope, carbon and hydrogen compounds are being consumed with the formation of carbon dioxide, carbon monoxide, and water vapor. The dark inner zone, which may be regarded as a laboratory and gas store of the flame, is surmounted by a brilliantly luminous portion, which gives the major part of the cheerful firelight, while above this smoke begins to appear. These gradations are due to the formation of acetylene in the nonluminous core of the flame entering the heated zone of combustion, where the acetylene suddenly splits up into carbon and hydrocarbon; the latter burns and adds to the heat of the flame, while the carbon, raised to incandescence, partly by heat generated during its formation from acetylene, partly by heat from the flame and by its ultimate combustion, gives out the light. If sufficient oxygen is supplied to complete the chemical action, no smoke will escape from the flame and a far higher power of radiating light and heat will be produced. One finds, however, in practice that the diluting influence of the nitrogen and other products from the fire beneath and the cooling influence of the chimney draft which comes in contact with the flame, so check and otherwise influence the completion of combustion of the products from the decomposition of the acetylene that the top of the flame is cooled to a dull red and the flame extinguished before the carbon particles are consumed, this leading to the formation of sooty smoke, which passes up and out of the chimney.

A portion of the smoke consists of undecomposed tarry vapors, and a steam which is abundantly condensed from the watery vapor produced as one of the primary products of combustion. The tar vapor which escapes consists of a mass of vesicles, the outer surface or skins of which are formed of condensed vapor and liquid from the burning substance. They are filled with gases, are excessively light, and float in the atmosphere until brought into contact with some surface which causes them to burst and deposit the liquid film, setting the contents free. When the temperature at the top of the fire has been sufficient to ignite the gas escaping from it, these vesicles are not formed, and under such conditions only a small portion of escaping smoke is of this character. When the fuel has been placed on the fire in sufficient quantity to cool the top of the fire below the ignition point of the gas, the smoke which escapes consists chiefly of steam and this tar cloud. All smoke contains dust and ash from the grate.

It will be seen that there are four sets of particles formed in smoke: (1) Carbon particles which escape unconsumed from the burning hydrocarbons giving off the soot; (2) tar vapors; (3) steam; (4) small particles of dust mechanically carried up the chimney by the draft. The proportion in which the four occur in the smoke is entirely dependent upon the condition of the surface of the fire. When the fuel is first put on, tar vapor and steam only escape from the fire below, with particles of complete and incomplete combustion, among which are carbon monoxide. As the heat works upwards through the recently added fuel, the products of

distillation from the coal catch fire and are partially burned, the result being that the deposited carbon or soot also forms a portion of the smoke, while as the fire burns clearer and clearer and the upper portion becomes incandescent, practically nothing but the products of complete combustion find their way up the chimney. The gases issuing from a chimney consist, firstly, of invisible particles made up for the most part of gases which exist in the atmosphere in such minute quantities as to be capable of doing but little harm. This is true only of gases from ordinary fires and does not refer to the fumes from the chimneys of chemical works, which are capable of doing great harm. Besides these invisible gases, as we have shown above, there is the visible portion, consisting for the most part of minute particles of carbon, which are not entirely pure, but contain a certain amount of sticky, tarry matter.

The smoke, after issuing from the chimney, becomes dispersed in the air to a height of some hundreds of feet above the ground. This widely distributed smoke gradually settles, clinging to anything that presents itself. The ground, the walls and roofs of buildings, the trunks, branches, and leaves of trees and shrubs, the exposed parts of the person and the clothing, all come in for a share of the all-enveloping cloud. Where the surfaces are smooth and exposed to the washing action of the rain, as in the case of roofs of buildings, very little of the dry carbon itself remains, but only the more sticky substances, which cannot be easily washed off. Rougher surfaces, such as stone walls, and especially trees and shrubs, retain the black dirt far more readily, and become permanently coated with a sticky, sooty film.

From an esthetic point of view the effect of smoke is as bad as it can be. In our large manufacturing towns, where the atmosphere is very heavily laden with soot, all the stone buildings become in a very short time nearly black, the stone presenting a more retentive surface than the smoother brick, though brick buildings do eventually become coated in much the same way. Those who are familiar with such cities as Buffalo, Pittsburg, Cincinnati, Cleveland, St. Louis, Chicago, and places of smaller size and lesser note in our middle and western States, where bituminous coal is almost entirely used for manufacturing and heating purposes, cannot fail to appreciate the terribly disfiguring effects of exposure for a few years to this atmosphere, heavily laden with black smoke. One feels that this disfigurement of public and private buildings, though only one of the lesser evils of black smoke, is sufficient reason for the most vigorous crusade against those who, by their negligence or obstinacy, contribute to the pollution of our atmosphere.

The disfigurement of buildings is, perhaps, less objectionable than the coating of black which settles on all the vegetation in a district pervaded by smoke, for, besides the dullness imparted to the colors of the plants and trees by the layer of soot, the blackness of the trunks and branches of the trees, and the unpleasantness in touching or allowing portions of one's clothing to touch them, there can be little doubt that the vigorous growth of a plant is to a large extent interfered with by the presence of a film of an oily substance on the surface of the leaves. At the same time, much of the unhealthiness of plants attributed to smoke is very likely due, not so much to this as to the presence in the atmosphere of deleterious acids, more particularly sulphurous and sulphuric,* which are formed along with the smoke. The breathing pores of a plant are on the under side of the leaves, and while it is on the upper surface that the greatest deposit of soot takes place, some small quantity also clings to the under side.

The atmosphere is what we breathe, and upon it we depend for our very existence, and it is therefore necessary that we should be as careful that we breathe pure air as we are that the water which we drink is without contamination. Life in a smoky and crowded town is not, and cannot be, so healthy as a life which is spent in a pure atmosphere, free from the contaminating effects of smoke and its accompanying products. It is well known that the urban population is tending to deteriorate and is only kept up to a reasonable standard by the continuous influx of workers from the country districts, the tendency being for people to crowd to the towns for work and higher wages. The town population is increasing rapidly year by year, and there is a corresponding decrease continually taking place in the number of inhabitants in the country districts. Though in many directions the conditions of town living are being improved—greater attention is being paid to sanitation, the dwellings of the working class are on the whole improving, and the public authorities are waking up to the necessity for plenty of open space—still the two facts remain, that the population in the smoky areas is very much on the increase, and that the atmosphere in these areas does not improve.

Without doubt, the existence of a smoky atmosphere has an influence in increasing mortality. This is a statement well worth consideration, and should claim the immediate attention of our public health officials. One effect of a smoky atmosphere, even worse than that of breathing the vitiated air, is to be found in the indirect effect, in causing people to keep their windows shut in towns, and so breathe the even more vitiated atmosphere within. It has for some time been recognized that one of the conditions most favorable to consumption is to be found in defective ventilation.

Another effect of a smoky atmosphere, and one often lost sight of, is the effect that the presence of soot in the air has in shutting off and obscuring the sunlight, which is so important to healthy life. This may easily be noticed on going into a large town by train from a clear country atmosphere. As the town is approached, the sunlight gets less intense, and often in the winter months it is found to be nearly dark when the center of the town is reached. This is always so to some extent, the only variation being one of degree. Here we find the same injurious effect upon vision as is encountered in a dimly lighted room, where the occupants are subjected to a continuous eyestrain, the result of which is headaches and a whole train of disorders to health.

Under certain meteorological conditions this pall of smoke becomes a veritable blanket, filtering its way into homes and public buildings.

There is little doubt that the presence of smoke in the atmosphere assists very largely in the formations of fogs. The smoke in the air becomes generally diffused, so that the whole volume of the atmosphere gets to consist of pure air throughout which are numberless small particles of carbon, each one of which may serve as the nucleus of a foggy globule. In certain states of the atmosphere, such

*Dr. Charles Baskerville has calculated that in New York City 1,300 tons of 80 per cent. sulphuric acid are set free daily from the combustion of ordinary fuel.

as dryness, pressure, low temperature, and stillness, the aqueous vapor becomes partially condensed, it being generally supposed that each carbon or dust particle acts as a nucleus around which collects a small globule of moisture, the summation of these making up the yellow fog with which our largest towns are so strongly oppressed during the winter. A reduction of the number of smoky particles in the air might be expected to reduce the density and dirtiness of our fogs, if not to do away with them altogether. Fogs are not confined to towns, but the fog of the country is a white innocuous mist, which may be unpleasant in some ways, but never assumes the density of the real town fog, nor does it soil the linen, make the eyes smart, or clog the lungs of all persons exposed to its effects.

It is stated that there are about fifty tons of soot and two hundred and fifty tons of carbon dioxide in the atmosphere immediately above London, and this in spite of the fact that the means taken for the prevention of the emission of black smoke are much more definite, and the laws relating to smoke are much more stringently enforced, than in cities and towns in this country. No doubt the smaller industrial and domestic fires are to some degree responsible for the smokiness which is found in the smaller centers, and although people are found who insist that a smoke evil due to house fires is to some extent in evidence, the fact remains that in such places the atmosphere is without doubt purer in every way; buildings are cleaner, trees and plants flourish, and the appearance of everything is brighter than where there are a number of factory chimneys pouring out smoke and sulphurous gases.

Some interesting and valuable results were obtained a few years ago by Dr. Cohen, of the Yorkshire College, Leeds, in connection with the quantity of smoke to be found in Leeds, one of the smokiest cities in England. These results were published in 1896. He found that in every 100 cubic feet of Leeds air there were about 12 milligrams of soot. This he did both by estimation from the amount of coal burnt per day in Leeds, and also by the more direct method of collecting known volumes of the air, separating the soot, and weighing it. He estimated the amount of coal burnt per day in Leeds as 4,000 tons, and that of this one-half per cent. escaped into the atmosphere as soot. This gives about twenty tons of solid smoke sent into the atmosphere, and of this Dr. Cohen found by weighing the soot collected from melted snow, that half a ton falls on the immediate area, and that of this twenty to twenty-five pounds is not removable by rain.

A prominent merchant doing business in Chicago asserted recently that in his establishment alone the value of goods was reduced $200,000 last year because of being soiled, most of which soiling was due to smoke in the atmosphere; and he believed the total loss to all merchants on State street, that city, during the year must have approximated $2,000,000. "In fact," said he, "I believe the damage caused in our city by this black smoke amounts to more every year than the total taxes paid by the city, and when you consider that there is over $40,000,000 annually paid in taxes, it makes it a subject worthy of consideration."

We constantly hear it stated that visible smoke is the cause of high death rates, and that it has a serious influence upon the health of the community. It must be admitted that the products of combustion do interfere materially with the welfare of a community (1) by conducing to the formation of fog and rain; (2) by shutting out sunlight and depriving us of certain qualities of light, of great importance in regard to changes in organic matter; (3) by depositing soot and rendering houses and their contents dirty. There is no doubt that the presence of smoke in any quantity in the atmosphere has a prejudicial effect upon us by depriving us of sunlight, and this is a sufficient reason in itself for stimulating every one to effect, as far as possible and by every means in his power, a diminution of the nuisance. Apart altogether from fog, smoke hanging over a town forms a barrier to the sun's rays; and although the heat rays may pass through readily, the blue rays, which are of the greatest importance to healthy vitality, are kept back. This opacity of smoke to light is one of its most objectionable characteristics, as neither animals nor plants can thrive when deprived of light. In the poorer districts of every large town the inhabitants, deprived of light to a large extent, show a lower vitality and capability of resisting attacks of disease. Within the last few years another important action of light in this respect has been demonstrated: the powerful destructive influence sunlight has upon various forms of bacteria and disease germs, and in the case of one form in particular, the tubercle, bacillus, it has been shown that this organism succumbs after a short exposure to light. Organic changes, or oxidations, which are impossible in darkness readily take place in sunlight, and this fact also is of great importance in the economy of human life. The third undesirable effect of smoke is the dirt which results from the deposit of the unconsumed particles of carbon as soot. Among the poor, especially, cleanliness of surroundings is an important factor in influencing their lives, both morally and socially, and it must be admitted that the smoke nuisance, where it exists to any large degree, has an important bearing upon the welfare and social condition of this class of a community.

It has been asserted that in suppressing smoke we deprive ourselves of a powerful disinfectant, which, when in the atmosphere that we breathe in crowded cities, tends to guard us against contracting infectious diseases, especially of the nose, throat, eyes, and lungs. This theory is, of course, discredited, for, as a matter of fact, such infectious diseases are more prevalent in large manufacturing centers than elsewhere, and statistics show this to be in a large measure due to a coal-smoke ladened atmosphere. A smoky atmosphere, by its exclusion of light, its content of acid and irritating particles suspended in it, is harmful to the tissues of the nose, throat, eyes, and especially the lungs and air passages, whether in a healthy or other condition; aggravates the discomfort of those suffering from all forms of heart disease; increases the distress of those who have nervous complaints; lowers the tone of general health; is a peril to the aged; diminishes buoyancy of spirit, as well as reducing still further an already lowered resistance to disease.

What relative part with pathogenic germs smoke plays in causing this class of diseases it is hard to calculate, but it is safe to say that, working together, the danger to health and life is largely increased. In Manchester, England, the death rate from diseases of the respiratory organs was, in 1874, 7.7, in 1893 23.2 per 1,000 of all deaths, while in Westmoreland, England, the death rate was from the same disease but 2.29 in 1888 and 13.7 in 1893. These increased death rates are charged to an increased consumption of coal and consequent production of smoke. In Prussia there were 96,235 deaths from acute pulmonary affections in 1903. In addition to these there were in the same year and country 70,049 deaths from tuberculosis. How many of these resulted from breathing coal smoke is not stated, but it is a notorious fact that almost the whole of Prussia is covered with smoke coming from innumerable factories in constant operation.

CHRONIC OTITIS MEDIA PURULENTA.

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Although the views expressed in this brief paper may not add anything materially new in regard to this very important subject, nevertheless it seems to me that if a greater number of otologists who are experimenting with the measures advocated here for the treatment of chronic suppuration of the middle ear would relate their experiences, we could eventually come to some conclusions. We should emphasize more strongly than heretofore such measures as we have found practical and of real benefit to the patient. One need only to scan the literature upon this subject and one will find sufficient evidence to persuade us to be more conservative. There have been several contributing causes which have brought about such a persuasion. Briefly stated, we might mention the following:

(1) A patient with a chronic otitis media purulenta, from which he has suffered for a period of ten years or more, and for which he has undergone treatment in a haphazard way, submits to the ordeal of a radical operation. The operation reveals a solid mastoid, and not until the antrum and tympanic cavity are reached do we find any evidence of disease. Such patient is submitted by the physician to all the risks which are attendant upon this operation. The findings prove that the surgeon might have succeeded just as well by adopting conservative measures in a manner such as I will explain further on in this paper.

(2) Time and time again serious damage is done to parts because the familiar anatomical landmarks cannot be recognized, and a permanent injury to the patient is the result of a radical operation.

(3) We have learned to recognize the fact that when conservative measures are employed under the supervision of an otologist and are unsuccessful, no real harm is done to the patient.

(4) Furthermore, such preliminary measures will in the end assist in many ways to simplify the radical interference.

If we glance for a moment at the pathological condition present in these cases, we find that there exist all the stages of a chronic inflammation of the mucous membrane, and the results attendant upon such an inflammation. We find a thickening of the mucous membrane, exuberant granulations, and polypoid formation, with profuse discharge. Adhesions form which shut off portions of the tympanic cavity. Retention and decomposition of the secretion takes place with a resulting caries and necrosis of bone. In other cases there is the formation of cholesteatoma with its resulting destructive tendency. Finally it is well to remember that the above conditions may be present and due, not to some local cause, but to a tuberculous or syphilitic diathesis.

What I wish especially to emphasize in this short paper, is the plan of treatment to which I think most patients are willing to submit, and which will give them the most satisfaction with the least amount of risk. When we meet with patients suffering from a chronic discharge from the ear we should first of all impress them with the fact that such a condition, if allowed to continue indefinitely, is a matter of serious concern. Every means should be employed to cause a cessation of this discharge—first by conservative local or operative measures through the external auditory meatus, and then, if not successful, they must submit to more radical measures.

Before attempting any conservative measures it is quite natural to suppose that we have convinced ourselves that, with the exception of the usual symptoms accompanying such chronic discharge, there are present no symptoms of a serious nature. None should exist that point toward the invasion of vital parts. In such cases delay in radical interference would be at great risk to the patient. It is not necessary for me to mention these symptoms as they are well known and easily recognized and their significance understood. The existence of a chronic discharge for ten years or more need not deter us from pursuing conservative measures. I have seen such cases under proper treatment improve within ten days and in from two to three weeks apparently cured.

In treating these cases we should try to determine what is at fault and what is keeping up this chronic discharge. With the exception of those cases in which a tuberculous, syphylitic, or other dyscrasia is present, I think we will find that proper drainage is wanting. Furthermore, even in such cases in which a tuberculous or syphilitic diathesis exists, when proper drainage is established and the necessary constitutional treatment prescribed, it is surprising to see how even these cases will respond.

It is our duty, therefore, to employ such measures as will establish proper drainage. We should then teach these patients how to keep their ears clean. By means of local measures assist such cleansing processes from time to time to bring about a healthy condition of the diseased area. Soon our pains will be rewarded and our patients gratified to find that the discharge is lessening and that the inflammatory process has become quiescent.

To bring about this drainage, first of all the entrance to the tympanic cavity must be sufficiently free of all obstructions to permit one to wash out with the tympanic catheter and treat locally the walls and accessory cavities. If there is only a small perforation, such perforation is enlarged. If there are exuberant granulations or polypoid formations present they are removed. If adhesions exist they are divided. If they recur and it is found that they cannot be prevented without sacrificing the malleus and incus, an ossiculectomy is performed. This usually proves successful. One need not hesitate about removing both the malleus and the incus, as in the majority of these cases they have already lost their usefulness, bound down as they are by adhesions, often carious and only exerting a baneful influence by their presence. When the hammer or incus are found carious, in order to observe and treat locally the epitympanic space, as well as to reach the antrum, which will usually be found diseased, a modified Stacke operation is performed through the external auditory meatus. All these measures I have succeeded in accomplishing by means of local anesthesia, as practiced by Neuman of Vienna.

In those cases in which there is an evidence of cholesteatoma with chronic discharge, it is best to advise at once radical measures and not attempt any conservative treatment.

With such operative measures as recorded above, followed by local treatment at stated intervals, as the case may demand, at home the use of some mild antiseptic wash and astringent, preferably alcohol in varying strengths, it will be surprising to see how some of the most stubborn cases will respond. At the same time the constitutional condition of the patient must be taken into account and treated. All nasal and nasopharyngeal disturbance must be corrected. Especial attention should be paid to the Eustachian tube which will often be found in a catarrhal state.

Patients who submit to such conservative measures must be led to understand that they must keep themselves under the observation of the physician in charge until the ear is quiescent. This is necessary, for should any symptoms arise that may occasion concern, radical measures can be instituted at once. Furthermore, they can also be instructed, that these measures which are conservative, at the same time may also be considered as preliminary, if a radical operation is deemed necessary later on. I would like to state right here that in those cases in which a radical operation is deemed necessary, and such preliminary operative treatment has been followed out, the radical operation is very much simplified.

In regard to the results obtained, my own experience has led me to believe, that with our improved methods of treatment the average number of cures is greater than heretofore. Some cases, of course, will not respond. Some will be very much benefited and serious complications reduced to a minimum. Some will remain quiescent for a time, become active again on account of some aggravated throat trouble, but respond again to treatment. Others will compel us after an extended course of treatment to resort to the radical operation, and a cure will be established. In others, in spite of the radical operation, the hoped for cure will not be brought about.

In regard to the conservation of hearing, a very important consideration when operative measures are about to be performed, my own experience has taught me that in those cases in which conservative measures are attempted and with success, a great deal more is to be expected and can be promised than when the radical operation is performed.

In regard to syphilitic and tuberculous cases the prognosis, so far as a cure is concerned, is about equally divided, between conservative and radical measures.

FRACTURE AND DISLOCATION OF THE NECK, AT THE SIXTH CERVICAL VERTEBRA, IN A MAN OF 60. RECOVERY.

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About five o'clock on the morning of October 5, 1907, I had an urgent call to see P. K., who had fallen off his piazza the night before. On reaching the house a few minutes later I found the patient, a powerfully built man of a little over sixty years of age, and a grand army veteran, lying on his back in bed. The history of the fall he and his wife gave me was that about eleven-thirty the night before, on his return home with three heavy ledgers under his left arm, he was trying to unlock the front door, when the middle ledger slipped from between the other two, and as he made a sudden move to the left to break its fall, or check it, he lost his balance and toppled over a low railing at the side of the piazza and close to the front door, and that he struck the ground about six feet below, landing on the top of his head; his wife had heard him at the front door and as he did not appear soon she went to see what was the trouble. She heard groans at the side of the house, and found him lying on his side unable to move. Some of the neighbors were summoned and he was picked up and carried to his bed. His family did not, of course, appreciate the gravity of his condition, and thought him merely stunned, hence the delay in calling for medical assistance.

The patient was lying on his back with the chin drawn down, the position reminding me of a turtle with its head partially thrust out. There was complete paralysis below the line of the neck, both sensory and motor paralysis. He was unable to move hand or foot, or to feel pin pricking until the descending branches of the facial nerve were reached about the line of the clavicle. The pulse was slow and full, the respirations were very characteristic and were eight or nine to the minute and diaphragmatic entirely; the diaphragm was the only muscle of inspiration he was using or could use.

On passing the fingers along the region of the neck there was felt a fulness with an irregularity over the sixth cervical vertebra. The patient had not urinated since the night before so I passed a catheter and drew off about a pint of pale amber-colored urine. I assured the family that there was small chance of his living for many days and insisted on his removal to the hospital, to which they agreed. The patient was placed in the ambulance and carried to the Highland Hospital. I called my colleague, Dr. McClintock, in consultation, and, as the case seemed desperate, we decided on attempting reduction. Dr. McClintock made gentle extension and rotation of the head, standing at the top of the bed, grasping the patient under the occiput and lower jaw, while with the fingers of both hands at the back of the neck I made gentle but firm pressure over the side of the sixth cervical vertebra. After several attempts of this kind we were delighted and relieved to hear a decided snap, which both Dr. McClintock and I, as well as the patient, heard, and which the patient felt, as he immediately remarked "something went back that time, ah, now I feel!" He was at once able to draw his left arm up and on toward the middle line of the body. This was the first move he had made in about eight hours.

Having effected this reduction a back splint was applied fastened about the chest below and the forehead above, strengthened by small shaped splints at the side of the neck, and the head was securely fixed by sand bags. I saw the patient about an hour later and was pleased to find that he had regained entirely the movement as well as the sensation in the right arm and leg; motion and sensation did not return until two days later in the left leg. The patient had retention of urine, necessitating the use of the catheter night and morning, until the evening of October 11, when he had incontinence and dribbling of the same. At my afternoon visit the same day I found the patient had passed a fairly comfortable day, sleeping a good part of the time, his temperature was 100.3°, pulse 86, and respiration 22. The abdomen was very distended, and an enema was ordered which resulted in the escape of a small constipated stool and a large amount of flatus. The next morning I found the patient had rested fairly well and his condition was not much changed. That day at my afternoon visit the temperature had fallen to normal and the pulse was 80, respiration 20. At my morning visit on the 7th, the third day after the accident, the nurse reported a fairly comfortable night, later in the day the temperature rose to 101°, pulse 78, respiration 24, and I found still a great deal of distention of the bowels, and the stomach was intolerant of all nourishment. This condition was relieved by a high enema of Epsom salts and glycerin in hot water. Distention of the bowels was a prominent

and distressing symptom for the first few days of his sickness. On the morning of October 8, the temperature was 100.4°, pulse 76, respiration 21, and the patient had developed a short and troublesome cough. Fearing hypostatic pneumonia, I at once ordered his removal from the regular hospital bed and placed him on a Gorham bed, and I consider this to have been a most important part of his treatment, as it allowed of a change of position several times a day.

I will not go into the details taken from the hospital notes, which are often so tedious, but choose what seems of especial interest from them. The patient had in addition to the symptoms above enumerated, severe constipation and ammoniacal urine, such as we usually find in this class of case, also a tendency to bed sores, difficult to heal, and a persistent eruption on the lower part of the back and the left calf, which was eczematous in character and yielded ultimately to ten minim of Donovan's solution after meals. One important feature of the case was that the left arm, which was the first partially to recover motion after the reduction of the dislocation, some two days later began to lose motion, but not sensation, gradually and most markedly below the elbow, and in spite of massage and electricity, which was begun early and is still kept up, the muscles of the hand and forearm became atrophied until the hand presented the appearance of a case of progressive muscular atrophy, and the hand was drawn decidedly toward the ulnar side. On November 16, I found slight extension and flexion of the left thumb, and now, nearly a year later, the arm and fingers are stiff and the whole limb is of very limited use. The patient was kept in bed for twelve weeks, being allowed to sit up in a chair on December 28. On December 29, from the hospital notes, I find the flexors of the left arm are flabby and the muscles of the upper arm atrophied; there is slight extensor movement at the wrist, but the extensors are, as a whole, much atrophied, and the hand is drawn over to the ulnar side; the patient cannot bend the fingers or approximate the thumb.

On January 11, 1908, I find a note to the effect that he is gaining more control over the bladder; on this day also the patient was able to take four steps unaided. On January 26 the patient, who had been gradually gaining strength was allowed to return home. He now walks well and firmly and goes down town on fair days and moves about at his own pleasure. The muscles of the upper arm are improving in tone and power and he can now approximate the thumb to all his fingers except the little one, and so can help himself in many ways, by holding his paper and feeding himself. He can bend the elbow more each week and seems very cheerful over his condition; he is still obliged to wear a rubber urinal during the day, as he is never certain of himself in this particular, although the intervals between urinations are gradually lengthening.

I have gone over the case with Dr. Robert Abbe of New York and he has thought it of great interest and well worth reporting in view of the severity of the case originally, and the patient's age. We have assumed that the dislocation tore one or two root nerves on the right side at their exit from the fifth or sixth foramen, probably both, and therefore recovery has been proportionately slow and incomplete, and again pressure on the cord, mechanical and not from hemorrhage, must be regarded as the immediate cause of the paralysis below the neck, inasmuch as this symptom so quickly disappeared.

IMPORTANT FLAT-FOOT FACTS; FOR ASSIMILATION AND DISSEMINATION.

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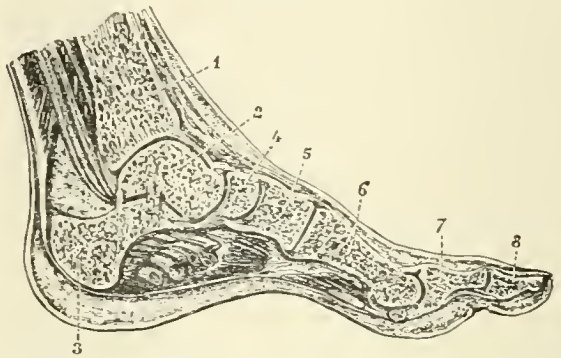
Flat-foot should be more generally recognized in its very incipiency. This recognition is not difficult, as I shall show further on. This incipient condition, going untreated, terminates in various degrees of flat-foot, and finally, the instep arch is so completely down, that no medical skill whatever is required to make the diagnosis—a glance at the foot suffices.

For better comprehension of our subject a brief consideration of the normal arch will be helpful.



Antero-Posterior Section of the Foot. 1, Tibia; 2, astragalus; 3, os calcis; 4, scaphoid; 5, int. cuneiform; 6, first metatarsal bone; 7 and 8, phalanges of great toe.

The illustration, taken from a frozen section, shows beautifully the normal instep arch. The keystone of the arch is clearly seen to be the scaphoid bone. With the scaphoid in its right place the arch is normal. The arch normally is held up by the leg muscles—especially by the front and back tibial muscles. In their normal condition of tonicity, there is no falling of the arch, and the arch functionates perfectly, enabling us to walk, run, and jump without pain, and, within limits, without tiring.

When, however, the leg muscles lose their tonicity from any cause, the arch commences to fall, and the signs and symptoms of falling arches are plain to him or her who looks for them.

We can see how important it is to know the causes of loss of muscular tone in the leg muscles, if we desire to diagnose falling of the arch at its very beginning. Muscular tone is the constant tendency in muscular tissue to contract. It is a property of muscular tissue, and has no relation with voluntary motion. It is in virtue of muscular tonicity that both surfaces of a cut muscle retract. This property is lost by overuse or fatigue.

We now see why occupations that are associated with excessive use of the leg muscles, thus causing their fatigue and consequent loss of muscular tonicity, are occupations in which flat-foot is very common. Policemen, motormen, conductors, and postmen are examples. The very nature of their occupation, which causes strain and fatigue of the leg muscles and consequent loss of muscular tonicity, is productive of flat-foot. As a rule, in them it goes unrecognized until painful locomotion brings them to the specialist with chronic flat-foot, which could easily have been prevented, as I shall show later on.

Occupations in women that I have found most

frequently associated with flat-foot of various degrees are those of salesgirl, nurse, servant, and housewife; and for the same reason, namely, overfatigue of the leg muscles with a consequent loss of their tonicity, thus permitting the arches to fall.

So much for occupations that have a tendency to produce flat-foot because of their fatiguing the muscles that normally hold up the arch.

There is another cause of loss of muscular tonicity in the leg muscles that accounts for almost all the cases of flat-foot met with outside these muscle-straining occupations, and that cause is sickness, sickness of any nature that confines one to the bed for a week or more. The simple lack of use of the leg muscles for such a period produces a condition of weakness in these muscles that allows them to become easily fatigued, and with fatigue of a muscle always follows the loss of its tone. More marked indeed is this muscular weakness in infectious diseases, aided probably by the toxins circulating in the blood in such cases. The weakness of muscles engendered in fever cases is always manifest when the patient leaves the bed—he can hardly stand. Then can be detected acute flat-foot, if we look for it. The scaphoid, the keystone of the arch, sinks, there is often pain in its neighborhood, and there is always a tired, aching feeling in the leg when the body weight is borne on it for some time.

In some cases the muscles regain their tonicity before becoming permanently stretched, and these cases—very few indeed—regain their normal arches. All cases of acute flat-foot would recover if the scaphoid was kept raised to its normal height until the leg muscles had regained their tonicity.

The better term for these incipient cases of flat-foot is falling arches. On inspection, these cases do not show the condition so readily recognized as flat-foot. On the contrary, if the arch be examined with the patient sitting and bearing no weight on the foot under inspection, a very beautiful and apparently normal arch is often seen. Let the patient, however, stand and bear weight on the arch, and it falls, sometimes being wholly obliterated, and a condition of flat-foot is very evident.

In cases in which the arch falls but slightly, one might be in doubt about the diagnosis. A therapeutic test is here decisive. Place properly constructed and fitting arch supports under the arches, and immediately the discomforts caused by incipient flat-foot (tired leg muscles and aching feet, especially as the day wears on), disappear, and the patient feels a sense of relief and comfort that indicates that our treatment has cleared up our diagnosis.

Incipient flat-foot, or falling arches, is a very common condition. It is not diagnosed as it ought to be, for the same reason that led Sam. Johnson to define the pastern as the knee of a horse—sheer ignorance. The wisest of us must needs be ignorant of many things, but let us hope not invincibly so. In this brief paper I have aimed to make plain that the chief factor in the etiology of flat-foot is muscular fatigue causing loss of muscle tone; that this is caused by occupations requiring much standing; that it especially follows after sickness necessitating a period of lying in bed (and here let me mention childbed particularly); that the resulting falling arches, or incipient flat-foot, is curable.

I could print many cases demonstrating these facts. They are so common in my experience, that for their confirmation I simply invite the careful observation of similar cases by my brother practitioners in their own practice. The cases they will find frequently enough if they will but look for them.

A word about the treatment of flat-foot will be added, for that, to the practitioner, is perhaps the most important part of the subject. In incipient flat-foot, if the scaphoid bone be supported in its normal position until the leg muscles regain their normal tonicity (generally a period of three to six months), a cure results, and flat-foot is absolutely prevented. The problem of a proper support for the scaphoid is not so simple as it appears, for there are many conditions to be considered relating to the anatomy and physiology of the foot, the construction of the shoe, and the degree of flat-foot present.

Rigid plate supports interfere with the physiological action of the arch, and are to be avoided. The support I use with constant success in the treatment of flat-foot of every degree is adjustable, is elastic, is light, and comfortable from its first application. The device consists of springs, in numbers one, two, or three, according to the degree of flat-foot and to the weight of the patient, inserted into leather, molded to conform to the normal arch. I have a capping over the springs that insures the correct conformation of the leather under the arch to the scaphoid and adjacent tissues. The scaphoid can thus be supported without undue pressure, and adjustment of the support for different degrees of flat-foot can be readily effected.

When all are alive to the necessity of properly treating falling arches, an affection that is far more common than is suspected, we shall see very few cases of flat-foot develop. There is no reason why it cannot in every case (except severe trauma) be prevented.

When flat-foot is developed it can be readily relieved by the arch support I have mentioned; but in flat-foot the old adage is eminently true—"An ounce of prevention is worth a pound of cure."

509 Broadway.

Flannelette.—The difference between ordinary cloth and flannelette is that the latter has a nap which is obtained by "raising" one or both surfaces by passing it over revolving rollers provided with steel dents or teeth which draw from the surface a nap which forms a better nonconducting material for heat than the original cloth and which, therefore, gives a greater feeling of warmth to the person using it than does the "unraised" fabric. The impression is that this raised surface is a source of danger from fire, that it presents a sort of cotton-wool surface which readily catches fire and burns with considerable energy. It is generally believed that it is advisable for children's clothing to be made of woolen or a mixture of woolen and cotton fabric or of flannelette which has been treated so as to render it noninflammable. There is nothing to be said against the proper employment of flannelette for its nonconducting properties coupled with its porous character make it a most useful material for cold weather. It has not the disagreeable cold feel of ordinary smooth garments, a fact which has been appreciated by rich and poor alike. To the latter in particular the invention has been a real boon as supplying a warm and cheap garment for winter wear. All these points in its favor do not alter the fact that it is an easily inflammable substance. Adults may be expected to wear this material without running risks of setting it on fire but with children the case is different. Children do not know of these risks, and we have no doubt that there are instances of their getting burnt even when clad in a nightdress of ordinary nonfluffy material. The risk is, however, dangerously intensified when the material is fluffy, as is the case with flannelette.—*The Lancet.*

MEDICAL RECORD.

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FUNCTIONAL EFFICIENCY OF THE HEART.

DEVIATIONS from proper function as contrasted with changes of form and structure have of late attracted more attention from clinicians, such study promising to throw more light upon the practical questions of medicine than the older methods of determining anatomical changes in the organs of the body. This change of view is especially prominent in the study of the heart; a few years ago gross anatomical changes determined by percussion and auscultation were alone considered in the treatment and prognosis of heart disease, with the result that many a victim promised but a short span of life because of an hypertrophy or a murmur discovered by his physician, continued for many years to be a living evidence of the inexactness of diagnostic methods. Several methods have recently been proposed for the determination of the functional condition of the heart, but the general practitioner who may not be in position to verify the results with the help of all the modern laboratory methods of research is often unable to decide which of them is most reliable and best adapted for everyday practice.

In a dissertation dealing with the subject (Functional Capacity of the Heart, St. Petersburg, 1908) S. E. Biron attempts to give the results of parallel experiments with several such methods of diagnosis. The value of knowing the functional condition of the heart is evident: after acute diseases such knowledge may prevent overstrain by injudicious exercise and may thus save the patient from sudden death or chronic invalidism; in valvular diseases it gives a clue to the condition of the heart muscle and therefore to the prognosis of the case in question; for the surgeon it may decide the advisability of omitting an operation or the choice of an anesthetic; prophylaxis of heart disease in persons predisposed to it because of an inherited or acquired weakness of heart muscle may be intelligently arranged; and, finally, the treatment of actual heart disease is made more exact and therefore more successful. The first method considered by Biron is that of Katzenstein, who noted that in healthy persons the blood pressure rose from 5 to 15 mm. when the femoral arteries were compressed, while the pulse was little affected at the same time. In insufficiency of the heart the blood pressure either remained stationary or fell, while the pulse became more frequent. Biron's numerous observations confirm in general the data given by Katzenstein, though he warns against attaching too much significance to the results obtained at any one observation; moreover, the method requires the use of more or less complicated blood pressure apparatus and cannot be carried out without the help of an assistant.

Gräupner has quite recently proposed to estimate the efficiency of the heart by the effect of muscular work upon the blood pressure curve; he observed that certain regular muscular efforts regulated by mechanical flexion and extension of the arm resulted in the fall of blood pressure after the motions were stopped, if the heart of the patient was not normally efficient; if the inefficiency was secondary to arterial conditions the blood pressure rapidly rose to normal figures and beyond them; if the heart was primarily at fault the return to normal pressure was slow and the rise over normal figures was not observed at all. Neither Klemperer nor Biron, however, could confirm the regularity of these results while noting that in individual instances the ability of the heart to perform any special work might perhaps be determined by the use of Gräupner's apparatus. There remained a third much older and simpler method of testing the efficiency of the heart, namely, the study of the lability of the pulse in changing from a vertical to a horizontal position. Biron was able to confirm the data of numerous observers in showing that the pulse of healthy individuals was slowed by from 5 to 25 beats in such change of position; in convalescents from acute disease as well as in those weakened by chronic affections the difference in the pulse-rate in the two positions was much more marked; the absence of any slowing seemed to occur only in cases of marked inefficiency of the cardiac muscle.

This last method of studying the efficiency of the heart can be made use of anywhere and in patients in almost any condition of health, no instruments or assistants being required. Its frequent use with reports of findings may furnish valuable data as to its applicability and trustworthiness, and such use is therefore recommended. The functional capacity of the heart is, however, such a complex entity that critical study of several methods with comparison of the results should be attempted wherever external circumstances make this possible.

THE NERVOUS PRECURSORS OF TABES DORSALIS IN SECONDARY SYPHILIS.

IT is becoming increasingly evident, as diagnosis is perfected by more and more objective and therapeutic tests, that many of the precursory symptoms of tabes dorsalis depend upon the earlier manifestations of the lues from which it arises—certainly as some think, at least usually in the opinion of all. Now that the attention of syphilographers is being directed to this, cases are reported more frequently. Very significant in this regard is the coincidence with the peripheral-nerve disabilities of a lymphocytosis of the cerebrospinal fluid in all respects similar to that constantly noted in tabetics, and equally significant is the disappearance of this sign under intensive mercurial treatment, along with the symptoms which induced the patient to seek medical advice. Its frequent concomitant, the Argyll-Robertson pupil, was found in 1906 by

Buttino in many of 70 syphilitics examined with a view to determine this point.

Nageotte, as long ago as 1894, showed that the ataxia of tabetics arose from the implication of the posterior root fibers by a chronic indolent inflammation in the leptomeninges, produced by a toxin which he opined to be syphilitic. The actual nature of the toxin is, however, still *sub judice*; Fournier and many others call it parasyphilitic, and Ford-Robertson and Macrae strongly defend their hypothesis that it arises from paradiphtheroid organisms situated in the mucosæ and transmitting their toxins via the spinal nerves. The possibility of this has been shown by Orr and Rows as well as Homén.

As a contribution to the solution of this important problem, comes the case shown to the Paris Neurological Society on April 2 last by Ballet and Barbé (*Révue Neurologique*, April, 1908). It was that of a woman admitted for venereal roseola, in whom an abundant lymphocytosis disappeared only after 60 mercurial injections. A month and a half later, she suffered a relapse, with fever, headache, and meningeal symptoms, and lymphocytosis again. This time she died in spite of further treatment. Post mortem, no microscopic meningeal abnormalities were detected; but under the microscope the syphilitic involvement of the meninges was clearly evident. It resembled that of the case shown by Sezary about the same time to the Society of Biology of Paris. The spinal meninges presented subarachnoid infiltration and periarteritis, and abundant exudates of small round cells. The resemblance of this acute process to the more chronic meningeal changes always found in tabes (Nageotte, Spiller, and others) shows them to be essentially of the same nature. In neither case has the treponema been found, so we are as far as ever from knowing the part played by that organism in causing the lesions which the nervous system presents in syphilis.

The implication of the cranial nerves by this meningitis of secondary syphilis is similar to that of the spinal roots in tabes, and it is the cause of the facial neuralgias and palsies now being reported in that stage of the disease. They may occur, as in Jeanselme's case, even while the chancre is in evidence. The palsy is usually preceded by a sensation of cold: hence the superstition of facial paralysis *de frigore* still fixed in the popular mind. The real source of the "cold" on these occasions is the sensation of the patient, and this is due to the implication of the roots of other cranial nerves, such as the fifth, and that branch of the glossopharyngeal which Ramsey Hunt has shown to arise in the geniculate ganglion of tie facial, and to be distributed to a portion of the external auditory meatus and tympanum; hence, the cold in the ear supposition. Rigid inquiry and examination of the patient's sensibility after the method of Morriston-Davis will often permit a diagnosis of radicular as against a strictly peripheral source in facial palsy. This diagnosis will permit special treatment to be begun early and may enable us to secure a resolution of the morbid process before organization takes place, and before a permanent cranial-nerve palsy is established.

MYOPIA AND ITS PREVENTION.

One of the most important problems of school hygiene is the prevention of shortsightedness which is so apt to develop in children of the school age with the ever-increasing demands upon their eyes made by their advancement in the school curriculum. The difficulty of this task is increased by the fact that we possess no accurate knowledge of the causes of myopia nor of the conditions of the eye that predispose to this unfortunate affection. So far the work of fighting the development of myopia in school children and in the students of the higher institutions of learning has not been very encouraging. Thus Dr. Best, writing in the *Münchener medizinische Wochenschrift* for July 21, 1908, says that in 1866 the number of myopes among the students of the University of Breslau was 60 per cent.; in the year 1880 it was 59 per cent., and in 1902 it was 60 per cent. again, figures so uniform that any effect of preventive measures that have been taken during that time are certainly excluded.

An interesting fact is the progressive rise in the percentage of myopes in the higher institutions of learning; thus the highest class in a country school showed 2.6 per cent. myopia, the city school 9.8 per cent., while 55.9 per cent. of students ready to enter universities were nearsighted. That near-work is one of the most important causes of myopia cannot be questioned, for not only scholars and students become nearsighted but also any young adults habitually use their eyes for close examination of things at short distances, as for example, watchmakers, embroiderers, etc. But this certainly is not the only explanation for the wide prevalence of myopia among school children; otherwise not 60 per cent., but almost all would be affected, for the average amount of near-work done is about the same for all scholars. A contributory cause is found in an hereditary tendency to nearsightedness, the great majority of myopes giving the history of the affection in one or both parents. But the fact that myopia very rarely develops after the twenty-fifth year, even though much near-work may have to be done, shows that another factor is necessary in addition to near-work and heredity. Best thinks that this factor is intimately connected with the growth of the eye, its developing tissues being much more apt to be affected by the influences tending to produce myopia than the fully developed eye. The treatment of myopia is, of course, simple; it requires the use of glasses that correct the defect of refraction according to the needs and exigencies of each individual case.

It is the prevention of myopia that is more difficult and more important at the same time. The mere providing of plenty of light and air is not enough in this connection; the more directly harmful near-work ought to be limited in amount as much as possible, much of such work in our schools being altogether unnecessary and easily dispensed with. It is very questionable, for instance, whether the tedious exercises in "caligraphy" have much effect upon the formation of a good writing hand, though certainly such exercises have a most pernicious influence in bringing on nearsightedness. The suggestion of Best that the Gothtic type be com-

pletely abolished applies, of course, only to Germany, but many improvements in the printing of our school books have been suggested from time to time by oculists, and these ought certainly be considered more attentively by the School Boards than they have been in the past. Much of the kindergarten work is unquestionably injurious, and the beginning of myopia may often be traced to the strain put upon the eyes of the mites who should be romping out of doors instead of sticking pins in paper and otherwise straining their young eyes. The whole question of myopia is a very important one and is intimately connected with the general problem of school hygiene; the medical profession must insist that its authoritative opinion in such matters receives proper attention from the public bodies entrusted with the administration of schools. American statistics in reference to the development of myopia in the schools are much more favorable than those of Germany, but even here the greater number of cases of myopia are preventable by a properly arranged curriculum, especially in the lowest schools and the kindergartens.

TRYPSIN TREATMENT OF CANCER.

Little has been heard of late concerning the treatment of cancer by means of digestive ferments, although the matter has not been dropped but only shelved for a time. There are several medical men in the field both in Great Britain and in Germany who are pursuing researches in regard to various ferments in the endeavor to discover a cure for malignant disease, and perhaps the word shelved is too strong an expression to use in referring to the subject. Mr. Henry Morris, president of the Royal College of Surgeons of England, read at the recent International Surgical Congress at Brussels a paper on cancer, in which he dealt with the employment of trypsin in the treatment of malignant disease. He first ran over the long list of ferments which at the present time are being given a trial, namely, Amylopsin, in addition to trypsin (Beard), liver ferment (von Leyden and Bergell), placental tryptic ferment (Bumm, Leipmann), papayotin (Branch, Lucas); and, lastly, erepsin—which is contained chiefly in the intestinal mucous membrane (Cohnheim) but is common to all organs and tissues (Vernon)—has been recommended and is being experimented with by Shaw-Mackenzie.

Mr. Morris pointed out that only in regard to trypsin had sufficient time elapsed for any number of cases to be reported, and even with trypsin the time had been short for any definite conclusions to be drawn. Dr. J. A. Shaw-Mackenzie appears to have been the first to apply trypsin practically and has taken the position that the hope that trypsin would reach the site of the disease through the blood stream when injected at a distance "does not accord with the view generally admitted that the blood possesses certain antitryptic properties," and that 'the local atrophy and degeneration of a cancerous growth induced by subcutaneous injections of trypsin in the neighborhood of a tumor itself cannot be accepted as evidence of the successful treatment of cancer." Nevertheless, regarded from a scientific standpoint, it would seem that there is some reason to hope that a digestive ferment may be administered in such a manner as to exert a deterrent effect on the progress of malignant growths. On the other hand, it would be very unwise to assert that trypsin is a cure of cancer. Experiments up to the present may not have been altogether negative, but they have not been conclusive.

Negative Pathological Findings in Fatal Brain Disease.

Both neurologists and pathological anatomists are well acquainted with the fact that there may occur symptom-complexes furnishing clinical evidence of serious disease of the brain and yet the autopsy findings prove completely negative so far as the anatomical evidence is concerned. That this condition is not so rare as is generally thought is shown by the fact that Hochhaus is able to report seven such cases in the *Deutsche medizinische Wochenschrift* for September 24, 1908, all occurring in private practice within the course of four or five years. The symptoms for the most part simulated focal disease of the brain such as tumor and, indeed, Nonne used the term pseudotumor in describing several cases that were observed by him (*Deutsche Zeitschrift für Nervenheilkunde*, Bd. 27). Thus apathy, convulsions, difficulty in swallowing and talking, exaggeration of reflexes, paralyses of local distribution, and finally death in coma occurred in all the patients observed by Hochhaus. The uniformly negative findings at the autopsies lead Hochhaus to search for an explanation of the clinical picture in the disturbances of circulation limited to one focal center in some cases and of wider extent in others; other instances he considers to be examples of intoxication of some indeterminate nature not necessarily due to changes in the blood, but probably having its origin in local metabolic disturbances. On the other hand, remains of former lesions may also be responsible for the focal brain symptoms, for the mere presence of scars anywhere in the brain must be considered sufficient to produce any kind of symptoms referable to other localities, when the great interdependence of brain centers and nerve paths is remembered. Of course, there always remains the possibility of missing small anatomical changes in the brain, however careful is the performance of the autopsy; on the other hand, lesions not at present discoverable by the means of examination at our disposal may be, in the future, made plain by new diagnostic methods or better instruments of precision. The thing to be remembered at the present time is simply the rather frequent occurrence of such cases; this fact should lead one to great care in advising operation on the strength of focal brain symptoms only, so that the great success which brain surgery has enjoyed in recent years may not be marred by operations undertaken in the dark and ending in the failure to find any remediable conditions at the operation or any pathological lesions at the autopsy.

Pathogenesis of Eclampsia.

It is generally admitted nowadays that eclampsia is closely connected with some metabolic processes of pregnancy, the chief seat of which is to be found in the placenta. This view is well supported by the fact that immediate delivery of an eclamptic patient, with the consequent removal of the placenta,

is very frequently followed by a most surprising improvement in the condition of the patient who may then go on to perfect recovery; that the metabolism of the fetus is not always the cause of the disease is shown by the occurrence of eclamptic seizures in the presence of a dead fetus or even when the fetus has been expelled while the placenta still remains attached to the uterus. The ultimate factors of eclampsia, however, have not as yet been discovered. Schmorl claims that placental villi, breaking off from the mother organ and reaching the general circulation of the patient, become responsible for eclamptic seizures; Veit has shown that all placental tissue has some toxic effect upon animals; Liepmann claims to have proved that the placenta of an eclamptic patient contains certain specific toxins which prove fatal to animals if introduced into the peritoneal cavity. In the *Berliner klinische Wochenschrift* for October 5, 1908, Mohr and Freund report a different property of the placental tissue which may throw light upon the nature of eclampsia. Tallquist has lately succeeded in isolating a hemolytic substance from some tapeworms, which may be responsible for the grave anemia that often accompanies the infection with these parasites. Mohr and Freund have adopted his methods of treating placental extracts and have likewise succeeded in isolating a definite hemolytic substance in the form of a barium salt. Even very weak dilutions of this substance produced hemolysis of human blood corpuscles, while human blood serum was capable of preventing such hemolysis. The serum of the mother was especially effective, fetal serum showing very much less influence upon the destruction of the red cells. The authors consider it probable that the hemolytic substances of the placenta are in some way responsible for the phenomena of eclampsia; in what manner, however, these substances overcome the protective mechanism of the maternal blood and tissue fluids, that normally prevent such autointoxication in pregnant women, remains to be shown.

News of the Week.

The Second Harvey Society Lecture.—Dr. W. G. MacCallum, Associate Professor of Pathology in the Johns Hopkins Medical School, of Baltimore, will deliver the second lecture of the Harvey Society at the New York Academy of Medicine, 17 West 43d Street, on Saturday, November 7, at 8.30 P. M. Dr. MacCallum will speak on the subject of "Fever."

Army Medical Corps Examinations.—The Surgeon General of the Army announces that the first of the preliminary examinations for the appointment of first lieutenants in the Army Medical Corps for the year 1909 will be held on January 11, 1909, at points to be hereafter designated. The essential requirements are that the applicant shall be a citizen of the United States, between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, and of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. A., Washington." All applications must be completed and handed in on or before December 10, 1908. There are at present fifty-seven vacancies in the Medical Corps.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $180, will be made on July 14, 1909, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and must be received by the Secretary of the College on or before May 1, 1909. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1908 has been awarded to Dr. William T. Shoemaker, of Philadelphia, for his essay entitled: "Retinitis Pigmentosa, with an Analysis of Seventeen cases Occurring in Deaf Mutes, Including Laboratory Examinations of the Blood and Urine in Eleven Cases."

Red Cross Christmas Stamps.—In order to raise money for the fight which it is carrying on against consumption, the National Red Cross has issued a stamp for use on Christmas letters and packages this year. The stamp was designed by Howard Pyle, and bears in addition to the name of the society, the inscription "Merry Christmas and Happy New Year." The stamps will be sold in sheets or in small books at the rate of nine for ten cents. They are, of course, not good for postage. This scheme for raising money was first tried in Denmark in 1904, under Government supervision, and has since been continued with great success. Last year the National Red Cross here took up the scheme, confining their work to the State of Delaware. Nearly $3,000 was cleared. This year the stamp will be distributed throughout the United States.

Accidents of the Rail.—According to the report of the Pennsylvania State Railroad Commission, 302 persons were killed and 3,514 were injured by accidents on steam and electric railways in the State during the months of July, August, and September. Of these 253 were killed and 2,039 injured on steam roads. Sixty-four per cent. of those killed on steam roads were trespassers, more than 25 per cent. employees, and less than 1 per cent. passengers. Of those injured on steam roads more than 72 per cent. were employees, more than 11 per cent. trespassers, and more than 10 per cent. passengers. Of those killed on electric lines more than 26 per cent. were passengers and only a little more than 4 per cent. employees, while of those injured more than 70 per cent. were passengers and less than 4 per cent. employees. At grade crossings 21 persons were killed and 48 injured by steam roads, while 1 was killed and 2 were injured by electric roads.

Plague in the Azores.—An outbreak of bubonic plague has been reported in Terceira, one of the Azores.

Milkmen and Butchers Fined.—Twenty-five milk dealers and an equal number of butchers were fined sums varying from $10 to $35 in the Court of Special Sessions, New York, on October 28. The milk dealers were charged with putting formaldehyde and water in the milk, and the butchers with preserving meats with sulphurous acid. Over one thousand dollars was collected from the fifty men.

Chicago and Clean Milk.—The Chicago Department of Health is taking a firm stand in the

effort to safeguard the city's milk supply, and will exercise a strict supervision over the farmers who ship the milk. On October 28 thousands of yellow tags were sent out to dairymen, on which they will be required to report twice a week all cases of contagious diseases appearing in their own families or the families of their dairy hands, or the absence of any such diseases. In the event of failure to make systematic and regular reports, the milk from the dairy will not be allowed to enter the city.

Cocaine Peddler Arrested.—Startling statements have been made recently regarding the use of cocaine among some of the boys in the high schools of Philadelphia, and one man was arrested on October 29, charged with peddling the drug. The prisoner was held in $2,000 bail, and because of the threats of the irate mothers of the victims, seemed glad to go to jail.

Medical School Inspection.—The medical inspectors of schools of Chicago examined 9,374 school children during the five school days of the week ended October 24, and excluded 424 on account of contagious diseases. The principal causes of exclusion were as follows: Scarlet fever, 6; contacts with scarlet fever, 12; contacts with diphtheria, 6; measles, 7; contacts with measles, 5; whooping-cough, 7; contacts with whooping-cough, 7; chicken-pox, 14; contacts with chicken-pox, 12; tonsillitis, 109.

Study of Russian Criminals.—It is reported that a laboratory for the study of criminals has recently been established in Russia under Government control, about $750,000 having been appropriated for the purpose. It is planned to work along the lines already mapped out by Arthur MacDonald of Washington, who has written extensively on criminal anthropology and has brought the subject to public attention many times.

Dr. Hamilton Wright of Washington sailed on October 27 from San Francisco to attend the International Opium Conference at Shanghai, which has for its purpose the assistance of China in the effort to abolish opium smoking among the Chinese people. Dr. Wright stated that among white people here opium smoking is confined almost entirely to the criminal classes, while among the Chinese of this country about 20 per cent. are confirmed opium smokers, 25 per cent. total abstainers, and the remainder occasional smokers.

Centenarian Celebrates.—Mrs. Mary Ann Souders, of Conestoga Centre, Pa., celebrated her one hundredth birthday on October 30. She is in good health and has unimpaired faculties; her life has been spent in Lancaster County, Pa.

D. Walter R. Gillette is seriously ill at the Roosevelt Hospital, New York, where he was operated upon for intestinal trouble recently.

"Santé," a journal of health, made its first appearance in September, 1908. It aims to present in popular language useful information concerning health topics, particularly information on the subject of tuberculosis. It is published at Asheville, N. C., under the editorial supervision of Dr. Paul Paquin.

Charitable Bequests.—The will of the late Mary J. Kelly of New York, which wac filed recently, provides for the gift of $500 to St. Francis' Hospital, and of a like sum to the Misericordia Hospital.

New Hospitals Opened.—The Elyria Memorial Hospital, at Elyria, Ohio, was opened for the reception of patients on Saturday, October 31. The building is a handsome one, four stories high, and thoroughly equipped.

The new Case Wing of St. Luke's Hospital, Cleveland, Ohio, was opened on October 18, when dedication exercises were held. The wing was built at a cost of $30,000 as a memorial to the late Dr. Guy Buttles Case.

Hospital in Seoul.—A magnificent hospital built by the Japanese Government was recently opened in Seoul, Korea. It is said to be one of the finest institutions in the East, and includes a school of medicine.

The Hospital Ship "Relief" has been detached from the Atlantic fleet now in the East, and assigned to the Pacific fleet. The vessel has been ordered to Callao to report. After leaving Manila the Atlantic fleet will divide into two squadrons, and the hospital ship will not be needed. She is under the command of Surgeon Charles F. Stokes.

Illinois Conference of Charities.—This conference put itself on record at its thirteenth annual session as favoring the establishment of a State Colony for Epileptics, a State Sanatorium for Tuberculosis, and the extension of the work of the visitation of children. A resolution was also introduced by Dr. W. E. Taylor, calling for a State law for physical and mental examination before the issuance of marriage licenses. The following officers were elected: *President,* Wm. C. Graves, secretary of the State Board of Charities, Springfield; *Vice-President,* Rev. James J. Shannon, Peoria; *Secretary,* Dr. Frank P. Norbury, Jacksonville; *Assistant-Secretary and Chairman of the Committee of Exhibits,* Harry N. Heiser, Peoria.

The Vermont State Medical Society held its 95th annual convention in Rutland, on October 23. Officers for the ensuing year were elected as follows: For the house of delegates, *President,* Dr. M. L. Chanler, Barre; *Vice-Presidents,* Dr. W. L. Slayton, Hyde Park, Dr. H. H. Lee, Wells River; *Secretary,* Dr. C. F. Dalton, Barre. For the society, *President,* Dr. C. W. Peck, Brandon; *Vice-President,* Dr. S. W. Hammond, Rutland; *Secretary,* Dr. C. H. Beecher, Burlington; *Treasurer,* Dr. B. H. Stone, Burlington; *Auditor,* Dr. J. H. Blodgett, Bellows Falls.

The Virginia State Medical Society at its thirty-ninth annual convention in Richmond. during October, elected the following officers: *President,* Dr. Stuart McGuire, Richmond; *Vice-Presidents,* Dr. O. C. Wright, Jarretts, Dr. E. T. Brady, Abingdon, Dr. Reid White, Lexington; *Secretary,* Dr. Landon B. Edwards, Richmond; *Treasurer,* Dr. R. M. Slaughter, Alexandria; *Chairman of the Executive Committee,* Dr. Louis Bosher, Richmond.

Chicago Gynecological Society.—At the October meeting, the following officers were elected: *President,* Dr. Henry F. Lewis; *Vice-Presidents,* Drs. Chas. E. Paddock and Rudolph W. Holmes; *Secretary,* Dr. Gustav Kolischer; *Treasurer,* Dr. Chas. B. Reed; *Editor,* Dr. Emil Ries; *Pathologist,* Dr. George Schmauch; *Councilor,* Dr. Robert T. Gillmore; and *Alternate,* Dr. Channing W. Barrett.

Scandinavian American Medical Society of Chicago.—At the October meeting of this society, Dr. O. Theodore Roberg was elected *President;* Dr. E. O. Olsen, *Vice-President,* and Dr. A. Klovstad, *Secretary-Treasurer.*

The Southern California Homeopathic Medical Society at its meeting in Los Angeles, recently, elected the following officers: *President,* Dr. Walter E. Nichols; *Vice-President,* Dr. W. J. Hawks; *Secretary and Treasurer,* Dr. F. S. Barnard.

Obituary Notes.—Dr. Henry Denton Nicoll, of New York, died of heart trouble on October 27, at New Windsor, N. Y., in the house where he was born sixty-four years ago. Dr. Nicoll was graduated from the College of Physicians and Surgeons of New York in 1866, and was a member of the American Medical Association, the Academy of Medicine, the New York State Medical Society, and the New York Pathological Society, consulting surgeon of the Woman's Hospital and the Nursery and Child's Hospital, consulting obstetrician to the Lincoln Hospital, and consulting gynecologist to the Presbyterian Hospital and the Home for Incurables. He was one of the organizers and administrators of the New York Infant Asylum, one of the founders and the treasurer of the Law and Order League of the State of New York, and a prominent member of the Presbyterian Church.

Dr. Harry Plympton, of Brooklyn, N. Y., died on October 29, at his home after a long illness, aged 50 years. Dr. Plympton was graduated from the Long Island College Hospital in 1880, and for two years was on the staff of the Kings County Insane Asylum, making a specialty of nervous diseases.

Dr. John E. Kohler, of New Holland, Pa., died on October 31, at the age of 57 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1873.

Dr. William S. McCall, of Fulton, Mo., died at his home on October 15, after a long illness, aged 74 years. Dr. McCall was born in Virginia, but his family soon after emigrated to Missouri, where he had since lived. He was graduated from the Missouri Medical College in 1857, and practised medicine for over forty years.

Dr. Henry A. Weymouth, of Andover, Mass., died at his home on October 22, after a few weeks' illness, aged 88 years. Dr. Weymouth was graduated from the Woodstock Medical College and also received a degree from Dartmouth. He had been in continuous and active practice in Andover since September, 1843.

Dr. Charles Franklin Rand, of Bellefonte, Pa., died at his home on October 13, from angina pectoris, aged 67 years. Dr. Rand, who was said to have been the first man to volunteer for service in the Union Army during the Civil War, and who ceived the first Medal of Honor presented by Congress, was graduated from the University of Georgetown, Washington, in 1873. During the war he spent three months in Libby Prison.

Dr. William R. M. Kellogg, city bacteriologist of Seattle, Wash, died on October 14, in the Seattle General Hospital, of chronic amebic dysentery, aged 33 years. He was graduated from the Johns Hopkins Medical School, Baltimore, in 1904, and had interested himself actively in the prevention of tuberculosis, publishing a small magazine called the *Coast Journal of Tuberculosis.*

Correspondence.

CEREBRAL RHEUMATISM.

To the Editor of the Medical Record:

Sir:—I am very grateful to you for bringing up the subject of cerebral rheumatism in your editorial of September 26, 1908, as it reminds me of some cases of the same disease I had occasion to observe, and especially of an interesting one I treated myself. You mention an article by Marcel Labbé in the *Tribune Médicale* for July 4, 1908, and another by R. Lépine in the *Lyon Médical* for July 12, 1908. Only the former was accessible to me. I must confess I cannot agree with the author in making the diagnosis of cerebral rheumatism in all three cases under discussion. According to my opinion, it would be more correct to designate them as cases of delirium tremens occurring during an attack of rheumatism, just as it is not accurate to speak of cerebral pneumonia in a case of pneumonia complicated by delirium tremens.

The author quotes, in support of his interpretation, the works of Trousseau, whose monograph on cerebral rheumatism is before me. Trousseau describes six forms of the malady, viz., the apoplectic, the maniacal, the meningitic, the hydrocephalic, the convulsive, and the choreic, but adds that this division is an artificial one. Of all these forms, it seems to me, only the last one stands in casual connection with rheumatism, while the other five are merely accidental manifestations of two diseases occurring simultaneously. This is confirmed by the relative frequency of the choreic form and by the efficacy of the salicylates in curing both chorea and rheumatism. Regarding the salicylates, my own experience tends to show that only large doses, say 2 drams salicylic acid or 2½ drams salicylate of sodium pro die for three or four days are productive of the best results in acute rheumatism.

But I feel I cannot accept Trousseau's conception of cerebral rheumatism. I should like to emphasize the fact in contradistinction to both Labbé and Trousseau that a form of cerebral symptoms occurs—or did occur in the presalicylic period—independent of alcoholism and psychosis, and that, strictly speaking, for these the term cerebral rheumatism should be reserved. In this view I am in harmony, among others, with Damsch, from whose discussion of inflammatory rheumatism in Ebstein and Schwalbach's "Handbuch der praktischen Medizin," 1905, Vol. III, page 824, the following is taken: "Exceedingly serious cerebral symptoms are observed in hard drinkers who react even at low temperatures with more or less violent delirium. The early appearance of the latter, its independence of hyperpyretic temperatures and the abatement of the symptoms, together with the diminution of the articular swellings, give rise to the thought that a toxic substance has directly influenced the brain, which may be considered as having been made particularly receptive by alcoholism. However, the severest cerebral symptoms, fortunately rare, also occur independent of alcoholism, and, being so conspicuous, lead to the designation of cerebral rheumatism. These symptoms are always accompanied by an excessive rise in temperature, unusual in rheumatism, to 41° C. (105.8° F.) and more. This form of the disease appears either at the onset or in the course of the malady, which starts in the usual way. Violent delirium, great motor restlessness, confusion, convulsions, etc., predominate. The pulse is rapid, small, and feeble; cardiac exhaustion soon manifests itself in facial cyanosis and death mostly occurs after a few days, accompanied by a further rise of temperature to 42°-43° C. (107.6°-109.4° F.). As the anatomical examination of the brain reveals no material changes, we are undoubtedly right in considering these cases to be due to an unusually severe form of infection."

Of the latter type were the five cases which occurred within two or three months in the winter of 1872-73 in the City Hospital in Leipsic, Germany. Four of these patients died in the way described above. The fifth was under my personal care. He was a little over 40 years old, single, a merchant by profession, not nervous, a moderate drinker and smoker, not strong, but rarely ill. He lived on a cold, damp main floor, and came to the hospital after a few weeks' illness His temperature was 102°-103° F., pulse corresponding, and all the joints of the lower and upper extremities were affected. The treatment at that time consisted in the administration of colchicum internally and fixing the joints by means of splints. He was sick in the hospital for two or three months when, shortly after the outbreak of the cerebral form in the four other cases, he developed the same symptoms. At the same time he suffered from about twenty bedsores, the largest, over the sacrum, as big as the palm of a small hand and exposing the bone. The fatal ending of the other four cases prompted me to apply a different treatment in this case, namely, hydrotherapy, which had proved highly successful in other fevers, but the use of which in acute rheumatism was considered nearly criminal.

When given the bath his temperature was 41° C. and the pulse was 144 and very feeble and irregular in strength. The water in the tub was about 80° F., and water of about 60° F. was poured over his head. After this had been done several times the delirium disappeared, and he exclaimed: "O, now I feel better." The bath was continued for ten minutes, after which his mind was entirely normal, his temperature fell in a few hours to 39°-38° C. (102.2°-100.4° F.) and his pulse to 110. After three or four days, during which the temperature

of the daily bath was gradually increased, his temperature and pulse became entirely normal, he regained his appetite and picked up slowly. The bedsores healed, the largest being closed by skin grafting, but as for the first weeks he could not make use of his limbs, massage was administered and passive and active movements undertaken, and after nearly one year from the beginning of his illness he was able to resume his vocation. I continued to see him frequently for eight years after his convalescence, during which he remained in good health and led a temperate life and was free from nervousness.

I ascribe the severity of his disease to the unhealthy conditions of his dwelling, and am inclined to believe that the germs of the disease—*Bacillus perfringens* does not seem to be universally acknowledged as its cause—are sometimes of a more pernicious nature than at other times, for it was striking that cerebral rheumatism occured in five cases within a few months, whereas we did not see any others for many years.

Oswald Joerg, M.D.

12 Schermerhorn Street, Brooklyn.

TREATMENT OF PNEUMONIA.

To the Editor of the Medical Record:

Sir:—I read with a good deal of interest Dr. Deek's paper on "Pneumonia on the Isthmus of Panama" as it appeared in the Medical Record of October 3. The paper was well written, and showed very careful attention to details, but I was disappointed when I read the appalling death rate that occurred—a death rate of from 25 to 58 per cent, the average 37 per cent. But when I read of the treatment—the quinine, the morphine, the strychnine, and the whiskey "ad libitum"—I saw a reason for the complications, and for the large death rate.

Let us see! In pneumonia there is one thing prominent above all others, blood poison, *blood loaded with toxins*, and as "the blood is the life," one must get rid of the toxins, or one will soon have a dead patient. I take the record of the treatment as Dr. Deeks gives it. Quinine is the first remedy; but does that help to throw off the toxins? No, it increases them. The condition of the blood is made worse by the use of quinine. It is the same with morphine and whiskey, both adding to the toxins of the blood and hastening the end. Whiskey does more than poison the blood; it stimulates the heart to increased labor and hastens the condition so dreaded—heart failure. There is not a single thing in the treatment as given in this article that tends to relieve the blood of its toxins, but everything given increases the blood poison.

If it is true that the one thing prominent in pneumonia is blood poison, then it is absolutely necessary to get rid of the poison, and if one can get rid of this one will save his patient, and the quicker the poison is got rid of, the better for the patient.

The first step in removing the toxins in pneumonia is a soap and hot water bath and as vigorous rubbing as the patient can have with a coarse towel. The second step is the washing out of the colon with a magnesium sulphate solution—one rounded tablespoonful to a quart of hot water. This solution is to be thrown into the bowel until the latter is thoroughly cleansed. This gets rid of the fecal matter, one of the marked sources of poison, and as the magnesium sulphate has special affinity for the carbon in the toxin, it lessens its virulence. The third step, bathe the patient from head to feet with a hot magnesium sulphate solution—one heaping tablespoonful to one quart of hot water; place a compress about the neck of the patient, also over the inflamed lungs, the compresses to be wet in the hot magnesium sulphate solution. Then dissolve 1-125 grain of aconitine in a half glass of water and give one teaspoonful every hour; give what cold water the patient calls for, in small quantity, but often. Also change compresses about the neck and chest every half hour. This is a treatment that eliminates and withdraws poison from the blood, and is as certain in its action as that water will quench thirst. After the fever abates, I should continue the hot compresses and baths three or four times a day and give 1-67 grain of bryonine dissolved in one-half glass of water, one teaspoonful every hour, until soreness is gone from the lung; then as a nerve tonic use strychnine arsenate, 1-134 grain, every three hours. For nourishment, as much cold or hot water as the patient may desire for three days; then meat juice and grape juice until the patient is ready for more solid food. Such a treatment as this, intelligently applied, will purify the blood, lessen complications, and lower the death rate. Quinine, morphine, and whiskey have no place in the treatment of pneumonia.

D. S. Coles, M.D.

Wakefield, Mass.

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEDICAL SOCIETIES—POSITION OF JUNIOR SURGEONS—TROPICAL SCHOOL—OLD AGE—CANCER RESEARCH—BROMPTON'S PRIZES—SCHOOL INSPECTION—FEEBLE MINDED—HUNTERIAN MUSEUM—ROYAL WATERLOO HOSPITAL—OBITUARY.

London, October 16, 1908.

The societies, as well as the schools, are now at work. As all cannot be mentioned at once, I will send you a note to begin with on the venerable Medical Society of London, which met on Monday, when the president, Mr. C. B. Lockwood, delivered a specially interesting address. The great increase in the number and arduous nature of modern operations, he said, entailed an amount of exhausting labor that few realized. Recent deaths among junior hospital surgeons suggested that they might have succumbed to the strain and stress of their work. Some were certainly strong men, but long hours in the out-patients' rooms, in the wards and in teaching, with night work and insufficient rest or recreation, were not calculated to fortify them to withstand the influences to which they were exposed. Some of his own friends had become victims to tuberculosis and other infectious diseases. The surgical out-patients' departments in which so much good work and teaching was done, were always crowded—often ill ventilated and dust laden. Operating theaters unless scientifically ventilated and lighted become highly prejudicial on account of the scarcely supportable atmosphere. The overworking of the juniors was having a bad effect not only on their health, but on their scientific work. If British surgery was to maintain its position its makers must have time to think, to work and to record their achievements. They also needed recreation in the open air. This involves an outlay not always at command. The public who support hospitals fancy these posts are profitable, and hospital committees often imagine that the emoluments of teaching are handsome and all-sufficing. He did not see a remedy in an increase of the staffs, as there was not space enough at present for their work, and the multiplication of hospitals would not alleviate the lot of men who were expected to work gratuitously. Some would invoke state or municipal aid. Others would restrict the numbers of admissions, especially to the out-patients' departments, and this seems to me the proper first step.

After the address Mr. R. Morison read a paper, in which a portion of lung had been excised in order to remove the stump of a tooth which had slipped down the air passage. After long distress and expectoration of thick, green sputum operation was essayed, although Roentgen rays did not show a foreign body. The stump was not removed in the portion of lung excised. The post mortem specimen of the part of the lung containing the tooth was shown and some varying opinions expressed on the case.

The Earl of Crewe presided on Wednesday at the London School of Tropical Medicine and paid a graceful tribute to his distinguished predecessor, Mr. Joseph Chamberlain, to whom the school owed its foundation. He said the ever increasing usefulness of the school would cause his name to be never forgotten. At the Colonial Office their interest in this and the kindred Liverpool school was a very direct one, for in East and West Africa alone they had some two hundred medical officers, all of whom found it part of their duty to study tropical diseases before taking up their posts in those districts. He commended the interchange which had taken place between this school and the Royal Veterinary College, and had always been impressed with the thought that doctors might advantageously study more animal pathology than sometimes they did.

Sir Clifford Allbutt then gave an address, in which he dwelt upon the great place which preventive medicine was assuming in the mind of society generally, and said it was of enormous importance, not merely that the medical profession should be expert in research, but that they should make their purpose understood by the great lay public, without whom no progress could be made. Referring to the fact that the spread of disease was very largely brought about by traffic, he said he spoke of this because an exceedingly important event was taking place in the East—the making of the

railway to Medina, Mecca and Bagdad. The religious pilgrimage, as was well known, acted as one of the strongest possible carriers of infectious disease. The slow pilgrimages on foot had been carefully watched and every possible step taken to prevent the carriage of disease, but that would be difficult with swift railway communication. If a great pestilence followed the opening of the line it must not be said they did not know. They did know. The tropical schools knew all about it. It was for the lay people to insist on that knowledge being so applied as to prevent the railway from becoming a means of propagating possibly more than one dire pestilence.

Sir R. Douglas Powell gave a pleasant little address at the West London Postgraduate College on the conditions of old age, which, he said, were too often regarded as disease conditions. He thought to speak of old age as disease was quite a misnomer, although, in a sense, they might say they were not living so much as dying all their time. But he spoke of healthy old age. Changes gradually took place as age came on—conditions which should not be regarded as disease and still less treated as such, if these conditions had not been hastened by riotous living, too strenuous labor, or hereditary disease, they should only be regarded as natural changes. He then pointed out some of the changes incidental to old age and gave suggestions as to treatment when needed. The doctor must know his medicine, but he must also learn his patient. Not a few of the ailments which old people suffer from would seem trivial in the young, but that is no reason for neglecting them. They require treatment of a very light hand with very gentle medicine.

The third report of the Cancer Research Fund appeared on Tuesday. Dr. Bashford remarks in the introduction we are still at the beginning of systematic experimental investigation and caution is as necessary as pertinacity and enthusiasm. Since the second report was issued a year ago work has continued in the laboratories steadily and profitably, and the researches are more specialized than those described in the two preceding reports. The volume is well arranged, starting with more general papers giving the evidence on which the comparative biological and experimental study of cancer is based, followed by those dealing with particular problems. Dr. Bashford contributes an interesting paper dealing with points of general interest as to the incidence of the disease and its association with different forms of chronic irritation in mankind. Dr. Seligmann gives an account of new growths met with in New Guinea. Dr. Murray writes on the zoological distribution of and records some new observations on cancer. "The Nature of Resistance to the Inoculation of Cancer" is considered by Dr. B. R. G. Russell, and other papers deal at length with the tumors of mice, the features of their growth and the means by which it can be modified, or even inhibited. Drawings and photographs are added to the report, and there is a list of the contributions issued by the Fund. Rigid rules for making and recording experiments have been adopted from the first, so that such can be repeated as may be desirable and the results compared. In reference to this, imperfect records have too often reduced the value of some experimenters' results to a minimum and have prevented an accurate repetition of their experiments. No indications of a curative serum or a prophylactic vaccine have been discovered, and the rationale of early resort to removal of malignant tumors is amply justified by experiment. Alleged empirical remedies are useless.

Our Brompton Hospital friends are elated at the prizes awarded their institution by the International Congress on Tuberculosis held at Washington. They have been informed by cable that they have gained the prize for the best hospital exhibit for treatment and that their sanatorium wins the prizes for the curable cases. This is very encouraging to them. The building of their sanatorium at Frimley cost £70,000 and exhausted their exchequer. Patients are taken only from the hospital, so that proper care is exercised in their selection, only those likely to receive the most benefit being transferred. One of the distinctive features is the system of graduated exercises which is adopted. Frimley is our largest sanatorium. Its "cures" so far are estimated at 80 per cent. It may interest you to learn that the model of it which gained the prize was almost completely made by the patients, who took the greatest pleasure in constructing it. A third prize has been awarded, the cablegram says, to the Women's Health Association of Ireland for their work in preventing tuberculosis.

How best to meet the obligations imposed by the medical inspection of school children is exercising the minds of a number of local authorities. It is admitted that inspection can be of little value except as a matter of statistics unless some method of supply treatment be provided. The plan of school clinics proposed I have already reported, but the local bodies are by no means anxious to adopt it. In London it is suggested that everything which could reasonably be required could be supplied by the numerous provident dispensaries, that the local bodies might contribute at first the trifling payment and that the parents, as a rule, would soon be ready to continue this form of insurance against sickness if its purpose were properly explained to them.

Dr. W. A. Potts, late investigator to the Royal Commission on the Feeble Minded, read a paper on Tuesday at the Society for the Study of Inebriety, in which he maintained that his investigations proved that alcoholism was twice as common in the antecedents of children in special schools as in those of ordinary schools. Further, it established the great injuriousness of maternal drinking, leading to the conclusion that, combined with other bad influences, alcohol was a most unfavorable factor, and maternal drinking continued through more than one generation was a potent cause of degeneracy. The Royal Commission stated that the mentally defective amounted to 1 in 200 of the population.

To-day is the 115th anniversary of the death of John Hunter, and a series of demonstrations by the conservator of the Hunterian Museum and by the pathological curator is to be begun, and will be continued in the theater through the present session. The object of the Council of the Royal College of Surgeons in arranging for these demonstrations is to increase the recognition of the value of the museum by showing specimens of the collection and illustrating their bearing on general and surgical pathology and practice.

On Saturday the Princess of Wales opened a new ward in the Royal Waterloo Hospital for children and women. This is the oldest hospital for children in London, having been founded in 1816 under the auspices of their Royal Highnesses the Dukes of Sussex and Kent, and it has enjoyed the support of the Royal Family ever since, this new ward being named the Duchess of Albany. Several enlargements have taken place during its history, and in 1904 it was practically rebuilt at a cost of £45,362, which has been wholly paid. With the new ward completed thirty beds and sixty cots are available, but to carry it on about £3,700 a year is required beyond its fixed income.

The Local Government Board has informed the Hammersmith Borough Council that their Medical Officer of Health has accepted appointments at the Franco-British Exhibition which seem to be incompatible with his duties as Medical Officer of Health. In 1902, the letter states, the Board had expressed the opinion that the Council should engage the whole services of their Medical Officer. The Council reply that they then decided to make no alteration and they now see no reason for any other decision in view of the fact that Dr. Collier has continued to perform his duties in a manner so satisfactory as to enhance rather than diminish the Council's confidence in him.

The death is announced of Surgeon-Major T. Holmested, late of the Indian Medical Service. He had charge of the field force at Renn Kanta in the operations against the Bheels in 1868. He retired in 1878 and practised for a time at Hyderabad.

Another Indian medical officer's death took place in September—that of Lieutenant H. A. Knight, M.B. He entered the service only two years ago and died at Mooltan in the 29th year of his age.

Wm. Treves, F.R.C.S., of Margate, died on Wednesday, aged 65. He was known to an immense number of practitioners as a skillful surgeon at the popular watering place where he had practised for many years. He was as popular with the visitors as with the profession all through the southern counties. He was a brother of Sir Frederic Treves.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 22, 1908.

A Case of Pyonephrosis and Renal Calculi in a Pregnant Woman. Induced Labor, Nephrectomy, Recovery.—The patient of J. M. Wheeler was a woman of 37 years, with symptoms dating back five years in the middle of the fourth month of her eighth pregnancy. A firm, elastic, tender, rounded tumor extended from

the right loin up under the ribs to the tip of the tenth costal cartilage, inward nearly to the umbilicus and downward to the McBurney point. As it did not seem probable that the pregnancy would run a normal course, the uterus was emptied. Shortly after the tumor grew rapidly and she developed fever with nausea and severe lumbar pain. Abdominal incision showed the tumor was an enlarged right kidney, which was removed. The mass was in the shape of a sac, dividing into four compartments, distended with about a pint of purulent fluid. The renal pelvis contained a large stone and eight others were found in other parts of the sac. The large one weighed 768 grams and the others combined 192 grams. Recovery was without incident and the patient subsequently bore two more children. The case was a typical one as to symptoms, viz., pain, pyuria, renal colic, hematuria, tumor, urinary disturbances and tenderness. Its special interest lies in the fact of a complicating pregnancy. It was necessary to dissect away from the sac the inferior vena cava, which was adherent over the whole length of the tumor about half an inch from the inner border. There were two renal veins, about half an inch long. In the course of the operation the left kidney was palpated, but nothing abnormal was discovered, while the appendix, which was clubbed at the tip and somewhat adherent, was removed.

New York Medical Journal, October 24, 1908.

The Alcoholic Psychoses.—S. E. Jelliffe discusses this question under the headings of history, pathology, general, special and focal symptoms, clinical forms, diagnosis, course, and treatment. The histories of two personal cases are given by the author, who draws freely on the observations of various neurologists. Under the heading of clinical forms, he refers to Dupré's classification into the amnesic, confusional, delusional, anxious, and demented forms, and to Knapp's more expanded classification into the delirious, stuporous, demented, hallucinatory with and without systematization of ideas, paranoid, anxiety, expansive, maniac and melancholic forms, the polyneuritic mobility psychosis of Wernicke, and anomalous cases. The paper is a general clinical study of the entire subject. The treatment is in general the same as for multiple neuritis. The author cautions against too great zeal in therapeutics We must not overdo the matter. We must bear in mind that excessive physical work calls for an amount of nervous functioning just as mental work, that no adaptation to hit even a golf ball correctly can be carried out without an immense amount of nervous functioning, and that therefore in the earlier stages those games or occupations should be chosen which do not call for a high degree of nervous tension—such as the lazy lolling about of swimming—and that no exercise treatment should be overdone. Hard muscles, ruddy cheeks, ability to run twenty-five miles after a dog cart, these may be the delusive signs of a healthy musculature at the expense of mental restitution. It goes without saying that all alcohol-containing tonics must be avoided.

A Summary of the Results Obtained by the X-Ray Treatment of Exophthalmic Goiter.—A review of the literature is made by G. E. Pfahler, who has found records of 51 cases. His deductions from the material collated are as follows: (1) Decided improvement may be expected in about 75 per cent. of cases. (2) This improvement consists of an increase in weight and strength, and gradual disappearance of the Basedow symptoms. (3) Some improvement should be noticed within a month, and after six to a dozen treatments. (4) When this treatment is properly given there appears to be no danger. The permanency of the results is still an open question. The reports here presented were carried out to periods varying from a few months to three years after the cessation of treatment. The earliest and most noticeable improvement is in body weight. The symptoms most obstinate to treatment are the thyroid enlargement and the exophthalmos. If some improvement is not shown after one month of treatment, the latter should be discontinued for one month and then resumed. The rays should be localized upon the goiter and may be carried to the point of producing a mild dermatitis, but no farther. The author believes that this plan of therapy deserves a more general trial than it has yet received.

The Diagnostic Value of Perverse Secretion of Hydrochloric Acid by the Mucous Membrane of the Stomach.—G. Chambers cites certain well-known facts bearing on gastric physiology. He notes that the native juice free from food obtained from a gastric fistula during "sham feeding" has an acid content more than twice that of gastric contents after a test breakfast. There are so many factors taking part in the genesis of the acid content of the gastric contents that it is very difficult in some cases to determine the kind and degree of perversion of gastric secretion by chemical analysis. The author says he can easily imagine cases of diminished secretion of gastric juice as a whole (subsecretion) diagnosticated, by our present methods of examination, as hypochlorhydria; and similarly hyperchlorhydria may be mistaken for oversecretion. This view is, he thinks, supported by his observation in cases of chronic gastritis, carcinoma of the stomach, and achylia gastrica, in which the absence of marked motor insufficiency, diminished percentage of hydrochloric acid is usually associated with greater consistency of the gastric contents; and similarly hyperchlorhydria with diminished consistency. As a rule diminished percentage of hydrochloric acid is associated with an abnormally high and increased percentage, in the absence of much mucus with an abnormally low specific gravity. He refers to perverse secretion especially as regards carcinoma, acid gastritis, and achylia gastrica. According to his observations all the cases of cancer of the stomach, in which free hydrochloric acid was present in advanced stages of the disease, gave a history of having suffered from gastric ulcer or acid gastritis, affections usually characterized by excess of free hydrochloric acid in gastric contents, and frequently by a large excess. Acid gastritis is especially apt to occur in alcoholics, and predisposes to both ulcer and cancer. When the latter complicates acid gastritis or ulcer free HCl may be present in advanced stages of the disease. In achylia gastrica a common symptom is chronic diarrhea. Under these circumstances HCl is a valuable remedy in checking the bowel flux.

Journal of the American Medical Association, October 24, 1908.

Hemorrhagic Nephritis.—C. F. Wahrer gives an account of an unusually mild epidemic of scarlet fever occurring in Lee County, Iowa, in which a much larger proportion of the patients than usual had albuminuria and nephritis, a considerable percentage of these showing the diffuse form with hematuria and hemoglobinuria. Nearly all, however, recovered in spite of the usually considered seriousness of the complication, and none has since relapsed or shown any late had effects after the lapse of about two years. None of the usual factors to which such a complication is ascribed could be invoked as the cause, and the etiology of the epidemic is obscure. The treatment, so far as ascertained, was prophylactic against such complications from the beginning of the scarlatinal symptoms, and greater care was, of course, used after the hematuria appeared.

Fibroid and Anemia.—The question of anemia as affecting the operation for fibroid of the uterus is discussed by B. R. Schenck. He finds that anemia is frequently associated with fibroid, and it is often grave and even threatening to life. He is not satisfied with the theories offered to account for the frequency of cardiovascular changes in connection with fibroid. It is his belief that uterine myomata are congenital, and cannot, therefore, be secondary to alterations of the vascular system, aortic tension, or toxin. The cases on which these theories are based are those either in which degenerations have taken place or in which there has been hemorrhage. Hemorrhage he considers to be the underlying factor in a vast majority of the cases, and anemia the cause of cardiovascular changes in the larger proportion. If this is the case, the practical deduction is that all fibroids showing the slightest tendency toward an increase in the menstrual flow should be promptly removed. These patients are often seen, however, only after the anemia has become marked, and the question arises, What is then to be done? It has long been held that a hemoglobin percentage of less than 30 contraindicates operation. Certain recent writers, however, have held that we can put no arbitrary limit below which it is unjustifiable to operate, and this position, Schenck holds, is the correct one. Of course, a percentage below 30 is a grave complication and calls for special attention to numerous details, both before and during operation. When there is active bleeding, no radical measures should be attempted until every effort to stop hemorrhage and build up the patient has been exhausted. If everything fails, and the bleeding continues active, with a low blood count and bad action of the heart, he believes ligation of the uterine arteries, as advocated by F. H. Martin, is advisable as a preliminary to hysterectomy. Myomectomy should never be done, and when hysterectomy is undertaken every measure possible must be employed to shorten the time of operation, minimize the hemorrhage, maintain body heat, and sustain the blood pressure. Neglect of

these is never excusable. There is great danger of thrombosis and embolism as a postoperative complication in these cases. Histories are given of four patients operated on when the hemoglobin percentage was very low, 23, 26, 30, and 20 per cent., respectively. All but one recovered. This one seemed to improve, but died some months after the operation, apparently from typhoid infection.

Cutaneous Epithelial Tumors.—J. A. Fordyce says that the division of cutaneous epithelial tumors into basal cell and prickle cell is justified by their histological structure and clinical course. In one the basal cells of the epidermis and the outer root sheath of the hair are chiefly or solely active, this class including the well-known rodent ulcer. The prickle cell type, on the other hand, originates in the layers above the basal cells, and reproduces its own kind; it is much more malignant than the other, as a rule, since it tends to involve the lymph nodes and to produce metastases. In this form there is not so much divergence from the type of growth. In some cases the cells do not proceed to the formation of pearls, but retain their spinous or polygonal form. There are gradations between the two types. In the basal cell variety of tumors the clinical picture is as diverse as the histological one. The so-called cylindromas probably belong to the basal cell group, though an endothelial origin has been attributed to them. Fordyce describes several varieties of this type. Other conditions noted by him are carcinomatous lymphangitis secondary to cancer of the breast, and extramammary Paget's disease, of which he gives illustrative cases. These epitheliomas, he thinks, do not differ essentially from those of the nipple, except, perhaps, in degree. Multiple epitheliomas of the arms and chest in one case are also reported; the patient had been treated for syphilis by various physicians, misled by a history of lues many years before. The microscopic examination, however, revealed the true character of the growths unmistakably. A case of trichoepithelioma is also reported, which was diagnosed only after microscopic examination, there being nothing in the clinical appearance of the lesion to suggest the real nature of the growth. A case of prickle cell epithelioma occurring in the same individual, with rodent ulcer, and a case of epithelioma of the lip in a woman are also reported. Fordyce says that the *x*-ray treatment of skin epitheliomas has been more beneficial in his experience after the growth had been thoroughly curetted, thus enabling the rays to reach the actively developing cells. He has also found its prolonged use contraindicated in malignant cutaneous growths as a rule, and he believes that in certain cases it renders the tissue more vulnerable. He thinks its use should be reserved mainly for growths in locations not accessible to other treatments.

Gonococcus Vaccine.—N. E. Aronstam finds that the gonococcus vaccine acts beneficially in acute cases of gonorrhea, and the time required to cure the disease does not exceed four weeks. It is also useful and may be considered curative in some of the complications, such as epididymitis, Cowperitis, acute prostatitis, gonorrheal adenitis, enlargement of lymph channels on the dorsum penis, and in posthitis of the same origin. He has also used it lately with success in gonorrheal iritis. No other treatment, systemic or local, is necessary. In chronic cases it is inert and acts indifferently, owing to the mixed infection in these cases, and the conjoined use of other bacterins suggests itself. It is a valuable diagnostic agent, bringing to light latent or dormant conditions and showing whether a given case has actually been cured, an especially important point for sociological reasons. In dormant gonococcic arthritis it will bring about a recrudescence of the disease. It materially shortens the duration of this complication, and brings about a speedy cure. No exact rule can be given as regards dosage and intervals of administration; each case must be treated individually. Aronstam considers that the future possibilities of gonococcic vaccine and opsonotherapy in general are unlimited. Its bearing on prophylaxis in this disease, which must be recognized as a systemic and not a local infection, should be considered.

Children of the Tuberculous.—T. B. Sachs has investigated the incidence of tuberculosis in the children of tuberculous parents in the city of Chicago. One hundred and forty-six families were taken, in which one or both parents were tuberculous; all were of the average working class and largely living under unfavorable hygienic conditions. The findings are given in detail. He concludes that the infection of children by tuberculous parents must necessarily depend on several factors, and the unhygienic conditions and crowding of the poor favor its occurrence. While detection of the well-developed forms is possible with ordinary methods, the infection with the germ doubtless is more general than the diagnosed cases would indicate. Hereditary predisposition as a factor cannot be properly estimated until the factor of infection is completely eliminated, and the question of connection between tubercle infection in childhood and the manifestations of the disease in later life is still unsolved. The present trend of medical opinion is toward the interpretation of the term "predisposition" as a susceptibility of the tissues dependent upon previous infection. It is probable that a vast majority of these early infections remain unrecognized, but the eradication of tuberculosis in the human race can never be accomplished until the child is protected. At the time of their birth and for the first few years of life the vast majority of children of tuberculous parents may show no deviation from the normal type, but later, with unfavorable environment, the so-called "habitus phthisicus" may appear.

Heart Maladies.—A. G. Brown notes the increasing prevalence of heart troubles, and credits the infective diseases with the largest part in their production. The prophylactic phase of the heart problem, he says, can be outlined in one sentence. The infectious diseases and other conditions, such as derange metabolism, occupation, habits, etc., affecting the viscera must constantly be kept in mind by the physician. He divides cardiopaths into three general classes: (1) Those in whom the compensation is perfect; (2) those in whom compensation is waning; (3) those in whom compensation is lost. The main question is by what means can the first group be kept as such, and how can the largest number of those falling under the second and third group be reclaimed and placed in the first group. In other words, the duty of the physician to the patient is to support the musculature. He specially discourages any secrecy on the part of the physician toward the patient in regard to these matters. The first and most fundamental step to be taken to protect the cardiopath from an untimely end is publicity. Candor and careful explanation will do much to correct the state of affairs. Those cardiopaths in whom the compensation and the conductivity of the auriculoventricular bundle is good, and in whom the cardiac muscle is fairly strong, may need little or no medicine, but they should have medical advice as to exercise, vocation, habits, baths, the danger of intercurrent disease, the use of drugs, changes of climate, etc. The second and third group must be treated with the same candor, but more skilfully and carefully. Those of the second group should have more constant supervision, frequent cardiac examinations, and proper remedial measures to restore the waning compensation. The cooperation of the patient in these cases is of the utmost importance. The third group presents a syndrome comparable to the last stages of cancer or phthisis, but, unlike these conditions, heart disease, with all its discomforting symptoms, offers a chance of striking medical success. The two points especially insisted on in this paper are a more careful treatment of the infectious diseases to protect the heart, and more candor and public education in regard to those disorders.

The Lancet, October 17, 1908.

A Diphtheria "Carrier."—T. Strain reports the case of a girl nursemaid who went through a severe attack of diphtheria and discharged from hospital with a free record as to absence of baccili in the throat. After she had resumed the care of children, one of the latter contracted diphtheria. A culture from the maid's throat now showed the Klebs-Loeffler bacillus. She was isolated and again declared free. Still again one of her charges, this time in another family, became ill. The maid was readmitted to hospital and subjected to steady treatment with antiseptic sprays, scrubbing, etc. She remained in hospital for six weeks, by which time the throat was free, but the nose still harbored the bacilli, yet only intermittently, from which it was conjected that they might come from one of the accessory sinuses which previously discharged its contents into the nares. It was nine months before the air passages were baccili free.

Unusual Cause for Rupture of the Rectum.—The patient of C. L. Franklin, a lad of 17 years, was crushed between some machinery in a cotton mill. On admission to hospital he was apparently moribund, suffering from shock and severe hemorrhage from the rectum. The rectum was firmly plugged with gauze and the hemorrhage ceased, saline solution was infused into the median basilic vein, and the usual treatment for hemorrhage carried out. However, the patient died within two hours of admission. The only marks of external injury were slight contusions in the left hypochondriac region and over the forehead. At the post-mortem examination the pelvic peritoneal cavity was found to contain a large quantity of blood. There were a slight laceration of the liver and a vertical tear on the anterior surface of the rectum three-quarters of an inch in length and situated at a distance of three and a half inches from the anus. There was no fracture of the pelvis, sacrum, or coccyx, nor sign of injury about the region of the anus. The other organs were normal. The gauze packing was projecting into the peritoneal cavity through the rent in

the rectum. The main interest of the case lies in the possibility of a rupture of the normal rectum from increased abdominal pressure. Cases of vertical rupture of the rectum due to straining in order to pass hard scybalous masses have been recorded, but in these cases the rectal walls are undoubtedly abnormally thin and ruptured without great difficulty.

Treatment of Acute Appendicitis as It Comes Under the Care of the General Practitioner.—In mild cases J. Phillips advises rest in bed, abstinence from food, plenty of hot water, but nothing which can leave any residue. He gives no calomel, but if flatus is present orders a turpentine enema. An alkaline carminative comforts the patient. If pain is felt, a little morphine may be called for in pill, suppository or enema. If the foregoing does not relieve the patient in two or three days, and if the pain continues, we probably have a more severe case with which to deal. We now begin to look for a more or less irregular mass in the right iliac fossa. The author counsels delay in operation. To operate at once means, he says, tedious dissection through acutely congested and friable tissues down to what is usually quite a minute collection of pus around an appendix so soft and glued down that its removal is extremely difficult. Moreover, the pus is full of colon bacilli and infection of the abdominal wound becomes practically certain. If, on the other hand, rest and starvation are persisted in, the temperature will come down and the lump disappear in the great majority of cases. Then, in a week or two, operation may be done. The adhesions are easily separable, the appendix sufficiently firm to be easily dealt with, and if a little pus remains about the appendix tip, the colon bacillus is probably absent and primary union will result in the abdominal wound. When there is evidence of acute peritonitis without any iliac mass, indicating that the inflammation is well localized, immediate operation may be indicated. The question is whether the pus is efficiently or inefficiently shut off around the appendix. The author lays great stress on a condition of the abdomen which he thus describes, considering it practically pathognomonic of diffused purulent periappendicitis. If the patient's whole abdomen is bared it will be found to be more distended than normal, and if well diffused or generalized peritonitis is present there will be general immobility and rigidity (except when the patient is poisoned by morphine in the early stages or towards the end of the case by the products of the peritonitis) and all the regular signs of well-developed peritonitis. If, however, the pus is confined to the region of the appendix and is only threatening to generalize, but has not already done so, careful observation will reveal some slight movement at any rate in the epigastric region and sometimes also of the left half of the abdomen. If the surgeon's warm hand is now gently placed on the abdominal wall, care being taken not to exert any pressure, the epigastrium being palpated first, the rectus abdominis will be found to give slightly with each respiration. Carry the hand down over the left rectus to the pubes and the same slight movement will be observed. Now glide the hand back to the epigastrium (it should not be raised from the abdominal wall until the examination is completed) and down the right side of the abdomen. When the appendix region is reached if there is pus present the segment (not the whole muscle) of the rectus abdominis over the appendix will be found to be firmly contracted and board-like. All that is needed to demonstrate this sign is great gentleness during the examination in order not to excite general contraction of the recti muscles. Such a condition indicates immediate operation.

British Medical Journal, October 17, 1908.

Use and Misuse of Iron Remedies.—Eustace Smith says that to take anemia as a sure guide to the immediate use of iron is to fall into one of the commonest of errors. To get any benefit from such a remedy, the tongue must be clean and the digestive organs in a healthy state. Preliminary antacids and stomachics are called for and then the iron will be beneficial. Often in chlorosis there is considerable tenacious mucus in the stomach, and the use of an emetic will help far more than the routine administration of aloes and iron. Any benefit which may result from the latter combination is probably due to the laxative ingredient. It is often advantageous to begin the treatment of anemia with the ammoniocitrate in some bitter infusion, changing to a stronger iron preparation as the tongue grows cleaner. The author then enumerates certain of the B. P. iron preparations which he has found useful in various clinical conditions. He closes by saying that the chalybeate salts, when given with judgment, are remedies which we could ill spare, but the indiscriminate use of these preparations is to be deprecated. Iron must not be regarded as an infallible specific in every form of anemia. The cases for which it is curative must be chosen with judgment, and every care must be taken to see that the digestion is in a condition to profit by the remedy. Any sign of irritability of stomach is to be taken as an indication that the stronger preparations are to be avoided, and even the milder salts—the tartrate and the ammoniocitrate—should be prescribed timidly, and only in conjunction with an alkali, such as citrate of potassium or the aromatic spirit of ammonia, in a freshly-made bitter infusion. If the tongue be clean, or merely flabby and pale, showing indentations of the teeth at the sides, the stronger salts may be prescribed with confidence, and the dose may often be pushed with advantage if aperients are given from time to time as already recommended.

The Analogy Between Spontaneous Recoveries from Cancer and the Specific Immunity Induced by X-Ray Irradiations of the Lymphatic Glands Involved.—Four cases are recorded by H. D. McCulloch, who has endeavored to induce autovaccination by the *x*-ray. At first he tried the procedure in tuberculosis, gauging his method by the opsonic index. More recently he has tried the same method in treating the lymphatic glands involved in cancer and its secondary infections, but as the cancer microorganism, if such there be, is not cultivable, it has not been possible to make use of the opsonic index in the cases here reported. The clinical symptoms of these cases were, however, sufficiently marked and progressive to be depended upon. It should be noted that the glands in these cases, which are usually remote from the site of the lesion, were alone exclusively irradiated, the rest of the body, including the lesion, being effectually screened from the influence of the rays. The author says that in the diseases which involve the production of an immunizing agent, the lymphatic involvement in its early stages is physiological and not pathological, therefore, not manifested to our senses either subjectively or objectively. A microbic attack necessarily involves the initiation of the formative process of an immunizing agent, this process being completely carried out in those cases in which a certain adequate dose of the infection is successfully repelled. Hitherto, lymphatic glandular involvement in the infectious processes in the animal body has been looked upon most unfavorably both by the physician and the surgeon, as "a spreading of the disease into the most vulnerable parts of the system," and not as an extended response of the body in the mechanism of bodily defense. These glands which are usually conspicuous in the neck and armpits are therefore cut out as completely as possible; it is said, "to prevent further spread," or "recurrence" of the malady. It should, however, be noted that there is this serious inconsistency in what has been called the "radical operation" in cancer, that these glands are usually left undisturbed, when they are not easily accessible to the fingers, as in operations for cancer in the abdominal organs. The fact that these glands have been estimated to number from 800 to 900 in the human subject, and that they exist for the purposes of a most important function, seems to have been entirely overlooked.

Berliner klinische Wochenschrift, September 7, *and October* 5, 1908.

Leucocytosis in Appendicitis.— Kothe says that according to Arneth the number of fragments composing the nuclei of neutrophile leucocytes undergoes certain definite changes in disease. In health the cells containing one, two, three, four, and five fragments reach certain constant percentages of the total number of leucocytes, while in disease the cells with fewer fragments of nuclei quickly increase in number at the expense of the cells with the larger number of fragments. This is explained by the supposition that the cells with many nuclear fragments are the older cells many of which perish in carrying out their phagocytic activities and in their place the younger mononuclear cells and cells with only two or at most three nuclear fragments appear. Kothe has found that the normal percentage of mononuclear neutrophiles is six. He has examined eighty-six cases of appendicitis in reference to any changes in this percentage and has found that the cells of this character reached from eight to twenty-five per cent. of the total leucocytes in cases of simple acute appendicitis; in cases of suppurative appendicitis, on the other hand, with empyema or gangrene of the organ, the percentage of the mononuclear neutrophiles reached from twenty-three to sixty-five per one hundred cells. The curves of temperature and pulse ran parallel to the percentage of mononuclears, and the three together gave in most cases valuable indications for the prognosis and treatment of the cases. Mononuclear percentage over thirty should be a strong argument for an immediate operation.

The Cause of Scarlet Fever.—Gamaleia says that the excitants of scarlatina are to be sought among protozoa and not among bacteria. He has examined 25 scarlet fever patients and has succeeded in finding definite protozoa-like structures in the skin, pharynx,

blood, and the internal organs The typical form of the organism consists of five rounded elements grouped about a sixth central body. They are found free in the tissues or included in polynuclear leucocytes, and are in no wise similar to products of cell degeneration. In places they are grouped in very regular colonies that resemble those observed among the radiolaria. The forms observed by Mallory are probably stages in the development of the parasite.

Atrophy of the Kidneys in Ureteral Fistulæ.—Asch has observed several cases of ureteral fistulæ opening into the vaginæ of patients, which gradually discharged less and less urine, though the communication between the ureter and the bladder was not reestablished. In no case were there any symptoms present that could point to hydronephrotic distention of the kidney on the side of the fistula. Finally the secretion stopped altogether, while the usual amount of urine was passed from the bladder. Asch suspected that in these cases gradual atrophy of one kidney took place and was able to confirm this view in operating upon one patient with ureteral fistula. Her kidney proved to have much diminished in size and microscopically showed an advanced grade of atrophy in all elements. His observations are of importance in connection with the therapy of ureteral fistulæ. They should be cured by implanting the injured ureter into the bladder as soon as possible after their development. If several weeks or months have passed and the secretion has been progressively diminishing they may be left alone, for the kidney on that side is probably undergoing rapid atrophy.

Münchener medizinische Wochenschrift, September 8 *and* 29, 1908.

A New Test Meal.—Schlaepfer recommends the use of a soup made of flour, egg albumin, and butter and colored by the aniline dye, neutralized. The first opening of the pylorus is shown by the appearance of the dye in the urine, and this phenomenon observed for the time of its duration gives a measure of the motility of the stomach. The secreting function is easily judged by the relative amount of the colored liquid and of the gastric juice in the fluid obtained by the stomach pump. The peptic digestion of the stomach may be estimated by the color of the fluid, while the usual titration methods may be applied to the mixture obtained just as in case of other test meals.

Acute Thyroiditis.—Dunger reports seven cases of this rare affection, all of which occurred in young females. The diffuse swelling of the gland was a predisposing cause. The onset was always acute and was sometimes accompanied by a chill. High fever was present in the course of six out of the seven cases and a relapse occurred in one. The constant subjective symptom was sore throat, which was aggravated by attempts at swallowing, which is explained by the movements of the gland in the act of swallowing. In addition there were radiating pains involving the ears and the occiput. Respiration was interfered with in several cases. The swelling was very often localized in the isthmus portion of the gland. A leucocytosis was observed in one case. The thyroiditis usually accompanied some other disease, oftenest influenza, and ran a mild course in all patients.

Diuretics.—Romberg says that at present diuresis is called for in edema, in localized hydropic conditions, and in inflammatory exudates; in nephritis without exudation it is not to be used. Diuresis may be produced by improving the general circulation or by directly influencing the action of the kidneys. The first measure is effective probably because of the more rapid stream of blood produced, and not by the raising of blood pressure. Cardiac stimulants are to be used to attain this effect. To stimulate the activity of the kidneys themselves the derivatives of the purin group of substances are the best preparations. Their action depends upon an increased supply of blood to the kidneys, and is not observed if this is made impossible by pathological changes in the glomeruli. Dimethylxanthin or theocin is the most effective drug, and is to be given in gradually increased doses. Theobromin sodium salicylate or diuretin is less effective, but is useful in other cases; theobromin itself and caffeine may likewise be used. Other diuretics are very weak in comparison with the purins. Calomel and sodium salicylate have some diuretic action, but are apt to damage the kidneys when given in efficient dosage. Salts and water are older diuretics that are seldom of use, as their action is best seen in the presence of healthy kidneys and not in disease. The number of diuretics is thus seen to be very limited. A special lack is felt of a diuretic that could be administered subcutaneously or intravenously.

Unilateral Rise in Temperature.—Vogel says that Peter was the first to note that in pulmonary inflammations the temperature in the axilla of the same side as the affected lung is higher than that of the opposite side. Such difference is easily explained by the rise in temperature produced by the local inflammatory phenomena, and the thickness of the parietes in the axilla does not seem to interfere much with the transmission of heat to the surface. Vogel's examinations have shown that such differences in temperatures are quite frequent, and may be observed not only in acute affections of the lungs, but even in long-standing diseases involving one side of the thoracic contents. The phenomenon is of some diagnostic value in helping to point out the lung affected; the rise of temperature upon the other side is a valuable indication that that side is beginning to be attacked by the inflammatory process. In tuberculous patients the difference in temperatures gives a clue to the side in which the process is more active.

Deutsche medizinische Wochenschrift, October 1, 1908.

Operation in Exophthalmic Goiter.—Riedel says that medicine, as theology, has its own dogmas, and one of these insists upon the great danger of operations upon goiter in cases of Graves' disease. This is correct only in late conditions, with existence of severe bronchitis and stenosis of the trachea, or when edema of the extremities is present together with obstinate diarrhea. While medical treatment may be tried in cases accompanied by a small goiter, it should not be carried on too long if the goiter is growing larger and little improvement of the symptoms is noted. Otherwise the best time for operating may be allowed to pass by. Riedel has operated upon 80 patients with exophthalmic goiter, among 876 persons suffering from all kinds of struma. Of the last 30 cases but one died of bronchopneumonia, while of the preceding 50, seven died from the effects of chloroform or from bronchopneumonia. It is Riedel's principle, however, to operate whenever a good chance of cure or improvement is present, however bad may have been the statistical results of earlier operations; the life of an exophthalmic patient is so miserable, and death from the disease so sure that operation is fully justified. A different standpoint is advisable in cases of malignant tumors of the thyroid gland; operation should be performed only if there is a good chance of removing the tumor completely, otherwise the patient undergoes the unpleasantness of the operation and still retains the fatal disease that he had previous to surgical interference. The existence of Graves' disease has little effect upon the prognosis of operations upon goiter; the condition of the lungs at the time is the most important feature in any kind of enlargement of the thyroid. Riedel's figures show that many physicians nowadays advise operating in exophthalmic goiter, which serves to show that medical treatment offers little chance of success. No surgeon should refuse to operate in this disease, if his technique is well developed, and the condition of the patient is such as to give reasonable promise of freedom from complications on the part of the lungs.

Cesarean Section.—Pfannenstiel says that the indications for cesarean section should be much widened in view of the good results obtained with the operation with modern surgical technique. It ought to take the place of operations involving the bony pelvis whenever the condition of the patient is such as to call for as short a post-operative stay in bed as possible. In most cases, the patient, after a cesarean section, may be allowed to sit up in bed three or four days after the operation, especially if the Pfannenstiel abdominal incision has been made use of. Cesarean section could also be performed with advantage in dangerous conditions calling for an immediate emptying of the uterus; eclampsia and acute nephritis may be counted among such cases if any difficulty may be expected with the more usual methods of quick delivery of the patient. In cases of living child in a transverse position with threatening rupture of the uterus both the child and the mother may be saved by a properly performed cesarean section.

Conservation of the Ovaries in Hysterectomy.—Doleris thinks it of doubtful value to leave a portion of an ovary in the pelvis after hysterectomy. Its value must depend on the theory of an internal secretion by the ovary. The author has made use of ovarian extracts in the natural and the artificial menopause without getting any effect other than that of suggestion. In the patients in whom he has operated by hysterectomy either they were near the natural menopause and there was absolutely no unfavorable effect, or they were young patients and alike experienced no trouble. In the cases in which pain continued after removal of the uterus and adnexa he found a nervous heredity, and considers them to have belonged to the class of women who are not benefited by any treatment.—*Annales de Gynécologie et d'Obstetrique.*

Book Reviews.

The Extra Pharmacopeia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. (Lond.), D.P.H., H.M.'s Coroner for Northeast London. Thirteenth Edition. London: H. K. Lewis, 1908.

Those who are familiar with this incomparable therapeutic manual will welcome the appearance of another edition, and to those who are not familiar with it, it may unhesitatingly be recommended as in many respects the best work of its kind in existence. It treats of every form of remedial measures, medicinal and nonmedicinal, of radiotherapy, hydrotherapy, electricity, pharmacopeal and proprietary medicines. This thirteenth edition has been extensively revised and in part rewritten. The work has increased in contents out of all proportion to its size, and in the present edition the endeavor to keep the book of the same dimensions has necessitated the use of type so small and paper so thin as seriously to impair its usefulness. It would be much better to make the book of larger form with larger type and opaque paper, for the work is important enough to warrant its publication in this shape.

The Principles of Pathology. By J. George Adami, M.A., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, Montreal. Volume I, General Pathology. With 322 Engravings and 16 Plates. Philadelphia and New York: Lea & Febiger, 1908.

It is impossible in the limits of a brief review to give the reader an adequate notion of this work and all it contains. In his preface the author says that his idea of a textbook of pathology is that it should not be a mere record and description of the phenomena of disease, but rather an analysis of these phenomena in an orderly manner, and it is upon this plan that the book is written. Throughout, the writer is not content to state facts, but he gives the reason for everything and demonstrates the dependence of one fact on another, thus stimulating the reader to think for himself and to reason out, with the book for a guide, the causes of morbid actions and their results. Recognizing the cell and its changes as the basis of all pathology, Dr. Adami begins with a study of this, deferring a consideration of circulatory disturbances, which so often serves as an introduction to general pathology, to the volume of special pathology. While not ignoring the work of European pathologists, the author dwells with special emphasis upon what has been done by English-speaking workers, and thereby furnishes an excellent corrective to the fault of depreciation of what we may call "home talent," to the myopia which obscures the view of what is being done close at hand and allows a clear sight only of what is "made in Germany" or France or Italy. There is much pathological work of the first order done in the laboratories here and in England, and the student who neglects to inform himself of this is depriving himself of indispensable knowledge. In proof of this is the book before us, than which there is no better work in any language. It is written so well and in so clear a style, and every point is so lucidly reasoned out and so impressively stated, that the reader's attention is held from the first page to the last, and when he puts the book aside he feels that he has had a most enjoyable mental exercise, has made his own the fundamental facts of disease action, and has acquired a grasp of pathology in such a way as to make it appear almost like a new science. He sees more clearly than ever before that pathology is not an independent study, but rather the foundation of all medical knowledge, without which all the other branches of our science, and especially, perhaps, therapeutics, can but rock in the morass of empiricism without stability or sound basis.

Glandular Enlargement and Other Diseases of the Lymphatic System. By Arthur Edmunds, M.B., M.S., B.Sc. (Lond.), F.R.C.S. (Eng.), London: Henry Frowde, 1908.

This small volume makes no pretensions as an exhaustive treatise on the lymphatic system, inasmuch as there are few diseases in which this system does not take some active part, and hence a full description of such would exceed the limits of a handbook. However, Mr. Edmunds holds some interesting views and records some facts not commonly known. For instance, ligation of the thoracic duct has been performed nine times with no fatalities—a statement which seems almost incredible, but is explainable because of the abundant collateral lymphatic circulation. Mr. Edmunds states that deaths from wounds of the thoracic duct are due to sepsis, not to inanition. He believes also that infection of mediastinal glands with abscess formation and rupture is responsible for the general systemic diffusion of tuberculosis.

The Opsonic Method of Treatment. By R. W. Allen, M.B., B.S. (Lond.), Philadelphia: P. Blakiston's Son & Co., 1908.

The prominent place which opsonic therapy has assumed and the mass of scattered literature concerning it are the basis of this endeavor to collect such facts as shall give a general idea of the subject. There are chapters on the nature and source of opsonins, determination of the opsonic index, its value in diagnosis and prognosis, scope for the employment of tuberculin, and the treatment of urethritis. An especially interesting section shows what can be done by this method in diseases of the eye, ear, nose, and throat. The little volume will serve as a fitting introduction to the theoretical principles of opsonic treatment.

Chirurgie für Zahnärzte, von Prof. Dr. Med. Ludwig Brandt. Berlin: August Hirschwald, 1908.

At first glance it is rather surprising that a book of this size could be written on the subject of dental surgery, but upon further examination it becomes evident that surgery of the teeth occupies in reality only a very small portion of the text. German dentists are required to be surgeons in the best sense of the word, hence we find in this volume a complete treatise on wounds and their treatment, hemorrhage, healing of wounds, hemostasis, ligature of vessels, transfusion, salt infusion, and the principles of asepsis and antisepsis. Then follow a description of general and local anesthesia, infection, inflammation of soft parts, erysipelas, sepsis, putrid infection, etc.

Specific acute inflammations, such as diphtheria, tetanus, anthrax, and glanders, and specific chronic inflammations such as tuberculosis, actinomycosis, rhinoscleroma, lepra, and syphilis, are examined in detail. Various plastic procedures are also described, *e.g.* cheiloplasty, rhinoplasty, and staphylorrhaphy. There are excellent chapters on the connection of dental disease with eye and ear disease including empyema of the antrum of Highmore. Tumors of the mouth and face are described in detail, and cysts, such as ranula and dermoid, receive due mention. There is much in this book that the eye, ear, nose and throat specialist may read with profit.

Preventable Blindness. An Account of the Disease Known as the Ophthalmia of the New-born, and of its Effects; With a Plea for its Suppression. By N. Bishop Harman, M.A., M.B., Cantab., F.R.C.S. Eng., Ophthalmic Surgeon to the Belgrave Hospital for Children; Chief Clinical Assistant, the Royal London Ophthalmic Hospital, Moorfields; Senior Ophthalmic Assistant, the Middlesex Hospital; Oculist (with Care of Blind Children), London County Council Schools; Demonstrator of Pathology, Middlesex Hospital Medical School; Late Examiner, Natural Science Tripos, Cambridge University. New York: William Wood & Co., 1908.

This is a small volume of 109 pages devoted almost entirely to the consideration of ophthalmia neonatorum and the questions that concern it. An historical sketch of ophthalmia neonatorum is followed by a chapter on the causes of blindness in which statistics figure largely. Short chapters on the "Incidence of Ophthalmia Neonatorum," clinical characters, risk of permanent injury to the eye, contagiousness, bacteriology, treatment and prophylaxis follow. Methods for preventing the disastrous results of neglected ophthalmia neonatorum, such as notification requirements by legislative act, particularly affecting midwives, and the distribution of leaflets for the education of the public to the importance of all diseases of the eye affecting the new-born are discussed. The subject is well presented. The volume should have a wide distribution, particularly among general practitioners.

Cataract Extraction. Being a Series of Papers with Discussion and Comments Read Before the Ophthalmological Section of the New York Academy of Medicine, 1907-1908. Edited by J. Herbert Claiborne, M.D., Formerly Adjunct-Professor of Ophthalmology, New York Polyclinic; Instructor in Ophthalmology, Cornell University Medical College; Surgeon, New Amsterdam Eye and Ear Hospital. New York: William Wood & Co., 1908.

The volume edited by Dr. Claiborne is a very attractive one of 169 pages, well printed, and with a number of illustrations in the text. There are thirteen chapters, presenting as many articles by twelve authors. The various phases in the extraction of cataract are described from the point of view of the author and the principal methods of extraction are discussed. Some of the subjects considered are, the most suitable stage in the development of cataract for its removal, preparation of the patient, technique of the "simple" and the "combined" operations for the extraction of cataract, extraction by means of a lance-shaped keratome, after-treatment, extraction of cataract in its capsule, operations for artificial maturation of cataract, extraction of the crystalline lens in high myopia, results of cataract extraction.

Society Reports.

THE AMERICAN THERAPEUTIC SOCIETY.

Ninth Annual Meeting,

Held in Philadelphia, Pa., May 7, 8, and 9, 1908.

THE PRESIDENT, DR. JOHN V. SHOEMAKER, OF PHILADELPHIA, IN THE CHAIR.

Thursday, May 7—First Day.

AFTER prayer by the Rev. THOMAS C. EASTON, D.D., Brooklyn, N. Y., an address of welcome was made by the Hon. JOHN E. REYBURN, Mayor of Philadelphia, and the response by the Hon. HENRY F. WALTON, President of the Medico-Chirurgical College and Hospital, Philadelphia.

Dr. NOBLE P. BARNES, Washington, sent an obituary notice of Dr. McLain, a charter member of the Society, and concluded with memorial resolutions which were adopted by the Society.

Address by the President: Therapeutics in the Light of Ecology.—Dr. SHOEMAKER in his address considered the relation of therapeutics to the comparatively recent science of ecology, which included the study of all external conditions, whether meteorological, economic, social, or individual, relating to man. Success in therapeutics materially depended upon the recognition of the effects of the external conditions upon the individual, especially taking into account the personal equation. The various phases of the subject were considered, and in conclusion he referred to the recent development of therapeutics in connection with State medicine, especially the action of the authorities, through health boards and sanitary officials, in deliberately getting to work to change the environment of the individual with a view both of placing the sick under improved conditions and of limiting the spread of contagious disease.

The Therapeutics of Cardiovascular Disease.—Dr. F. P. HENRY of Philadelphia spoke of the hygienic and dietetic management of arteriosclerosis and referred briefly to balneotherapy and the benefit to be derived from massage and electricity. In the medicinal treatment of the condition as a whole, the persevering use of the preparations of iodine had shown itself of distinct service. In the symptomatic treatment the nitrites were most highly esteemed. In addition to these, the theobromine preparations, strongly recommended by Von Noorden in stenocardiac attacks, were worthy of a trial. The indications for the employment of digitalis and its succedanea were the same as those of failing compensation in general.

Cactus Grandiflorus as a Therapeutic Agent in Cardiac Diseases.—Dr. ROLAND C. CURTIN of Philadelphia spoke of cactus as in a class by itself, not like any other heart remedy. It was a mild tonic stimulant, acting especially on the inhibitory nerves and useful in relieving the heart of some of the unpleasant symptoms, met with particularly in the nervously disturbed heart; steadying and supporting it, even, at times, in serious nervous disease of the organ. In any case it might relieve the discomfort and pain in the region of the heart. It was a valuable adjunct to other heart remedies; but it was to be borne in mind that it was not a strong cardiac tonic or stimulant, and therefore not to be depended upon singly in a seriously diseased heart.

The Pharmacology of Heart Stimulants.—Dr. H. C. WOOD, JR., of Philadelphia confined his remarks to drugs of the digitalis group, and in speaking of digitalis said that its effect in slowing the pulse he believed to be a much more important factor in its beneficial influence than was generally supposed. In cases of chronic heart disease, when it was essential to make the burden thrown upon the feeble organ as light as possible, the slowing of the pulse was highly important, and here the inhibitory stimulation of digitalis was of the greatest service. The influence of digitalis was exerted especially on the left ventricle. This fact became of importance in certain cases of mitral regurgitation where the ventricular muscle had undergone a larger degree of hypertrophy than the auricle. The vasoconstricting action of digitalis had frequently been regarded as harmful and consequently to be avoided or combated; he believed this had, at times, led practitioners to adopt irrational or even injurious measures. While it was true that it required more force to drive the blood through narrow arteries than it did dilated ones, it was equally true that in many cases the vascular contraction was a conservative effort on the part of nature to maintain the circulatory equilibrium. He did not mean to take the ground that the vascular effect was never detrimental. When as a result of either degenerative changes in the muscle or of an extreme degree of dilation, the muscular tissue of the ventricle was too scanty to properly respond to the tonic influence of digitalis, it could scarcely be doubted that the increased resistance to the flow of blood might work great damage. He believed, however, that these cases were much less frequent than was generally supposed. Clinicians should not be too hasty in their efforts to dilate the vessels, and especially since almost the only agents we possessed for this purpose, the nitrites, were substances which increased the rate of the pulse and must tend therefore to counteract the beneficial influence of digitalis in slowing the heart. The only reason that more harm was not accomplished by the use of nitroglycerin in heart disease was because the long intervals between the doses of this evanescently acting drug, as it was habitually administered, precluded the possibility of its having a serious influence upon the circulation. Squill and apocynum, on account of their irritant action upon the gastrointestinal tract and the kidneys, were of practical utility only in selected cases. While there was a widespread belief that strophanthus differed essentially from digitalis in that it exercised little or no influence upon the blood-vessels, there appeared to be no convincing evidence of the truth of this. On the contrary, it had been clearly demonstrated by Gottlieb and others that the vasoconstricting action of this drug was a very marked one, and that even if this influence was a less powerful one than that of digitalis, the difference was very slight. It was, however, well established that strophanthus was less likely to give rise to cumulative toxic symptoms than digitalis. Adonidin was a remedy of promise, but although it had been before the profession for nearly thirty years, it still remained in the stage of only promise, since our knowledge of its effects was as yet far from satisfactory. In cases of chronic heart weakness, where merely the cardiac action of this group was desired, digitalis still maintained its supreme position. In conclusion, he spoke briefly of the digitalis glucosides, and expressed the opinion that none of these at all adequately represented the therapeutic virtues of the drug itself.

Some Instruments of Precision and Their Use in Cardiac Therapeutics.—Dr. THOMAS E. SATTERTHWAITE of New York said his purpose was to give the reasons why the sphygmograph had fallen into comparative disuse and, on the other hand, show the growing, though still restricted, field of the sphygmomanometer. In addition to the difficulty of securing a good tracing with the sphygmograph, clinicians were agreed neither upon the standard normal curve nor upon the standard for the several valvular diseases. Hence it was readily apparent that no absolute value could be attached to any tracings employed for the differential diagnosis of valvular diseases. The same statement could be made with even more emphasis in regard to cardiograms. This instrument could, however, demonstrate the rhythm and pulse-rate; so that in the very rare instances in which the pulse could not otherwise be counted it was of service. While we had been preparing to discard the sphygmograph the sphygmomanometer was being gradually developed for the purpose of determining vascular pressure in health and disease. He had

found Dr. H. W. Cook's modification of the Riva Rocci instrument fairly well adapted for clinical work and the von Recklinghausen for laboratory work. He narrated a series of laboratory experiments conducted in his presence by Dr. Haven Emerson, which illustrated some of the uses to which the latter might be applied, and stated that in line with these were some experiments recently reported by Dr. Cook with his modified Riva Rocci. In three experiments recently reported by Dr. R. C. Kemp at the Manhattan State Hospital, the effect of acute dilatation of the stomach in reducing blood-pressure was well shown, illustrating the danger to a weak heart from a dilated stomach. In Dr. Satterthwaite's experience, in from 6 to 8 per cent. of sudden deaths in cardiac disease the immediate cause was some acute gastric disorder. Among the conclusions which appeared to him to be justified in regard to the sphygmomanometer were the following: No one of the instruments in use was absolutely accurate. At present their utility appeared to lie chiefly in determining the comparative value of remedies and the effects of posture, different physical exercises, and baths upon the blood-pressure. Here, relative accuracy would usually suffice. In these directions, and especially in the study of the pharmacodynamics of cardiac remedies, the sphygmograph appeared to offer a large field of usefulness. The ideal instrument was still to be made; this must eliminate the personal equation, which was still the chief source of inaccuracy.

Venesection and Cardiovascular Affections.—In this paper Dr. Judson Daland of Philadelphia expressed the opinion that this "lost art" still had a legitimate and, indeed, most important field. In cardiovascular affections it might be employed with advantage both as a palliative and as a life-saving measure. Usually it was required in conditions where the patient's life was threatened, but it was apt to be postponed until too late to be of service. If promptly done, it might at times avert otherwise certain death. It was essentially indicated in valvular diseases of the heart with well-marked failure of compensation, where the patient presented extreme dyspnea, cyanosis, tumultuous cardiac action, a rapid, small, feeble pulse, distention of the veins of the head and neck, feeble apex-beat displaced to the left and extending over a wide area, increase in the area of cardiac dulness, and perhaps accentuation of the pulmonic second sound. If degeneration of the myocardium were not extreme, the relief afforded by venesection was immediate and satisfactory. In pronounced myocardial degeneration, however, it was useless. In failure of compensation in arterial sclerosis it was frequently of great value. In acute pulmonary edema, it might be palliative, and in some instances was followed by recovery, and in aneurysm of the arch of the aorta dyspnea or pain might often be temporarily relieved by it. When in acute croupous pneumonia the symptoms and signs of right heart dilatation were present, the abstraction of 20 to 24 ounces of blood was not only a palliative measure, but was occasionally life-saving.

A Few Conditions Requiring Caution in the Use of Digitalis.—Dr. Alexander D. Blackader of Montreal urged the importance in cardiac disease of maintaining the muscular nutrition of the organ. While digitalis, he said, was a drug with very definite therapeutic indications, and one which, judiciously employed, might prove a veritable gift of the gods, much harm might result from its incorrect use. In aortic regurgitation, it was indicated only when symptoms of dilatation had occurred. In the stenoses, until the signs of failure in the right ventricle had supervened, harm, and not good, might result from it. While the medical attendant might make judicious use of the increased power resulting from digitalis, he would be wise at the same time to abolish all undue overstrain by ordering rest in bed, or at all events moderation of exertion. It should be borne in mind that when once compensation had been lost, time was required for its restoration. Prolonged rest in bed, with the judicious employment of digitalis, might secure this in many instances, but in others it would often be found advisable to supplement the very moderate stimulation by digitalis with gradually increased resistance exercises, while the patient spent most of his time in bed. In acute endocarditis especially, but also in acute myocarditis, the use of digitalis was always to be deprecated.

Dr. James C. Wilson of Philadelphia said that from the time of Laennec there was a long period when the revelation by the stethoscope of the presence of a cardiac murmur was equivalent to writing the death warrant of the patient. From the time of Fothergill we came into a more hopeful view, the period of digitalis and its group of analogous remedies, followed by the abuse of digitalis. In the third period, that of broad conceptions of diseases of the heart, we were making great advances, and this statement, he thought, was well borne out by the paper of Dr. Blackader, in which he pointed out that the way to take care of our patients was not simply by the use of stimulants, but by the careful clinical management of the case. The careful study of the individual case was the main point, and this involved the painstaking search for the remedies or method of treatment appropriate to it. We had, therefore, come to a time when brilliant results attended the management of cardiac diseases, and he knew of no field of clinical medicine, no large aggregate of varied cases, in which more satisfactory results were achieved than in chronic valvular diseases. In conclusion he referred to three classes of cases illustrating such results: (1) Those in which compensation had developed hand-in-hand with the lesion and was still maintained; (2) those in which compensation failed; (3) those in which compensation had so ruptured that it was only a question of palliation for the rest of the patient's life.

The discussion was continued by Drs. O. T. Osborne, C. De M. Sajous, F. H. Gerrish and Robert Reyburn. Most of the speakers were in accord with Dr. Daland as to the value of venesection. Dr. Osborne said that it was very important to give the right dose of nitroglycerin, sometimes very large and sometimes very small doses being required; and he could not agree that, because the laboratory said that the effect of the drug lasted but an hour or so, we should necessarily give it every two hours.

The U. S. Pharmacopœia from a Physician's Standpoint.—Dr. James M. Anders of Philadelphia said that the increasing use of proprietary remedies had given rise in recent times to unfavorable comment, both in the lay and medical press, and now the profession had clearly entered upon a reconstructive movement which must be continued until American therapeutics had been placed upon a more scientific basis. The work of bringing about an improved knowledge of the tried remedies of the Pharmacopœia fell naturally within the scope of the activity of the American Therapeutic Society. The aim should be, especially by those in high places, to return to the more simple and more reliable therapeutic agents of bygone days.

At the evening session there was a joint meeting of the American Therapeutic Society and the Philadelphia Branch of the American Pharmaceutical Association.

The Autoprotective Resources of the Body; a New Foundation for Scientific Therapeutics.—Dr. Charles De M. Sajous of Philadelphia delivered this address.

The U. S. Pharmacopœia, a Therapeutic Standard.—Prof. Joseph P. Remington, Phar.D., of Philadelphia, gave a sketch of the history of the national Pharmacopœia, and said that, until the issue of 1900, it had never been a compulsory standard. The passage of the Food and Drugs Act, June 30, 1906, however, made it the legal standard for the United States. One of the most beneficial results of the act was the establishment of definite scientific names for drugs and medicines, the law requiring a compliance with the standards of strength and purity of the Pharma-

copœia. The essence of the Food and Drugs Act was that "the label must tell the truth." Another feature of the act was that it punished false or exaggerated statements in regard to medicines by providing a penalty for misbranding. The great need in therapeutics and in Pharmacopœial revision to-day was more exact knowledge for fixing the therapeutic efficiency of drugs, the action of which did not depend upon the presence of alkaloids or their principles.

Friday, May 8—Second Day.

Treatment of Tuberculosis.—Dr. Lawrence J. Flick of Philadelphia said that restoration of the individual to a normal physiological functional capacity and stimulation of his intrinsic disease-resisting qualities constituted in a broad sense the modern treatment of tuberculosis. Everyone had some power of resistance to bacillus implantation, and some tendency to recover after implantation had taken place; both of these matters varying in different individuals, different families, and different races. As a rule, the tubercle bacillus was not very virulent, and there was reason to believe that without mixed infection tuberculosis would never destroy life in the human subject. It was this mixed infection which manifested itself by symptoms which attracted the attention of the patient or those associated with him, and which had given us the clinical picture of consumption. Tuberculosis was essentially a local disease, and consequently an ever-recurring one, which in this way invaded all the tissues of the body; hence the prevention of implantation, or autoinfection, as it was sometimes called, was absolutely necessary for the successful treatment of the disease. It was therefore requisite to teach the patient methods of disposing of his broken-down tissue in such a way that tubercle bacilli could not get back into the system, either through food or air. The diet should be regulated with the one idea in mind of getting the best amount of nutrition with the smallest amount of consumption of energy in producing it. The consensus of opinion seemed to be that milk and eggs should always be important factors in the diet. The subject of forced feeding, however, was much misunderstood, and harm had been done by overfeeding. When milk and eggs were used largely, solid food should be proportionately cut down, and a good plan was to give each day one meal of solid food and besides this three quarts of milk and six raw eggs. At the solid meal meat, fresh vegetables, and fresh fruit should be used. If the patient was suffering from mixed infection, he should be put at absolute rest until this infection had been overcome. When activity of the process had ceased, occupation might be taken up, but it should be followed in moderation. A person who had tuberculosis should recognize his limitations and always keep himself within the limits of fatigue. For recovery, a patient should live in a house which was well ventilated, well drained, dry, and free from dust. He should be taught to sleep in the open air, if possible, and if not in the open air, at least in a room with all the windows open. The drug which was of most value in the treatment was iodine. This was administered to greatest advantage by the skin, and Dr. Flick's own practice was to have the body well rubbed twice a day with a saturated solution of europhen in olive oil, with a little oil of gaultheria and oil of anise. Nitroglycerin was of service when the heart was overacting, and was indicated when there was an accentuated second sound, as was found after recent pulmonary hemorrhage. It was also useful in preventing hemorrhage. Magnesium sulphate was valuable when the kidneys were beginning to show signs of overwork and in cases of intestinal tuberculosis. Digitalis might be given when the heart was weak. Creosote was perhaps of most service in advanced cases. It was best given in hot water, and in this way as much as 60 minims could be taken three times a day. Pepsin and pancreatin were of value in most cases as adjuncts in forced feeding. Tuberculin could be safely used in small doses in cases in which there was no mixed infection. Large doses should never be given except by experienced men. In conclusion, the necessity of looking carefully after the teeth, pharynx, and tonsils was referred to.

Choice of Occupation for Tuberculous Convalescents.—Dr. Albert E. Roussel of Philadelphia said that the knowledge that tuberculosis is infectious had been acquired by the lay public, to its own great advantage, but also the great disadvantage of the tuburculous subject who must needs earn his own living or become a charge on the community. The odium of the disease was sufficient to have a person turned away from light, profitable employment when his condition was known. Work, however, was a therapeutic agent and, used within its physiological limits, it could not be otherwise than beneficial. The speaker concluded that since tuburculous individuals were an expense to themselves, and eventually to the community, we were compelled to find some way by which they could be self-supporting. The regions so highly vaunted as health climates were in no industrial way prepared to support a consumptive, and the conclusion was forced upon us that the treatment should be conducted as near home as possible. The discharged consumptive was not able to cope with the competition incident to obtaining light, profitable employment in any of the industries, apart from his physical condition or the odium that would render him *persona non grata*. His opportunities, therefore, lay along the lines of his own ingenuity affording employment for himself. It might seem *a priori* an easy matter to obtain employment at home in work like sewing baseballs, making picture frames, clothing work, etc., but there were a hundred applicants for every such opportunity, the pay was small, and, in order to make any kind of showing, the work assumed a very harmful aspect. Farming was a kind of work available for everyone. The work of the vacant lots associations and sanatorium farm colonies proved conclusively that in this direction only could the consumptive find economic relief. No one had suggested it, but experience had taught the speaker that the rôle of street car conductor or that of itinerant merchant, peddler, book agent, insurance agent, etc., if too much walking were not involved, could be assumed by such patients with safety and profit. The keynote of the whole subject was outdoor employment.

The other papers read in the symposium were the following: "The Treatment of Tuberculosis in Private Practice," by Dr. M. Howard Fussell, Philadelphia; "Tuberculosis of the Ear," by Dr. W. Sohier Bryant, New York; "Some Dietetic and Therapeutic Points in the Home Treatment of Tuberculosis," by Dr. Howard S. Anders, Philadelphia; "Tuberculosis Among the Insane," by Dr. Frank Woodbury, Philadelphia; "Treatment of Tuberculosis in Children," by Dr. William C. Hollopeter, Philadelphia.

Dr. James Anders of Philadelphia said he had recently reached the conclusion of Dr. Flick that the knowledge of an expert is necessary to insure successful treatment of this disease. Some of the most remarkable cures, or arrests of the disease, which he had witnessed had been the result of home treatment in expert hands, and it was only when all other things were equal that the results of the climatic or combined climatic and sanatorium treatment surpassed those of the home treatment.

Some Commonly Overlooked Causes for Stomach and Bowel Disturbances.—Dr. Robert T. Morris of New York said that the appendix vermiformis was a degenerating organ which disappeared in two ways: first, by acute infection (explosive appendicitis), and second, by fibroid degeneration. While the cases of explosive appendicitis were recognized by all, those of fibroid degeneration of the organ were commonly overlooked. In the acute infection the stomach and bowel disturbances set up at once attracted attention, but the adhesions remained and the subsequent results of the inflammation often escaped no-

tice. Fibroid degeneration of the appendix was the common single cause of chronic intestinal dyspepsia. The speaker went on to describe this condition and its diagnosis in the same manner as in his presidential address before the Medical Association of the Greater City of New York in February. (See MEDICAL RECORD, March 28, 1908, page 541.) A less frequent unsuspected cause of chronic indigestion was eyestrain, and he had sometimes had sent to him cases to be operated on for gallstones, appendicitis, and other conditions which were readily corrected by the adjustment of proper glasses. Another cause was bile-duct adhesions, a subject upon which he had made a previous communication to the Society. Still another was loose kidney. Here it required much discrimination to decide which cases were suitable for operation and which were not.

Dr. EGBERT H. GRANDIN of New York said he was in thorough accord with Dr. Morris in his statements regarding the appendix. As to the influence of the displaced kidney, he was very skeptical. He had seen hundreds of kidneys which moved a few centimeters, but he had never yet been satisfied that he was justified in operating on them. If he could play ball with the kidney he believed in operation.

Thymic Opotherapy.—Dr. REYNOLD WEBB WILCOX of New York said his purpose in this paper was to present a record of the results of thymic opotherapy in a field in which the literature was exceedingly meagre. The thymus gland, particularly in infancy, had a remarkably full blood supply, and it contained a large amount of nuclein. Consequently, it was rich in phosphorus, which existed in the form of nucleinic acid. The purpose of the thymus might be fairly described as directed toward the attainment of adult growth by the individual, and the significance of this statement was illustrated in a remarkable case, of which he proceeded to give a full report. On February 15, 1905, the patient, a boy of 14, was referred to him by Dr. I. L. Hamant of Norfolk, Conn., under whose care he had been since December 28, 1904. The history was that he had not increased in weight or stature for three years, during which time he had been treated by several competent physicians. He had had no illness beyond an occasional sick headache, but he did not have quite the amount of endurance usual in a boy of his age and apparent health. He had a good memory and a bright, active mind, but physically he was undersized and deficient in strength and, although moderately well nourished, was slightly anemic. His weight was 81 pounds and his height 4 feet 10 inches. The circumstances seemed to afford ground for the hypothesis that the thymus gland had become prematurely atrophied, and Dr. Wilcox suggested that the administration of thymus extract might possibly be therapeutically useful. This was given in doses of 2 grains night and morning, and the results obtained were very satisfactory, for by February, 1908, his height had increased to 5 feet 7¼ inches and his weight to 124 pounds. Thus during the three years in which this treatment had been employed (following a period of three years in which there had been no growth) there had been a gain of 9¼ inches in height and 43 pounds in weight; and it was also noteworthy that during a suspension of the treatment for seven weeks in 1906 and for five weeks in 1907 there was absolutely no gain in height.

Therapeutic Measures of Value in Convalescence from Abdominal and Pelvic Operations.—Dr. EGBERT H. GRANDIN of New York read this paper. The vomiting following operations, he said, was one of the means nature employed for getting the excess of ether out of the system. He allowed his patient as much water as desired, and if it was not retained the stomach was thereby washed out, so that frequently it was unnecessary to resort to lavage. He forbade the use of ice and the various drugs recommended as antiemetics, as they had all failed him. If nausea and vomiting continued for twenty-four hours, lavage was indicated. As soon as these symptoms were in abeyance he allowed broths or kumyss, but never milk, on account of the danger of tympanites from intestinal fermentation. The best remedy against shock was a full dose of morphine, given hypodermically, and this drug was very useful in differentiating nervous shock from that due to hemorrhage; for if the symptoms did not yield to the morphine, internal hemorrhage could usually be inferred. This was the only condition in which he employed opium or any of its derivatives, with the exception of codeine, which, in 2 grain suppositories, he had found very efficient in relieving pain. Thirst was alleviated by the instillation into the bowel of sterile salt solution at a temperature of 110°. Suppression or insufficiency of urine was best met by the continuous irrigation of the bowel with hot salt solution. When the pulse and temperature indicated the presence of inflammation, the application of the ice bag or coil was used in association with frequent alcohol sponging. If the skin were very dry and the kidneys not working properly, the old formula, aconite, ammonium acetate, and spirit of nitrous ether, was of great value. When the presence of infection was shown by a pulse rapid in proportion to the temperature, he gave alcohol freely and endeavored to support the system in other ways, as by enteroclysis or hypodermoclysis. The caffeine salts, given hypodermically, were useful stimulants, and if the heart flagged, digitalis (preferably in infusion) or sparteine was employed. When the tension pulse was noted, nitroglycerin, in the form of the official solution, was given hypodermically in full doses, and with the full, bounding pulse he resorted to venesection. Only occasionally did he employ strychnine, and it seemed to him that in the main it had been abused. For such drugs as were indicated he selected the subcutaneous or the rectal route, as the stomach was required for nourishment. Having referred to the general care of the bowels, he said that in a case of obstinate or torpid intestinal tract, ileus having been differentiated, a pint of ordinary coal oil, thrown high up, frequently acted like magic. In beginning tympanites, which he considered due to spasm, hyoscine hydrobromide was his sheet anchor. Hyoscine was of service also in allaying cerebral excitement. When congestion was present, and iced cloths did not suffice, he gave sodium bromide. Hydrated chloral was the most reliable hypnotic. After operations it was of advantage to have the patient change his position frequently, provided this was not contraindicated by the pulse. It was now more than ten years since he had tolerated the so-called abdominal supporter, as the bandage weakened the muscles, which needed action in order to become strong.

Gout a Disease of Metabolism; Its Treatment.—Dr. OLIVER T. OSBORNE, of New Haven, reviewed the physiology of the organs of digestion, our knowledge of the digestive end-products, and some of the causes and results of imperfect metabolism. He thought that without stopping to consider the various theories which had been advanced as to its etiology, gout might be defined as a non-infectious, aseptic disease, due to a disturbance of the transformation of the protein food molecule, more especially the purin molecule, into the excretion end-product. There was nothing in this assumption to diminish the importance of the predisposing causes of the affliction. As to diagnosis, it did not seem to be necessary to have gouty joints, chalky nodes, gouty kidneys, concretions, or even shooting pains, in order to make the diagnosis of a probable gouty condition, or that disturbances were present which might lead to future gout or were gouty now. An increased arterial tension, a little extra amount of urine, slightly increased frequency of micturition, reported gastro-intestinal upsets, skin irritations, nerve pains, many headaches, especially occipital, irritability, nervous attacks, and many slight indispositions, which were often too trivial to mention, but were the difference between well and ill, could be set down as gouty, no organic disease having been

found. As there was no one cause of gout, so there was no one way to treat it. To manage it properly we must (1) carefully study the function of each organ; (2) know the kinds and amounts of food ingested, and how well it is excreted, especially how the nitrogen in the urine is excreted; (3) arrange the food and liquids ingested to meet the defects discovered in the functioning of the organs and in the deficiencies in the excretions; (4) treat or modify all complications present. In exacerbations of gout, with more or less pain, we had yet to find a treatment more efficient than a calomel purge, saline laxatives, salicylic acid and some form of colchicum.

Uses of Chromium Sulphate in Medicine.—Dr. Louis Kolipinski of Washington, D. C., had presented a previous communication on this subject at the meeting of the Society in June, 1902. Further experience with the drug, he said, had confirmed him in his opinion as to its usefulness. The most striking results which he claimed for it were in the treatment of tabes. Among other conditions in which he said he had found it of great service were preputial herpes, enlarged prostate, and uterine fibroids.

The Value of Morphine Derivatives in Ocular Therapeutics.—Dr. L. Webster Fox of Philadelphia said that of the newer salts of morphine, ethyl-morphine hydrochloride (dionin) was the only one which he had found of value in ophthalmic practice. The conditions in which it had proved of service were acute iritis and irido-cyclitis, where, combined with atropine, it assisted in breaking synechiæ and relieving pain.

A Simplified Method of Estimating the Opsonic Index.—Dr. H. W. Crane of Kalamazoo, Mich., read this paper, and in connection with it he demonstrated a new thermostat and a pipette rotated by clock work.

The Status of Opsonic Therapy.—Dr. Nathaniel Gildersleeve of Philadelphia spoke particularly of the extreme care required in injecting vaccines and carrying out vaccine therapy.

Dr. A. P. Hitchens of Philadelphia said that although we heard a great deal of criticism concerning Prof. Wright's method, he did not believe any other one yet suggested was equal in value to that in use in St. Mary's Hospital. He had had no experience with Dr. Crane's method, however, and if the instrument shown by him gave as good results as Wright's, and in addition really saved time, the newer method ought certainly to be adopted. He agreed with Dr. Gildersleeve that no procedure in the whole value of therapeutics required more ingenuity or painstaking effort than vaccine therapy, for to practise this was to go into nearly every method of treatment. These were of value in assisting the opsonins, even after vaccination, if the proper bacterium had been found and the focus of infection determined.

Dr. Jay F. Schamberg of Philadelphia spoke of the practical application of the vaccines in diseases of the skin. Gratifying results had been obtained by him in a number of refractory cases of furunculosis and carbunculosis, and he believed that this method constituted the best means of treatment at our disposal.

Dr. W. O. Robertson of Philadelphia said that last year he had had the opportunity of employing the bacterial vaccines (both autogenous and heterologous strains), in typhoid fever cases in his hospital service. While in every instance the index was a constant guide to the clinical condition, at no time could it be seen that any phenomena, either temperature or any other, were produced by these bacterial suspensions.

The Rational Treatment of Visceroptosis.—Dr. J. Madison Taylor of Philadelphia stated in this paper that the testimony was convincing that the causes of misplacements of the organs lay far back in constitutional weaknesses, general or local; hence the treatment must be directed to a radical reinvigoration of the body, as well as such parts as were affected. Contributory causes were secondary, though not unimportant. Surgical operation might ameliorate the local conditions, but much more remained to be done when the best possible in this way had been accomplished. It was frequently necessary to begin with a period of absolute or partial rest treatment, and dietetics and attention to the digestive organs were important. Replacement of the affected organs required much persistent attention, and this was possible only by the physician himself, however much secondary aid was had of masseurs, etc. Massage, general or abdominal, was capable of large harm as well as good, and demanded personal attention and supervision. Posture, or educative attitudes, was frequently necessary. Development of the abdominal supports was a matter which demanded early and long-continued attention, as success or failure depended on whether this was accomplished or not. The only artificial support for the viscera which gave satisfaction was the belt devised by Dr. Morris Longstreth, which exerted support upward to the torso, without making undue pressure on the soft structures of the lumbar region or encircling the abdomen. Finally, the essential measure recommended was manual treatment of the visceromotor centers in the paravertebral region, by means of which the nutrition of the relaxed structures and the whole organs might be markedly improved.

The Abuse of Arsenic in the Treatment of Diseases of the Skin.—Dr. Jay F. Schamberg of Philadelphia read this paper. Among the deleterious results referred to were general pigmentation and cancer of the skin. In view of such conditions being caused at times, arsenic, the speaker said, should not be employed except for a good reason. Moreover, its use should not be kept up for too long a period, and, in order to avoid this, patients should be prevented from having prescriptions containing the drug renewed.

Chronic Neuralgia; Its Cause and Cure.—Dr. Robert Reyburn of Washington, D. C., said the one great cause was increased blood-pressure. Among the remedies which he had found most efficient were quinine and ergot in full doses. In some instances drastic purgatives and the removal of blood by leeches had proved of great assistance.

Saturday, May 9—Third Day.

Digitalis and Its Congeners, with Special Reference to the Harmful Effects of Digitalis.—Dr. Wm. Egbert Robertson of Philadelphia in this paper entered a plea for the less indiscriminate use of digitalis, and spoke of the desirability of substituting squill for it in a considerable proportion of cases. In squill, he said, he had found a safer drug, without the disadvantages of digitalis, and one which was at the same time more prompt and powerful.

Symposium on Roentgen Ray Therapy.—The Treatment of Skin Diseases.—Dr. Russell H. Boggs of Pittsburg, Pa., read the first paper in the symposium. The rational indication for the Roentgen rays in dermatology, he said, depended upon the effects of these upon living tissue, and inasmuch as very wide variations could be produced by varying the quality and quantity of radiation, the rays should be employed with care. In each case a sufficient effect for the purpose in view should be caused, without going beyond the bounds of safety. The following were some of the changes which took place in living tissue when radiated: (1) Temporary or permanent atrophy of the appendages of the skin. This explained why the rays were indicated where it was necessary to remove the hair, either permanently, as in hypertrichosis, or temporarily, as in sycosis, favus, tinea tonsurans, etc. (2) Destructive action upon organisms in living tissue, as in lupus vulgaris, etc. (3) Increase in metabolism accounted for some of the results in chronic indurated eczema, lichen planus, psoriasis. (4) When the rays were used intensely diseased cells were destroyed long before healthy ones, and cellular tissues were most influenced by the *x*-ray. This explained the results of radiation in epithe-

lioma, sarcoma, tuberculosis of the skin, myeloides, etc. (5) The anodyne effect was shown in the treatment of painful malignant diseases, neuralgias, and itching dermatoses, such as pruritis, eczema and prurigo. (6) The action of the rays on keloid inhibited the degenerative cell development, stimulated normal processes, and prompted absorption.

The Roentgen Treatment of Tuberculous Glands.—Dr. George C. Johnston of Pittsburg said that of late years tuberculous adenitis had become a surgical disease, and while operation often succeeded, it often failed also, and the majority of patients coming to the roentgenologist had previously had the benefit of surgical interference. It was a mistake to speak of these cases as recurrences, as was often done, since an extirpated gland never recurred. They were reinfections; the portal of infection remaining open, the lymphatics patulous, reinfection was a natural sequence. He did not wish to be understood as condemning the surgical treatment of tuberculous adenitis. In the proper class of cases the ideal treatment was extirpation; but extensive dissection of the neck in the futile attempt to remove all glandular structures he did not believe advisable. The so-called Roentgen treatment had little or no bactericidal action; its effect in this disease was not therefore due to the latter. The result of its continued application was a definite histological change, so that the glands, markedly diminished in size, became transformed into sterilized, innocuous fibromata, while the lymphatic trunks were reduced to mere cords. Such a glandular chain was not liable to infection, tuberculous or other. With this agent it was possible and proper to treat areas of far greater extent than could possibly be explored surgically, while observation of the effect produced in distant organs, as an immediate result of the radiation treatment of infected areas, justified the surmise that the formation and generation of a compound or compounds allied in effect to the antibodies were caused by it. The class of cases peculiarly suitable for this method of treatment was that so frequently observed among poor patients, where a large number of glands had broken down and suppurated, discharging for months or years through sinuses. In no case had the treatment failed to reduce the size of the glands or stop discharge from sinuses.

The Roentgen Treatment of Sarcoma.—Dr. George E. Pfahler of Philadelphia said that the value of this treatment must be gauged by comparison with the results obtained by other means, and since most of the cases treated by Roentgen rays were considered hopeless, the method stood alone and above every other. The results were finally measured by the percentage of recoveries, by the permanency, and by the degree of associated risk and discomfort during the process of treatment. There was practically no risk or discomfort under skilful management, and therefore the permanency became the main point of investigation. Of twenty-two cases reported in detail by the speaker at the meeting of the American Roentgen Ray Society, Oct. 1-5, 1907, fifteen had recovered or were recovering under treatment. Of the twelve cases which had recovered at that time, ten had remained well. The present condition of each of the patients included in that report was given. To this list he now added six new cases, in which the results, while gratifying, were on the whole less satisfactory than in the previous group. Having given the details of these cases, Dr. Pfahler went on to say that too few cases had been treated to make statistics of any real value, but when these cases were carefully studied, and it was realized that nearly all were inoperable or recurrent after operation, and that of the twenty-two reported in 1907, fifteen had recovered, we must conclude that the results were more satisfactory than those from any other method. The cases were also too few to form a basis for prognosis, but, from his observations, he would expect at least 25 per cent. to recover; and if treated early at least 50 per cent. should recover.

Dr. W. Wayne Babcock of Philadelphia said that as regards the operative treatment of these tumors the operation was a trauma, and traumatism was apparently the most important cause in their etiology. As the result of the operation there was a lighting up at the seat of trouble, so that after operation sarcomas did not recur so often in different parts of the body (excepting metastases in the lungs) as in the scar, no matter where the scar might be situated. The *x*-ray had the effect of preventing recurrence, closing up lymph spaces, destroying lymphatic tissue, and producing a wall of fibroid tissue around the seat of the growth. It also had a marked distinctive action on the cells of sarcoma itself.

Post-operative Treatment of Malignant Disease.—Dr. Ennion G. Williams of Richmond, Va., said that on account of the number of recurrences after removal by the knife, particularly of mammary cancer, it was fair to assume that some malignant cells remained after the operation. Here the Roentgen rays were of great service, and if there should still be recurrences, the treatment should be repeated until all vestiges of the disease had been destroyed. The many cases of complete recovery under this treatment now on record furnished proof that all the malignant cells had been reached. If the distance of the cancerous growth from the surface was very great, or if bony structures like the sternum intervened, some of the cells would probably be left. There was, therefore, what might be termed a "successful zone" for Roentgenization, and this might vary according to circumstances. In using the rays after a surgical operation it was advisable to wait for about five days before beginning the treatment, in order to allow time for primary union in the wound.

Dr. William L. Rodman of Philadelphia said that he had seen the best results follow the use of the *x*-rays in superficial squamous epitheliomata and also very good results in sarcoma, but in a rather large experience in cases of carcinoma of the breast in which the *x*-rays had been employed, always after operation, it was his deliberate opinion that not a single one of them had been in the least benefited by this procedure. Radical operations at the present time should promise more than 50 per cent. of cures. Many were now getting such results, and until the same could be obtained from the *x*-rays, he would hold that it was entirely unjustifiable to use the rays prior to operation. Their employment should be wholly limited to post-operative cases.

Dr. Sajous thought that the treatment should not be limited simply to one procedure, either *x*-ray or surgery, but that these should be united when possible. Moreover, it was important to remember first and foremost the autoprotective resources of the body, the *vis medicatrix naturæ*. In some cases in which he had not been able to persuade the patient to resort to operation (which he believed afforded the greatest amount of protection), the internal secretions alone had proved of value, their use having been followed by the disappearance of glands in the axilla, etc. He did not present this as a treatment in itself, but he firmly believed that if in cases of sarcoma or carcinoma under treatment we used such measures as were employed in syphilis—say the administration of the iodides, mercury, small doses of thyroid extract, or adrenalin—we would have a potent aid. In post-operative treatment a similar plan would almost invariably prevent recurrence, and in any case of sarcoma he would urge that coincident with the *x*-ray treatment the patient he submitted to a course of internal treatment, for instance, small doses of thyroid extract with iron and strychnine, in order that the proteolytic substances of the blood might be increased, the toxic waste products which accumulated in the blood and endangered the renal tract be reduced, and the patient be protected against recurrence.

Palliative Treatment of Malignant Disease by Means of the Roentgen Rays.—Dr. Charles S. Leonard of Phil-

adelphia said the value and curative efficiency of early surgical removal of malignant disease could not be questioned when that removal was complete. The group of severe malignant cases in which the most favorable surgical results were shown was that of cancer of the breast, but while the most recent statistics showed that early operation gave 85 per cent. of cures here, the general statistics showed that in two-thirds of the cases of breast tumors operation could expect to be nothing but palliative and that 80 per cent. of these patients would die of the disease. An increase in the number of early operations, and a consequent decrease in the mortality from malignant disease, could best be secured by a careful discrimination in the cases selected for operation. The inability to cope with the disease in its later stages was manifest, and the combination of ante- and post-operative Roentgen treatment with radical operation and the results obtained from the Roentgen treatment of recurrent growths pointed to this combination as a method of decreasing the high mortality and increasing the extent of palliation. This treatment should not be confined to a few haphazard applications, but be given with a thorough understanding of the degree of lymphatic involvement, and regulated in length and severity by the evident malignancy and the extent of infection in the individual case. It should forestall rather than wait for recurrence. The palliation afforded by radiation was seen in the decrease or absence of pain, rendering opiates unnecessary. In addition, it localized the disease by destroying the lymphatics, healed superficial ulcerations, thus making life comfortable, and, where the lymphatic involvement was already too deep, permitted the patient to die in comfort from visceral metastases.

Dr. William B. Coley of New York said that as to the question of the value of the pre-operative or post-operative *x*-ray treatment in malignant disease, he considered the present data insufficient to permit of a final decision. In tumors in the early stages in which operation alone promised reasonable hope of success, he believed there were certain dangers connected with the pre-operative use of the *x*-ray. While the tumor itself showed diminution in size under it, there might be insidious glandular extension which lessened the chances of a final cure. Furthermore, after the tumor had decreased considerably, there was a probability that when the operation was done smaller incisions would be made and insufficient tissue removed. On the other hand, there were cases where operation and *x*-ray were both used as palliative measures in which pre-operative *x*-ray treatment might be of decided advantage. There was much more to be said in favor of the post-operative treatment, and at present the weight of opinion seemed to be decidedly in favor of the value of this treatment. In spite of this, however, he did not believe that there had been a sufficient number of cases carefully treated and reported, covering a period of three years after operation, to permit of any conclusions of value. He did not wish to be understood as speaking against the use of the *x*-ray as a post-operative measure, but he desired to emphasize the fact that its value as such a measure, up to the present time, rested upon theoretical grounds rather than practically demonstrated experience.

The Treatment of Leukemia by the Roentgen Rays.—Dr. Henry K. Pancoast of Philadelphia treated of a new and more rational method of employing the *x*-ray in leukemia, devised by Dr. Stengel and himself. The essential feature of this method, which was suggested by Dr. Stengel in December, 1906, and since then had been constantly employed, was the direction of the applications to the bone marrow of practically the entire skeleton as the primary object in the treatment, and the relegation of splenic and glandular exposures to a position of minor or secondary importance. He mentioned four points in support of the claim of the method to superiority over the older one: (1) It implied a much more direct attack against the cause of the disease. (2) Clinical experience showed that the secondary manifestations, such as the splenic and lymphatic enlargements, responded even more satisfactorily to this method than to the older one. (The technique included, however, an appropriate amount of direct exposure to these structures.) (3) The dangers particularly associated with the *x*-ray treatment of leukemia were, in a large measure, avoided. (4) Several other important but less significant advantages had been noted clinically. Regarding the prognosis, it was too early, he said, to prophesy as to ultimate results under this plan of treatment, but as the matter now stood, we were in a much better position to settle within a reasonable time the question whether a permanent cure could ever be attained directly from *x*-ray treatment, because we were bringing our forces to bear more directly upon the cause of the disease. At all events, the expectation of life was undoubtedly longer under this new method.

Committee on Therapeutic Research.—The Council announced that in accordance with the suggestion of Prof. Remington they recommended the appointment of a committee to be called the Committee on Therapeutic Research, and the Society ratified the action of the Council. This committee, which was to be a permanent one and to consist exclusively of members of the American Therapeutic Society, was constituted as follows: T. E. Satterthwaite of New York, Chairman; H. C. Wood, Jr., of Philadelphia, Secretary; F. H. Gerrish of Portland, Me., J. V. Shoemaker of Philadelphia, O. T. Osborne of New Haven, Conn. The number of its members may be increased to fifteen if this should at any time be recommended by the Council, the additional members to be appointed by the Chairman of the Council. It was specified that the work of the committee shall be limited exclusively to the investigation of the therapeutic value and uses of pharmacopeial drugs.

Officers.—The following officers of the Society were elected: *President,* Frederic H. Gerrish of Portland, Me.; *First Vice-President,* Alexander D. Blackader of Montreal, Canada; *Second Vice-President,* Howard Van Rensselaer of Albany, N. Y.; *Third Vice-President,* Robert T. Morris of New York; *Secretary,* Noble P. Barnes of Washington, D. C.; *Treasurer,* A. Ernest Gallant of New York; *Chairman of the Council,* Reynolds Webb Wilcox of New York; *Vice-Chairman,* Edward D. Fisher of New York; *Committee on Admissions,* Thomas E. Satterthwaite of New York; Oliver T. Osborne of New Haven, Conn., and D. Olin Leech of Washington, D. C. At this meeting the membership of the Society was filled to the limit prescribed by the Constitution—one hundred.

The next meeting is to be held in New Haven, Conn., May 6, 7 and 8, 1909.

SIXTH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Held in Washington, D. C., September 21 to October 12, 1908.

(Special Report to the Medical Record.)

SECTION ON STATE AND MUNICIPAL CONTROL.

Wednesday, September 30.

The Administrative Control of Tuberculosis in New York City.—Dr. Herman M. Biggs of New York stated that antituberculous work had been instituted in New York in 1894. At this time the Board of Health classed pulmonary tuberculosis as a communicable disease and required all hospitals and public institutions to report cases under their charge. At the same time private physicians were requested to do so, and in order to aid the physicians in reaching an early and definite diagnosis, the Board of Health established a diagnosis laboratory, where suspected sputum was examined for physicians free of charge. The only stipulation was that the physician should furnish the

name and address of the patient. In this way many cases came to the knowledge of the authorities that otherwise would not have done so. In 1897 the Board of Health was able to adopt a regulation requiring physicians to report their tuberculosis cases to the Board of Health. The basis of the work done in New York City was compulsory notification and registration of all cases of tuberculosis. The reported cases fell into two groups, those reported by private physicians as under their care and those reported as not under such supervision. The Board of Health did not interfere if the consumptive was under the care of a private physician, but if this was not the case all objection to the visitation and supervision of the Health Department was removed. It was in these cases that the health authorities did the most effective work. This work consisted in visitation of the consumptive in his home by trained nurses or by physicians. If country air would benefit him the Department of Health offered to take him to its country sanatorium at Otisville, or referred him to the State Sanatorium at Raybrook. If the patient could not leave the city but was able to be about he could receive free medical care at one of the many tuberculosis dispensaries. If his home surroundings were fairly decent he could receive medical attention from the Board of Health if he was unable to be about. If he needed hospital care he was sent to a hospital, and if his habits and surroundings were such that he was a menace to those about him he might be forcibly removed to the special tuberculosis hospital of the Board of Health on North Brother's Island. Millions of circulars in a score of languages had been supplied and distributed by the Board of Health. Stereopticon lectures, exhibitions, "Don't spit" notices, etc., had all had their place in the campaign, which had been by no means an easy one, but the result had been that the death rate from tuberculosis had dropped from 4.42 per thousand in 1886 to 2.41 per thousand in 1907.

Notification in Human Tuberculosis.—Dr. Hamel, Member Royal Bureau of Health, Berlin, read this paper, in which he argued strongly in favor of compulsory notification. When, however, compulsory notification was found to be impracticable, voluntary notification should be introduced instead, possibly with the payment of a bonus for every case reported, for government workman's insurance could be utilized for locating cases of tuberculosis.

Dr. Robert Koch of Germany said that Dr. Biggs' paper represented very impressive features, and he expressed unbounded admiration at the work that New York City had done. This work was especially surprising, in view of the unfortunate conditions of living and the problems that immigration presented. He thought their system exemplary, first, because of their system of compulsory notification, and, second, because they had succeeded in getting the right to remove patients who were a menace to the community. They had not been so fortunate in Germany. There they could only seek out patients and endeavor to make them harmless so far as was possible.

Dr. Arthur Newsholme, of London, England, said that in his opinion the campaign against tuberculosis in New York City was the embodiment of the most perfect piece of work yet done in this crusade. There had been no other work that equaled it. He had seen the work in operation and could only express his unbounded admiration. He wondered at the ease with which legislation had been secured. In England public opinion would not tolerate the removal of a patient from his home. The sanatoria here were so attractive that he did not wonder so much that this step was possible. Compulsory notification and education were only valuable in so far as they were utilized in a practical way for prevention. He was also impressed with the restraint with which the authorities used their power. Private physicians in England had not put into effect preventative measures to the extent that they were doing in this country. Authorities here had used their powers without arousing the antagonism of the family physician. The only thing he could recommend was a shorter course of treatment for a large number of cases rather than a long course of treatment for a small number of cases, because it was better to send out a number of uncured patients, knowing how to manage their own cases, and no longer a menace to the community, than entirely to cure a few while a large number were left to spread the disease. This was the only improvement he could offer to New York methods.

Dr. Harbitz of Sweden said that in Sweden compulsory notification was in operation, and the Board of Health had the privilege of recommending the removal of the patient. In certain cases for the prevention of infection the patient could be ordered to be removed to hospital or sanitarium. In these cases the expense devolved upon the community. The system was very much like that in New York, except that it embraced towns, municipalities, and rural districts.

Thursday, October 1.

The Need of Federal Health Departments.—Dr. J. W. Conaway, University of Missouri, presented a paper in which he described the danger that existed of infecting foods with the tubercle bacilli. He described the unsanitary conditions that were permitted in the packing houses of the West. He referred to the risks incurred by permitting consumptives to work in bakeries and other places where foods were produced and handled. He showed that the meat handled in the State of Missouri came from many other states, and that no state law could control it; it was imperative that the Federal Government should step in and use its authority. He called attention to the lack of sanitation in sleeping cars and day coaches on our railroads and said that state law could not control these. He thought one method of spreading the disease was that of sending consumptives in the later stages of the disease to supposedly better climates; these often died en route and were a dangerous element in spreading infection as they traveled about the country. The Federal Government could control this matter.

The Governmental Control of Tuberculosis Patients in Pennsylvania.—Dr. Samuel G. Dixon, Commissioner of Health of the Commonwealth of Pennsylvania, showed the advantages to be derived from governmental supervision of tuberculosis patients. It was necessary that the reporting of tuberculosis cases be compulsory, but it was not necessary to thrust the word "compulsory" before the public so as to arouse prejudice and antagonism. The family physician was the mediator in this matter and could make the patient feel that his case was a secret between himself and the Board of Health. Dr. Dixon described the dispensary system in operation throughout the State; there were at present 67 such dispensaries, and by the first of January there would be 40 more opened to the public. At these dispensaries the patients were given medical advice, even to the minutest detail. Trained nurses followed up the cases and investigated the home surroundings and saw that the advice was followed out in every particular. She continued the education of the patient begun by the physician and also instructed the family of the consumptive. A note book was furnished each patient, in which he kept an accurate record of his case, as regarded quality and quantity of food, number of hours of sleep and under what conditions, kind and amount of exercise, etc. The patients were divided into classes and were encouraged to emulate one another in the endeavor to show a good record. There were 723 health officers in the commonwealth who were working in this campaign against tuberculosis. As so much depended upon a regular routine of life in this disease, governmental control could be of immense assistance. It was the little things of life that told in this class of cases. A sanatorium should never be in or near a city, and sanatorium patients should be seen daily by the physician. He described the State institution at Mont Alto and said that the State would soon have a

hospital for incurables in operation. The State had already an organized piece of machinery in its bureau of statistics, health officers, nurses, etc., prepared to deal with infectious diseases, and it would be a great economic saving if the State would utilize this power which was already in its hands in the fight against tuberculosis.

The Official Care of the Tuberculous in Their Own Homes.—Dr. Pütter of Berlin presented this paper, which was read by Dr. Biggs of New York, and which described the dispensary care of tuberculosis in Berlin. There were 100 of these dispensaries in various German cities and four or five in Berlin. They did not furnish medical care, but were only for purposes of diagnosis; after the case was diagnosed the patient was sent to his family physician or to a sanatorium. The cost of these dispensaries was very little, the four in Berlin costing about $10,000 a year. Numerous other organizations were associated with these dispensaries, as some furnished food, others provided nurses and others money; among the latter was the Workingmen's Insurance Company. The expense of taking care of patients was divided between the government, the insurance company and the employer, whether an individual or a corporation.

Dr. S. A. Knopf of New York thought the German organization as complete as it could be. The prevention of pauperization was a good point. In speaking of the cases that were a menace to the community and that were forced by authority to be removed to institutions, he said that this class of patients had given them no trouble. The improved surroundings that they met were usually of great benefit to the patient and he soon adapted himself to improved conditions and was very grateful.

Dr. Otis of Boston thought there was practically very little difference in the way in which tuberculous patients were cared for in the different countries. The same results had been reached by slightly different means. He could not understand why the German dispensaries should examine well-to-do patients. He thought they should go to their physicians and pay for such an examination. The Associated Charities of Boston and other organizations did for their patients very much what the German organizations were doing. Continuous supervision was very necessary and a periodical report should be required as long as patients remained in their homes. The problem that remained unsolved was the provision of suitable occupation for this class.

Dr. Arnold C. Klebs of Chicago said that not only should every case be examined and kept under observation, but every member of the family as well; it was only in this way that we could get at the root of the matter. The children should be kept under observation and examined regularly over a long period, and in this way we would have a very effective method of controlling tuberculosis.

The Anti-Tuberculosis Campaign with Reference to the Proposed National Department of Health.—Dr. C. A. L. Reed of Cincinnati, O., stated that both political parties in the present campaign had planks in their platforms committing themselves to the establishment of a Bureau of National Health. Congress had committed itself to the consideration of this question at the coming session in December. His purpose on bringing the subject before this congress was to get it before the general public as forcibly as possible, in order that the necessity for the establishment of a National Health Bureau might be thoroughly understood and demanded by the people. It must be understood that the general efficiency, the productive energy of the population was the foundation of national prosperity. It was the human factor that counted, and this truth had been generally neglected. Human life had not been regarded as a unit of value translatable into dollars and cents. He showed by conservative estimates that the economic value of the lives lost and whose usefulness was impaired by tuberculosis would be sufficient, if transformed into dollars and cents, to maintain the army, navy, marine hospital service, coast defences and waterways of the United States. At present the duties that would properly belong to a National Bureau of Health were divided among the army, navy and marine hospital corps; the Secretary of the Treasury was the chief health officer of the nation, the Secretary of the Interior was sanitary administrator of the interior. There was thus no centralization, and, while many excellent results had been attained, there were some results of this loose administration that were disastrous. We needed coöperation between Federal and State authorities, not antagonism. There were many questions of sanitation that the States could not reach individually, as the sanitation of railway coaches and steamships. Taking the human life as capital and the earnings as interest, we would find the loss from mortality and morbidity, and the morbidity was perhaps five times as great as the mortality, the financial loss to the country was so great that when it was once brought to the attention of the public there should be no difficulty in securing this much needed legislation.

Dr. E. Liceaga of Mexico said that in Mexico the Service of Public Health was one of the national departments. Different States could not operate without a chief of public health. He described how they had been successful in combating the plague and yellow fever, and did not think this would have been possible without a national bureau. During the year 1907 they had had only seven cases of yellow fever and only three foci.

Dr. Montgomery said that Dr. Reed had omitted one very important point in his paper. It was imperative that the head of a National Health Bureau must be a medical man. Neither of the political parties had committed themselves to this stipulation. He then set forth the reasons why it was necessary to have a physician at the head of this department.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held April 13, 1908.

Dr. Leon Louria in the Chair.

The scientific session consisted of a symposium on gallstone disease.

Etiology.—Dr. Neil Macphatter of Manhattan read this paper. He said that the subject of gallstone disease had engaged the attention of physicians for a long time, and that the investigations of the past few years had thrown a flood of light upon it. From 12 to 20 per cent. of aged people had gallstones, in many cases of which the disease was not recognized during life. In some part of the world gallstone disease was quite uncommon. It was rarely found in India, Italy, or Egypt. The study of the composition of gallstones was intimately connected with that of the bile, where chief constituents were water, sodium glycocholate, and sodium taurocholate and cholesterin. The last was the most important constituent. A thorough knowledge of its chemistry and its distribution in the body was necessary in order that a clear conception might be gained of the mode of production of gallstones. It was erroneous to suppose that cholesterin was found only in the bile; it was found in nerve tissue, milk, crystalline lens, etc. Pathologically, it was found in pus. Ordinarily the cholesterin was present in the bile in a state of solution. When decomposition took place in the gall-bladder the quantity of cholesterin increased and changed from a state of solution to a crystalline form. In catarrh of the lining membrane of the gall-bladder, the cholesterin crystallized out. Whether cholesterin was a waste product or was a histogenetic substance was not yet known. Here were three theories that sought to account for its origin, namely: it was a product of the metabolism of the liver cells; it was extracted by the liver from the blood; it was formed by the mucous

membrane of the gall-bladder. The former two theories had been advanced by many authorities, but the number of these had been decreasing and the view was becoming more general that in all probability the cholesterin was the product of the mucous membrane of the biliary passages. When this substance was administered in solution to animals, there was observed no increase in its content in the bile. On the other hand, when there was a low inflammatory condition of the biliary passages, whether due to the typhoid or colon bacillus, or to passive congestion of the mucous membrane, as occurred in mitral stenosis or pregnancy, there was an increased secretion of cholesterin. It had not been proved that this substance was the product of a degenerative change in the mucous membrane. It was, however, probable that pathological changes in the latter disturbed the equilibrium between the bile acids and cholesterin, with the precipitation of the latter. There were two essential factors in the production of gallstones, namely: fundamental pathological processes, and some impediment to the outflow of bile. The concurrence of these two factors did not necessarily imply that gallstones would follow, but it was impossible for gallstones to begin without these. There were many local or constitutional conditions that impeded the free outflow of bile; they were: age, sex, pregnancy, the wearing of corsets, the accumulation of feces in the duodenum, insanity, typhoid fever, tumors of the head of the pancreas, and Bright's disease. As regards the etiological relationship of age, it was noted that children were practically free, young adults were rarely affected, while in the old, gallstones were relatively frequent. This frequency in the aged had been attributed to the fact that in them the bile was thick and concentrated. It was more probable, however, that in the old there was a muscular weakness of the wall of the gall-bladder, as well as degenerative changes in its mucous membrane, of a furry character. Gallstones were five times as frequent in women as in men. This was probably due to the constriction produced by dress, with the pushing of the liver upward and inward, and the resulting constant stagnation of bile. The frequency of gallstones in pregnant women was also noted, the occurrence being more frequent in the latter months of pregnancy; in this instance, the constriction of the abdomen with corsets was a powerful contributing cause. Other causes of gallstones commented upon were heart disease, cancer of the liver and gall-bladder, and insanity. The post-mortem examination of 1,300 lunatics showed the presence of gallstones in 20 per cent. It was a peculiar circumstance that in the insane the presence of gallstones rarely gave rise to colic. In many diseases there was an impeded outflow of bile, with a resulting low-grade inflammatory condition of the bile-passages, extending over a long period of time. In this manner the development of gallstones was frequently an insidious one.

The Symptomatology and Diagnosis.—Dr. Walter B. James of Manhattan read this paper. He said that the development of modern surgery has changed the attitude of the general practitioner toward abdominal diseases. In no other disease was surgery capable of affording more immediate relief to trouble that had formerly dragged along for years, than in gallstone disease. Exploratory laparatomy gave frequent opportunity for the study of anatomical conditions in the living. He who would know more about diagnosis had to haunt the operating room. Although gallstone disease was now more properly a surgical condition, most cases came to the family physician first. The recognition of diseases of the gall-bladder was one of the most frequent propositions that confronted the family physician. Their exact diagnosis was a heavy burden that bore upon the physician. Yet the diagnosis of gallstone attacks was simple; the symptoms were plain; the agonizing pain, radiating to the back, associated with jaundice, and possibly the subsequent appearance of gallstones in the stools. If the stone was impacted the symptoms were fever, jaundice, and chills, of an intermittent character. The speaker took up the consideration of the most common conditions in the upper abdomen with which gallstone disease could be confused. The upper right quadrant furnished the greatest number of pitfalls for the diagnostician. The presence in close proximity in this region of the gall-bladder, liver, kidney, the colon, and the head of the pancreas, explained the large proportion of abdominal puzzles. Cholecystitis could be present with calculi, and the latter could be present without cholecystitis. Clinically, there were two groups of cases that could be distinguished, namely, the mild and the severe. In the former the symyptoms were mild, while in the latter there was a secondary inflammatory process which was alarming. The symptoms of the mild cases were: dyspepsia, hypochondriasis, jaundice, postprandial pain, belching and pyrosis. These latter symptoms were identical with those of nervous dyspepsia, or came on three hours after eating and were relieved by food. Jaundice was not often present. In a great many cases it was possible to detect an enlarged gall-bladder, by means of careful examination. There were sometimes not only subjective but also objective manifestations of hypochlorhydria, which was probably secondary. Spontaneous pain was referred to the middle line or to the left of the middle line, like in nervous dyspepsia. One had to be ready to suspect gallstone disease in every case of dyspepsia with epigastric pain occurring particularly at night. Deep pressure in the region of the gall-bladder while the patient took a deep breath elicited pain and tenderness. In the Murphy method of examination, the patient with his back to the examiner and resting on his hands and knees, was examined from behind. The examiner placed his hand on the free border of the ribs and pressed with his palm upward toward the diaphragm. In this manner he could feel the enlarged gall-bladder. The physician was to regard with suspicion every case of catarrhal jaundice, particularly in any patient above 30. The milder cases were not the proper ones for surgical treatment. Rational treatment of these could be carried out by attacking the dyspepsia. The severer forms of gallstone disease were the ones about which the physician had to be anxious, particularly on account of the differential diagnosis from other surgical conditions. Diaphragmatic pleurisy was frequently confused with gallstone disease. When present on the right side it gave pain, tenderness, and muscular rigidity in the upper right quadrant of the abdomen. Such muscular rigidity was very common in diaphragmatic pleurisy. If cough, or rapid respiration developed, then the diagnosis pointed to the lower condition. Unfortunately, a certain number of cases of pneumonia developed, in which the sole symptoms were referred to the abdomen. A number of cases of supposed gallstone disease had been operated upon, that turned out to be cases of pneumonia. A useful point in differential diagnosis was this: in diaphragmatic pleurisy, by limiting the action of the diaphragm by encircling the ribs with the hands, the pain was relieved. On the other hand, in gallstone disease the lower costal tenderness was not relieved by this procedure. Gallstone disease was frequently overlooked on account of the failure to recognize two facts. First, jaundice was not constant. When the calculus remained in the gall-bladder or in the cystic duct, there was no jaundice; this occurred only when the stone got into the common duct and remained there. Yet, in 20 per cent. of cases of calculus in the common duct jaundice was absent owing to the fact that the observation was made at the time that the stone had already escaped into the intestine. Kelly had noted that in 34 per cent. of the cases of gallstone disease there was no jaundice at any time, while in 65 per cent. there was no jaundice at the time of operation. Another error was to expect to find distension of the gall-bladder at the time of operation. On the other hand, the round protuberance mistaken for an enlarged gall-bladder frequently turned out to be a protuberance of the liver or to be due to muscular spasm.

Subphrenic abscess resulting from appendicitis or from any other old focus of inflammation on the right side, gave pain that simulated the pain of gallstone disease. In the former the pain was more general and less spasmodic, while frequently a small area of dulness and bronchial breathing could be distinguished. Another condition that was confused with gallstone disease was the presence of septic infarcts of the kidney. These were more common than was supposed, occurring mostly on the right side. They were possibly caused by the colon bacillus. They gave rise to chills, malaise, and abdominal pain, to tenderness in the costovertebral angle and to the presence of a few red blood cells in the urine. Adhesions in the transverse colon frequently gave rise to pain and obstinate constipation, and were frequently confused with gallstone disease. The true condition could be recognized, however, by the absence of true gall-bladder tenderness, and the relief of the symptoms after the administration of a purgative. Cholecystitis, with or without stones, occurred in typhoid fever about the same time as the tendency to perforation. Differentiation was difficult. In cholecystitis the pain was less violent. When in serious doubt, exploratory laparotomy was advised. Patients with typhoid bore operation much better than was supposed. The cholecystitis of typhoid ran a good course. Gallstone disease was sometimes simulated by the perforation of organs in the neighborhood of the gall-bladder, for instance, the appendix. It was also simulated by acute diseases of the pancreas, as abscess, and pancreatitis. In the last the pain was referred more to the middle line, and a mass was felt deeply, while glucose was recovered from the urine, and fat from the stools. The practitioner was well equipped who was constantly on the lookout for the disease. The more elaborate modern methods of diagnosis were of little help. Radiography was of no value for gallstones gave no shadow. Exploratory puncture was not justifiable. The correct attitude of the physician toward gallstone disease was to be ready to suspect it and to be willing to diagnose it without jaundice or tumor, or the presence of calculi in the stools.

The Surgical Treatment.—Dr. Warren L. Duffield of Brooklyn read this paper.

State Medical Licensing Boards.

STATE MEDICAL BOARD EXAMINATION QUESTIONS.

Pennsylvania State Board of Medical Examiners.

June 23-26, 1908.

ANATOMY.

1. Describe the relations of the gall-bladder with its surrounding organs.
2. Describe the clavicle and its articulations.
3. Describe the heart, its cavities, and the vessels leading into and from it.
4. Describe the hip joint and name its ligaments.
5. Describe the pancreas and name the important structure that passes through its head.
6. Describe the position of the palmar arterial arches.
7. Describe the female mammary gland, with special reference to its lymphatics, and its relations with the surrounding structures.
8. What vessels furnish the nutritional, and what the functional, supply of blood to the lungs?
9. Name the external and internal rotators of the thigh.
10. Where are the motor centers of the cerebrum located, and how is their location delineated on the surface of the scalp?

PHYSIOLOGY.

1. Explain the endogenous (internal) and exogenous (external) sources of the purin bases and the production of uric acid.
2. Name and describe the causes producing the respective heart sounds.
3. Discuss the factors concerned in the venous circulation.
4. Describe the principal functions of the digestive juices.
5. Briefly describe visual accommodation, and mention the function of each involved factor.

MATERIA MEDICA.

1. Discuss the official iodine preparations with regard to their respective important medicinal properties, doses, and methods of employment.
2. Name the drugs that produce local anesthesia and describe the methods of using them.
3. Give the official names and the doses of the preparations of mercury which are prescribed for internal administration.
4. Name the drugs that are pharmaceutically incompatible with the following: (*a*) iron salts, (*b*) vegetable alkaloids, (*c*) gum resins.
5. Correctly write the following prescription without abbreviation (using official titles and either Metric system or U. S. measure and Troy weight):

Take of:—

Oil of Turpentine	120 minims
Powdered Gum Arabic	3 drams
Chloroform	16 minims
Syrup of Tolu	2 fluidounces
Peppermint Water a sufficient quantity to make	4 fluidounces

Directions—One fluidram sufficiently diluted with water every three hours.

CHEMISTRY.

1. Name and discuss the significance of five morbid products of the urine, and detail the tests for any two.
2. Give the chemical composition of two forms of urinary calculi and describe chemical tests for each form.
3. Name common and convenient antidotes for poisoning by the mineral acids, and tell what course should be pursued when the acid to be counteracted is unknown.
4. Describe two chemical tests to be used in water supposed to be contaminated with sewage.
5. State what diagnostic reaction takes place when diabetic urine is added to a heated alkaline solution of potassiocupric tartrate.

PATHOLOGY.

1. Define infarcts, and state where they most frequently occur.
2. Explain the production of the respective cardiac valvular murmurs, their conduction, and where most distinctly heard.
3. Describe the changes that occur in the crystalline lens in cataract.
4. Define and explain the causes of dry and senile gangrene.
5. Discuss the direct and indirect effects of the gonococcus upon the human body, and outline the technic for staining and recognizing its presence in the secretions.

DIAGNOSIS.

1. Differentiate acute pharyngitis and diphtheria.
2. Differentiate renal colic, hepatic colic, and appendicitis.
3. Differentiate tabes dorsalis and ataxic paraplegia.
4. Diagnosticate cerebrospinal meningitis.
5. Diagnosticate interstitial keratitis.

PRACTICE OF MEDICINE AND THERAPEUTICS.

1. Describe the course of a typical case of scarlet fever.
2. What are the symptoms of diabetes mellitus?
3. What are the symptoms of abscess of the liver?
4. What are the symptoms of tuberculous peritonitis?
5. What are the symptoms and signs present in pleurisy with purulent effusion (empyema)?
6. Outline a treatment for a case of acute follicular tonsillitis.
7. Outline a treatment for tapeworm.
8. What are the symptoms of poisoning by belladonna and how would you treat it?
9. How would you treat a case of cholera morbus.
10. What are the indications and contraindications in the use of arsenic?

SURGERY.

1. Describe the surgical and adjuvant treatment of septic peritonitis.
2. Give the symptoms of pyosalpinx and describe an operation for the same.
3. Describe the manipulations for the reduction of a posterior luxation of the hip joint.
4. Give a classification of burns, and the treatment for one of the third degree.
5. Define and outline the treatment for a penetrating wound of the urinary bladder.
6. Describe the symptoms of pyothorax (empyema) and an operation for its relief.
7. What are the general principles governing the treatment of fractures at or near joints?

8. Give the symptoms and treatment of dislocation of the semilunar cartilages of the knee joint.
9. Give the causes, symptoms, and treatment of varicocele.
10. Describe methods of control of severe epistaxis.

OBSTETRICS.

1. What maternal conditions would warrant the destruction of fetal life?
2. Differentiate normal pregnancy, tumors within the abdominal cavity, and ectopic gestation.
3. During the process of an apparently normal labor, what conditions may arise requiring either version or delivery by the forceps?
4. What may be the causes of uterine hemorrhages during pregnancy, and what would be your treatment?
5. For repeated spontaneous abortion, what is the course of treatment?
6. Should you find albumin and tube casts, or sugar, in the urine of a pregnant woman, what morbid conditions would be indicated, and what would be your treatment?
7. How would you manage a face presentation, with the chin in the hollow of the sacrum?
8. When the action of the uterus is insufficient, what measures and remedies may be used to bring about normal contractions?
9. Name the conditions requiring immediate delivery, and describe the methods of procedure.
10. What are the causes of ophthalmia neonatorum, and what means should be employed to prevent it? How should it be treated?

HYGIENE.

1. What measures should be enforced to prevent the spread of diseases through the schools?
2. What régime should be enforced in the sick-room of a tuberculous patient?
3. Why should we avoid using a general drinking and communion cup?
4. What methods are necessary in cities to reduce infant mortality resulting from digestive diseases?
5. Explain why the principles of "preventive medicine" can be more successfully and efficiently applied in the properly appointed home, with ample accommodations, than in a public or municipal institution?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

PENNSYLVANIA STATE BOARD OF MEDICAL EXAMINERS.

June 23-26, 1908.

ANATOMY.

1. The *gall bladder* is in relation *above* with the liver; *below*, with the first part of the duodenum, the hepatic flexure of the colon, the beginning of the transverse colon, and the pylorus; the fundus approaches the anterior abdominal wall behind the ninth costal cartilage and near the outer border of the right rectus abdominis muscle.

6. The position of the *superficial palmar arch* is represented by a line going across the palm of the hand from a point where the web of the thumb joins the palm.

The position of the *deep palmar arch* is represented by a line roughly parallel with the above, but one-half inch nearer to the wrist.

9. The *external rotators of the thigh* are: Obturator externus, Obturator internus, Gemellus superior, Gemellus inferior, Gluteus maximus, Gluteus médius and minimus (posterior fibers), Pyriformis, Quadratus femoris, Adductor longus, Adductor magnus, Adductor brevis, Pectineus, Ilio-psoas, Sartorius.

The *internal rotators of the thigh* are: Tensor vaginæ femoris, Gluteus médius and minimus (anterior fibers).

10. The motor centers of the cerebrum are located in the ascending frontal and ascending parietal convolutions, and the cortex adjacent thereto; they lie on each side of the fissure of Rolando. The leg center occupies the upper third of this part on the cortex, the arm center the middle third, and the face center the lower third. On the median surface, the centers for the head, trunk, and lower extremities are situated in this same order from before backwards.

To *locate the fissure of Rolando on the scalp:* Draw a straight line over the top of the scalp from the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the *fissure of Rolando.*

PHYSIOLOGY.

1. Uric acid belongs chemically to the group of substances called "purins," uric acid being trioxypurin. The uric acid which is derived from the purin bodies contained in the food is called "exogenous" uric acid; while that which comes from the breaking down of the tissues of the body which contain amiuo purins and oxypurins or nucleins is called "endogenous" uric acid.

2. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

3. The factors concerned in the venous circulation are: (1) The action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) some slight action of the valves in the veins.

4.

DIGESTIVE JUICES.	ACTIVE PRINCIPLE.	ACTION.
Saliva.....	Ptyalin.	Changes starches into dextrin and sugar.
Gastric juice.....	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic juice...	Trypsin.	Changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.
Intestinal juice....	Invertin.	Converts maltose into glucose.

The bile is also a digestive juice, and its functions are as follows: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis; and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

5. *"Mechanism of Accommodation.*—The lens is an elastic structure, and when released from the flattening influence of its suspensory ligament tends to assume a spherical shape. During accommodation the ciliary muscle (especially the circular fibers) contracts, drawing forward the chorioid and relaxing the suspensory ligament; this diminishes the tension of the lens capsule and allows the inherent elasticity of the lens to increase its convexity. The change in curvature affects chiefly the anterior surface of the lens. This is Helmholtz's theory and the one usually accepted. Lately Tscherning has advanced a different theory; he maintains that the ciliary muscle increases the tension of the suspensory ligament during contraction and that this causes peripheral flattening of the lens with bulging anteriorly at its center. The act of accommodation is accompanied by contraction of the pupil, and (in binocular vision) by convergence of the visual lines."—May's *Diseases of the Eye.*

MATERIA MEDICA.

2. The drugs that produce local anesthesia are: (1) Ether, (2) Rhigolene, (3) Ethyl chloride, (4) Cocaine, (5) Eucaine, (6) Holocaine, (7) Stovain, (8) Schleich's solution. Nos. 1, 2, and 3 are used as a spray; Nos. 4, 5, 6, and 7 are used hypodermically, or by being applied to a mucous surface; Schleich's solution is used by infiltration.

3. The official names and doses of the preparations of mercury which are prescribed for internal administration are: (1) Hydrargyri choloridum corrosivum, gr. 1/20; (2) hydraragyri iodidum rubrum, gr. 1/20; massa hydrargyri, gr. iv; (4) hydrargyri chloridum mite, gr. ij; (5) hydrargyrum cum creta, gr. iv; (6) hydrargyri iodidum flavum, gr. 1/5; (7) hydrargyri subsulphas flavus, gr. 1/4 to 1/2.

4. The INCOMPATIBLES of (*a*) *the iron salts* are: Vegetable astringents, alkalies, acids, phenol; (*b*) of *the vegetable alkaloids:* alkaline hydrates, tannic acid, picric acid,

salicylates, bromides, iodides, chlorides, bromine, iodine; (*c*) *of the gum resins:* oxidizing agents, phenol, menthol.

5. Recipe:

Olei terebinthinæ	ʒij
Pulveris acaciæ	ʒiij
Chloroformi	♏xvj
Syrupi tolutani	ʒij
Aquæ menthæ piperitæ quantum sufficiat ad	ʒiv

Misce.

Signa: One teaspoonful in half a glass of water, every three hours.

CHEMISTRY.

1. Five morbid products in the urine: Albumin, glucose, acetone, pus, and excess of indican.

Albumin is found in the urine: "(1) In fevers, as typhoid and pneumonia; (2) in valvular heart lesions, degeneration of the heart muscle, diseases of the coronary arteries, impeded pulmonary circulation, in pregnancy by pressure upon the renal veins, in intestinal catarrh, and in Asiatic cholera; (3) in purpura, scurvy, leukemia, pernicious anemia, jaundice, diabetes, and syphilis; (4) after taking Pb, Hg, I, P, As, Sb, chloroform, cantharides, oxalic, carbolic, salicylic or the mineral acids, turpentine, and nitrates; (5) in large amounts in acute nephritis and chronic parenchymatous nephritis; in small amount in chronic interstitial nephritis and amyloid kidney."

Glucose is found in urine as *"transitory glycosuria,"* "(1) in certain hepatic derangements, congestion, cirrhosis, and amyloid degeneration; (2) in many diseases of the central nervous system, with tumors or hemorrhages at the base of the brain, in meningitis, concussion, fracture of cervical vertebræ, railway injuries, in epileptic and apoplectic seizures, and also in certain diseases of the peripheral nervous system, as in sciatica and in tetanus; (3) in acute febrile diseases, pneumonia, typhoid, acute articular rheumatism, scarlatina, etc., particularly during convalescence; (4) under the influence of many poisons, such as curare, chloral, carbon monoxide, morphine, arsenic, and the anesthetics. As *'permanent glycosuria'* (1) in lesions of the brain involving the floor of the fourth ventricle; and (2) in diabetes mellitus."

Acetone is found in the urine "in febrile diseases when the febrile condition is prolonged, in certain mental diseases, such as general paresis, melancholia and epilepsy, after chloroform narcosis, in puerperal eclampsia, and in diabetes."

Pus is found in the urine in suppuration of any part of the urinary tract, and in case of rupture of an abscess into that tract.

Excess of indican is found in the urine "in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished peristalsis of the small intestines, as in ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc."

Test for Albumin.—The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

Test for indican in the urine: The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.—From Witthaus' *Essentials of Chemistry.*

2. Two forms of urinary calculi: (1) Uric acid calculi, and (2) ammonium urate calculi.

Chemical tests: Saw the calculus in two, take some of the sawdust and heat it on a platinum foil. If it is entirely volatile, take a fresh portion of the dust, moisten with nitric acid, evaporate to dryness at a low heat, add some ammonium hydroxide solution; a red color will be produced. Treat a portion of the dust with solution of potassium hydroxide, but without heating; if an ammoniacal odor is observed, the calculus is *ammonium urate;* if no such odor is observed, the calculus is *uric acid.*

3. In cases of poisoning by the mineral acids magnesia in water, or a strong solution of soap should be administered. The same course of treatment should be pursued even if the acid is not known.

5. When diabetic urine is added to a heated alkaline solution of potassiocupric tartrate, a yellow or red precipitate is formed.

PATHOLOGY.

1. *Infarcts* are areas of tissue in which, owing to the plugging up of an end artery or terminal artery, nutrition is prevented.

Infarcts most frequently occur in the kidneys, spleen, lungs, base of brain, retina, and heart.

5. The gonococcus, on being implanted on the mucous membrane of the urethra, may produce: Gonorrhea, urethritis, prostatitis, orchitis, epididymitis, vulvitis, vaginitis, endometritis, salpingitis, by direct extension; conjunctivitis may result if the discharge is carried to the eye; by metastasis there may result: Gonorrheal arthritis, tenosynovitis, involvement of the pleura, pericardium, endocardium, or myocardium; also involvement of the lymphatic glands, *e.g.*, bubo.

To demonstrate the *gonococcus:* On a cover-glass make a smear with the discharge as thin as possible, and let it dry in the air; cover it with a freshly-made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized; wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismarck brown; wash in distilled water, dry with filter paper, mount, and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes,* which have been *decolorized by Gram's stain,* and have taken the counterstain.

DIAGNOSIS.

1. In *acute pharyngitis* there is little or no systemic disturbance; the patient complains of pain and sore throat; the pharynx is red and dry; and there are no Klebs Loeffler bacilli present.

In *diphtheria* there is severe constitutional disturbance; an exudate is present, which is removable only with difficulty, and recurs after removal, and contains the Klebs Loeffler bacilli.

2. In *renal colic:* The pain is in the region of the affected kidney, it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

In *hepatic colic:* The pain is in the region of the liver, it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

In *appendicitis:* The pain is at first diffuse, but later becomes localized over the appendix in the right iliac fossa; nausea, vomiting, and constipation may be present; tenderness over the appendix, and rigidity of the right rectus abdominis muscle are present; there is generally moderate fever.

3. In *tabes dorsalis:* There are lightning pains, loss of knee jerk, the presence of the Argyll-Robertson pupil.

In *ataxia paraplegia:* There are very rarely lightning pains, the knee jerk is exaggerated, ankle clonus is present, there is no Argyll-Robertson pupil.

PRACTICE OF MEDICINE AND THERAPEUTICS.

8. *Symptoms of poisoning by belladonna:* "In the first stage, that of delirium, there are dryness of the throat, thirst, difficulty of deglutition and spasms upon swallowing liquids, face at first pale, afterwards highly reddened, pulse extremely rapid, eyes prominent, brilliant, with widely-dilated pupils, complete paralysis of accommodation, disturbances of vision, attacks of giddiness and vertigo, with severe headache, followed by delirium, occasionally silent or muttering, but usually violent, noisy, and destructive, accompanied by the most fantastic delusions and hallucinations. Usually the urine is retained, and the body temperature is above the normal. The delirium gradually subsides, and the second stage, that of coma, is established, with slow, stertorous respiration, and gradually failing pulse, until death occurs from respiratory or cardiac paralysis, or sometimes in an attack of syncope during apparent amelioration."

Treatment: Lavage of the stomach; morphine may be given cautiously during the period of violent excitement. Maintain respiration; strong coffee by the mouth or rectum is beneficial. Pilocarpine may be given, in not too large doses, to stimulate the secretion of saliva."—From Witthaus' *Essentials of Chemistry.*

SURGERY.

3. In posterior luxation of the hip joint the patient should be placed on a mattress on the floor, and then be anesthetised. The leg is then to be flexed on the thigh, and the thigh flexed on the abdomen; adduction is to be increased so that the knee is beyond the middle line of the body; then abduct, freely circumduct outward, and finally extend the limb so that it is parallel with the other.

OBSTETRICS.

10. Ophthalmia neonatorum is an infectious, purulent inflammation of the conjunctiva in the new-born.

It is due to the gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

The treatment is: (1) *Prophylactic:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent. solution of nitrate of silver, immediately after birth. (2) *Remedial:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 11
Georgia	E. R. Anthony, Griffin	Atlanta.	
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago.	Jan. —
Indiana	W. T. Gott, Indianapolis	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. 8
Kansas	D. P. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville.	
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	Nov. 10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec. 30
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 11
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	F. P Davis, Enid	Muskogee	Nov. 10
Oregon	B E. Miller, Portland	Portland	Jan. 5
Pennsylvan a	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. 1
Rhode Is and	G. T. Swarts, Providence	Providence	
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Dallas	Nov. 10
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 16
Washington*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	Nov. 10
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 12
Wyoming	S. B. Miller, Laramie	Laramie	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular state.

Mississippi.—At the recent examination there were one hundred and three applicants; but only thirty-three were successful. One of these is said to have been marked 100 in practically all the subjects. This is probably the highest grade that has ever been made by an applicant.

Connecticut.—At the July examination there were forty-seven candidates present; thirty-seven of these were successful.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending October 31, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	431	134
Diphtheria	321	21
Measles	145	3
Scarlet Fever	162	6
Smallpox	—	—
Varicella	81	
Typhoid Fever	85	19
Whooping Cough	26	4
Cerebrospinal Meningitis	9	5
Malarial Fever	—	—
Totals	1260	192

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending October 30, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Berkeley	Sept. 28–Oct. 3	1	..
San Francisco	Oct. 3–10	2	..
District of Columbia, Washington	Oct. 3–10	1	..
Florida, Jacksonville	Oct. 3–10	1	..
Illinois, Chicago	Oct. 10–17	1	..
Indiana, Indianapolis	Oct. 3–11	5	..
Ohio, Cincinnati	Oct. 3–10	1	..
Dayton	Oct. 3–10	1	.
Texas, San Antonio	Oct. 3–10	1	..
Wisconsin, Milwaukee	Sept. 27–Oct. 3	1	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Sept. 5–12	4	1

SMALLPOX—FOREIGN.

Arabia, Aden	Sept. 14–28	..	21
Canada, Winnipeg	Oct. 3–10	1	..
Ecuador, Guayaquil	Sept. 14–26	..	2
Egypt, Cairo	Sept. 19–26	1	1
Grenada, Island	Sept. 19–26	3	..
India, Bombay	Sept. 15–22	.	2
Calcutta	Aug. 29–Sept. 5	.	3
Indo-China, Cholen	Aug. 29–Sept. 5	1	1
Italy, General	Sept. 20–Oct. 4	22	..
Naples	Oct. 3–10	4	..
Norway, Christiania	Sept. 19–26	11	1
Russia, Moscow	Sept. 12–19	3	13
Warsaw	Aug. 29–Sept. 19	..	17
Spain, Valencia	Sept. 19–Oct. 3	4	1
Vogo	Sept. 26–Oct. 3	.	1
Straits Settlements, Singapore	Aug. 29–Sept. 5	.	1

YELLOW FEVER.

Barbadoes, Bridgetown	Oct. 10	1	1
Mexico, Merida	Oct. 15	1	.
Vera Cruz	Oct. 26	1	..
St. Vincent, Island	Oct. 4	1	..

CHOLERA—INSULAR.

Philippine Islands, Manila	Aug. 29–Sept. 12	56	49
Provinces	Aug. 29 Sept. 12	2,442	1,582

CHOLERA—FOREIGN.

China, Amoy	Sept. 5–19	.	9
India, Bombay	Sept. 12–22	2	2
Calcutta	Aug. 29–Sept. 12	..	13
Rangoon	Sept. 5–12	..	1
Japan, Moji	Sept. 2–15	33	..
Waka matsu	Aug. 25–Sept. 15	6	3
Russia, General	To Oct. 1	19,612	8,947
Straits Settlements, Singapore	Aug. 29–Sept. 5	..	5

PLAGUE.

Chili, Iquique	Sept. 21	4	..
Ecuador, Bahahoy	Oct. 4	4	1
Egypt, General	Sept. 25–Oct. 8	14	10
Alexandria	Sept. 25–Oct. 8	6	4
Port Said	Sept. 25–Oct. 8	3	..
India, Bombay	Sept. 15–22	.	26
Calcutta	Aug. 29–Sept. 12	..	20
Rangoon	Sept. 5–12	..	12
Indo-China, Cholen	Aug. 29–Sept 12	7	6
Siagon	Aug. 29–Sept. 12	1	1
Japan, Island of Awaji	To Sept. 26	45	..
Kobe	Sept. 12–19	..	1
Nishinomiya	Sept. 26	..	Present
Peru, Callao	Sept. 12–26	4	1

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Original Articles.

OBSERVATIONS WITH THE ROGERS-TORREY ANTIGONOCOCCIC SERUM.*

BY GEORGE KNOWLES SWINBURNE, M.D.,

NEW YORK.

SINCE my paper on the Antigonococcus Serum in Epididymitis, read before this society in June, 1906, I have used the serum almost without interruption on a large variety of cases. Up to September, 1907, I used the serum furnished by Dr. Torrey of the Loomis Laboratory. After that date Dr. Torrey placed his method in the hands of the firm Parke, Davis & Co., who have furnished it to the profession for experimental purposes.

The cases treated since October, 1907, have had the serum furnished by that firm. There were in all during that period 69 cases—41 were dispensary cases and 28 were cases in private practice. The cases were as follows: Chronic relapsing epididymitis, 14; acute epididymitis, early stages, 27; muscular rheumatism, without joint involvement, 14; muscular rheumatism, with one or more joints involved, 10; purely joint cases, 5; chronic gonorrhea of kidney, 2; involvement of tube and ovary, 1; persistent presence of gonococcus in urethral discharge, 2; acute prostatitis, 1; acute vesiculitis, 1; threatening epididymitis, 1; rheumatism and epididymitis, 1.

In almost all the cases of relapsing epididymitis, ten of which were dispensary cases, there was marked improvement. The striking relief noted was in the diminution or quick cessation of the pain. These cases are more or less unsatisfactory, because they have been difficult to follow. Some go back to work too soon and only return because of further relapse, and as they have a variety of conditions in the anterior or posterior urethra, all of which require more or less prolonged treatment. in most of them the serum alone is not sufficient to prevent a relapse—still in all of them there was marked relief after the second injection.

One of these cases has proven very interesting: A. M., 28 years old, married, has had relapsing epididymitis for two years. In November, 1906, treatment was first begun. The right epididymitis had then existed for eight months without cessation; he had been in the hospital twice during that time and was treated at the dispensary in the ordinary way for two weeks without any change. The swelling was large, exquisitely tender, and he had a great deal of spontaneous pain. He received at that time about eight injections of the serum furnished by the Loomis Laboratory, covering a period of three weeks. After the first injection there was almost no pain, at the end of three weeks the swelling had completely subsided and the epididymis was perfectly normal. He then disappeared and returned the following February, when, without fresh infection, the right epididymis was again swollen and painful and again subsided under three or four injections of the serum. He again disappeared, returning in the early summer of 1907, having had a suppurating epididymitis on the left side. At the time he returned to us there was a sinus from the swollen epididymis leading to the surface. The discharge from the sinus was examined for tubercle bacilli, but they were not found, nor were gonococci. This was finally healed, leaving an atrophied left testicle. The right testis at that time appeared normal. He returned October 29, again with right epididymitis. On October 29 and 30, and November 2 he received the serum. He was relieved and remained away till December 17, when he again returned, having as before the right epididymis involved at this time. I examined his posterior urethra with the urethroscope and found a markedly hyperemic veru montanum, which was treated twice in addition to the serum. After relief of the pain he again disappeared, returning again January 14, 1908; received the serum a few days, was relieved, and disappeared. He repeated this same thing again in February and again in March, since which time I have not seen him. Each time that he returned he begged for the serum because of the relief it gave him, but as soon as the pain was gone he would go back to work, so that he received no systematic treatment.

The four patients in private practice were all cured. They received four or five injections of the serum, and then their other conditions were treated after the epididymitis was relieved, and there was no recurrence in these cases.

In the cases of acute epididymitis, 27 in all, the majority were relieved of pain within 48 hours, and almost all went on to uninterrupted recovery. In addition to these cases the following is the history of a case in the practice of Dr. W. S. Gottheil, treated with this serum, Dr. Gottheil writing me that he was much pleased with the result.

Walter B., aged 20, student, gonorrhea started November 24, 1907. February 16, 1908, epididymis began to swell. February 17, 1908, temperature 101°, very severe pain, swelling increasing. Injection of contents of one bulb; no reaction. February 18, 1908, temperature 100.5°, pain unchanged; evening temperature 102.5,° pain worse. February 19, 1908, passed bad night. Morning temperature 101°, swelling and pain unchanged. Injection of contents of one bulb. Evening temperature 100°, more comfortable. February 20, 1908, temperature 99.5°, affected testicle and epididymis less tender. February 21, 1908, temperature normal, no pain, swelling rapidly disappearing. Testicle dressed. February 24, 1909, swelling gone, condition normal, patient out of bed. February 23, 1908, seventh day after first injection, and fifth day after second injection, simultaneous

*Read before the American Association of Genito-urinary Surgeons, Hot Springs, Va., May 2, 1908.

local dermal reaction, as a localized urticaria around the sites of the injections. No treatment, remained 48 hours, disappeared gradually.

I should like to read here the histories of two cases which I treated in August, 1906, with the serum of Dr. Torrey, because I have never seen them equaled.

J. W. M., 22 years old, under treatment for two months with a primary attack of gonorrhea; telephoned me at 4 o'clock in the afternoon that he had severe pain in the testicle, that he was in the country and could not get to me before 10 o'clock at night as he had a long car ride in order to reach town. When he got to me the pain was intense, the epididymis was much enlarged but soft, and exquisitely tender. I dressed the testicle and gave him an injection of serum and sent him home to bed. The following afternoon, when he came to the office, there had been no pain since the previous night, the swelling had subsided, there was almost no tenderness, and the outline of the epididymis could be made out a little larger than normal. He received a second injection of serum. Two days later, when seen again, there was absolutely no trace of any inflammation. A third injection was given. The injections into the arms, however, were followed in a few days by a very marked reaction; both arms were swollen from the wrist to the shoulder and were painful on movement, and the glands in both axillæ were enlarged and painful. This subsided in two days without special treatment other than hot baths.

The other case, B. R., 25, a policeman, was under treatment for chronic prostatitis following a primary gonorrhea of two years before; was doing well and apparently going on to recovery, when he came one morning after an all-night tour having forgotten to wear his suspensory. The right epididymis was enormously swollen and painful. This was dressed and he received the serum then, and again in 48 hours, at which time there was no trace of the trouble and no pain. Three days later, however, after another all-night tour, when he had a long chase after a criminal whom he arrested after a fight, the epididymis was again swollen as large as before, but absolutely painless, and again subsided in a few days after the use of the serum, and then the treatment of his previous condition was resumed.

There were 4 cases of muscular rheumatism in connection with chronic gonorrheal disease treated with the serum, 2 were relieved, 2 received no apparent benefit.

There were 10 cases in which there was muscular rheumatism with apparent involvement of one or more joints. These were not pure joint lesions, but seemed to be involvements of the smaller joints, especially the feet, or pain about the joints rather than pain due to effusion into the joints, together with some evidence of gonorrhea, usually of a very chronic character. One of these cases was not relieved at all; the majority yielded promptly, while 2 of them, cases of long standing, seemed to fluctuate: better one day and full of hope, then worse another. One, in private practice, had a chronic urethral discharge containing gonococci, pain in the feet, calves of the legs, and back. This patient received four injections of the serum, one every other day, and for a few hours would experience relief from pain, and then it would return. After the fourth injection he disappeared. The other patient, M., 27 years old, has had rheumatism in back, knees, and feet. The knees are painful, but there is no effusion. Has had four attacks of rheumatism in the last four years, this last being the worst attack. Had, on coming to the dispensary, March 27, 1908, a tight stricture, in the anterior urethra and chronic posterior urethritis. Has had ten injections of the serum. At first there was slight improvement in the pain, the stricture has been dilated up to 26 F. from 19 F. In his case there will be but little improvement, until the urethral lesions have been completely healed.

The cases of pure joint lesions, one in the wrist, two in the knee, and two in the feet, all responded promptly to the serum. They all followed a primary attack.

The wrist case, M. A., 36 years old, came to the dispensary September 23. First attack of gonorrhea began fourteen weeks ago, was followed a week later with pain and swelling in right wrist. For six weeks was in the City Hospital, but left because an operation was ordered. Had severe and constant pain in right wrist. Marked swelling and fluctuation, fingers stiff due to adhesion of tendons. On September 23, October 6 and 8 received the Torrey serum. All pain was gone from wrist after the second injection. I could get no more serum till October 16. The pain had returned somewhat, but was not so severe. The amount of effusion was nearly as great as in the beginning. October 16 and 18 received serum, pain all gone. Serum again November 3, when note made—wrist reduced to normal. After this he received an injection of serum at irregular intervals, when he came, because of slight return of pain. The swelling and effusion did not again return, and he gradually regained the use of the hand.

The two cases of knee-joint were almost exactly similar: one came on during a primary attack of gonorrhea, the other two months after all symptoms had subsided. In each case, one of 18 days', the other of 10 days' duration, there was an immense amount of effusion, with a very painful joint—in each case within a week, the serum being given every other day, the effusion nearly disappeared, but after that remained slight in amount, the patients returning to work, and only returning for serum when there was a slight amount of pain.

In the two remaining cases the tarsus was involved. One, A. A., 35 years old, laborer, had first attack of gonorrhea four months before; had an attack of epididymitis in December, came in March. Several days before coming the dorsum of the foot was swollen, red, and painful; he was seen by an ambulance surgeon who incised the swelling; no pus appeared; there was at first some relief of pain followed by a return after the wound had healed. He received a single injection of serum, after which the pain was relieved and he returned to work.

In the two cases of gonorrheal kidney, gonococci had been found present in the urine from each kidney; both these cases were of several years' standing. After treatment in each case, gonococci could no longer be found in either kidney, but in each case the urine remained cloudy and one patient had at times a tinge of blood in the urine. Neither man had any pain. The serum was given several times in each case, but no change could be noted, the urine in each case remaining cloudy as before, and there was no reaction from the serum of any kind.

The case of involvement of tube and ovary is related here to call attention to the possible value of the serum in these cases, when they are acute, rather than for any result which I got in this case. The patient, Mrs. M., 28 years old, married seven years. Shortly after marriage was infected by her husband; shortly after this had severe pain in region of left ovary, and went to a hospital, where she was told

she must have an operation. This she refused and returned home. She remained in bed a while, gradually got better, and the following year had a healthy child, which is now 6 years old. Several months ago pain returned in the site of the left ovary, not so severe as it was seven years ago. Was again told she must have an operation. Her husband brought her to me March 26. There was pain on palpation over the left side of abdomen and palpation by the vagina gave more pain on the left side than on the right. I gave her serum March 26 and 28, when she disappeared. When she came, March 28, she said she was very much better.*

There were cases of persistent presence of gonococci in the urethral discharge. The first patient had had gonococci in a very slight urethral discharge. He had been under treatment a long time, and I believed that the focus of infection was in the prostate, having demonstrated gonococci in material expressed from this gland. The patient received two injections of serum one week apart, as he came only once a week to the office. The serum caused him so much discomfort and pain in the arm following its injection that he asked me to discontinue it. It is rather curious but though the patient receives massage and irrigation with a 1:1000 silbamine only once in two weeks, no gonococci have been found since February 23, the day he received his second injection. He still receives treatment every second week.

I am well aware that the serum is supposed to have no power over the gonococcus, but a similar case of a year ago is worth reporting in this connection. A patient who had been treated by Dr. Ackerman, one of my assistants, for six months by massage and irrigation, was sent to me for an opinion. This was in November, 1906. He had had his first and only attack of gonorrhea five years before, had been almost continually under treatment, but for several years had been practically in the same condition, though he had improved considerably during the past six months; but now his condition was again at a standstill. No gonococci were found in the slight discharge stripped from the anterior urethra, but the bladder urine contained these microorganisms, and as the prostate was still soft and material could be expressed, I advised the continuance of present treatment for another month, when he was to call again for an examination. At his second visit a month later his condition was practically unchanged. I then advised cessation of all local treatment and a trial of the antigonococcus serum. In the next six weeks he received about fourteen injections. At that time there was complete cessation of all symptoms. The prostate was normal, there was no urethral discharge, there were no gonococci in the urine, the patient felt well and better able to do his work. A beer test produced no change, and though he was followed by Dr. Ackerman for several months he had never had any return of trouble.

The second case on which the present serum was used, was peculiar, and I have placed it under the heading, persistent presence of gonococci, although it does not strictly belong here. But I think it worthy of an extended history.

Dr. W., 33 years old, from a neighboring city, came to me four years ago with a chronic gonorrhea which he had had for several years. He had a gonococcus-bearing discharge, profuse in character, a very large prostate, soft and full of material. After this had been cleared up, I found he had a badly strictured condition of the urethra, and after I had dilated him from 12 F. to 23 F., he discontinued coming.

A year later he came with an apparent fresh infection which was quickly subdued; the strictures were unchanged since last treatment, that is, had not progressed. He brought with him a brother physician from his town to see how I treated him, as he was to continue the treatment by dilatation. This proved unsatisfactory and he stopped all treatment. The following year he again appeared with an apparently fresh attack which was again quickly subdued, but he still neglected the stricture which was about as before. In February of this year he appeared again with a profuse gonorrheal discharge, which for two months he had been treating himself and was getting worse all the time. The day he came, the discharge was profuse, the posterior urethra was involved, and he seemed to be thoroughly infected. He was obliged to keep at work and could only come to me once a week. On the following visit one week later he had a beginning epididymitis, the discharge was still profuse, and the urine had the thick cloudy appearance which I have come to look upon as a precursor of epididymitis.

I injected the contents of one vial into his arm and dressed the testicle with guaiacol ointment. On his appearance the following week there was no discharge, the urethra was dry, the urine was perfectly clear. He stated that twenty-four hours after receiving the injection he began to feel better all over, the pain had left the testicle, the discharge abated, and there was no urethral discomfort. He received the serum twice more at weekly intervals. There has been no return of any of his symptoms, nor can the gonococcus be demonstrated.

I have reported these three cases at length, because, as a rule, in the large number of cases in which I have used the serum, the gonococcus has persisted after relief of the rheumatism or the epididymitis.

One case of acute prostatitis appeared, in which the serum was used once a day for three days with relief of the pain and throbbing.

One case of acute vesiculitis. This patient had been discharged by his physician as cured, though he complained of deep-seated pain which grew steadily worse, and I was called to see him at his home. He could not sleep, had been in bed all day with great pain. I found the left vesicle hot, swollen, and exquisitely painful. Within an hour after receiving the serum there was sufficient relief from pain for him to sleep. He received three treatments in all, was allowed to get up and go out. He attempted to go to work and a few days later developed an epididymitis on the corresponding side.

The case of threatening epididymitis was a case of gonorrhea at the dispensary, whose urine presented the thick cloudy condition which I mentioned above as a precursor of epididymitis. He received three vials at these visits. The urine remained thus cloudy for two months in spite of local treatment, but epididymitis did not develop. I cannot say that the serum prevented it.

With the cases here presented, however, as well as with cases treated the previous year and a half with the serum furnished by Dr. Torrey, I have come to rely upon it as a valuable aid in the treatment of these cases.

64 East Fifty-sixth Street.

*Since this paper was read, I saw this patient in the dispensary in latter part May, where she brought her child for vaccination. She stated that she had had much less pain than before she received the serum, but was not well; still she had had no treatment since that time.

ROENTGEN RAY FLASHES OR INTERMITTENT *X*-RAYS.

By FINLEY R. COOK, M.D.,
NEW YORK.

THE unique results following the introduction of Roentgen ray energy as a therapeutic agent led to its universal adoption by physicians, many of whom had no conception of the nature of this energy. When disastrous results became common among patients and operators alike, and particularly when these led to fatalities, a general fear was engendered which retarded the growth of *x*-ray therapy. Although considerable advancement has been made, as regards dosage, too little consideration has been given to physiological and therapeutic properties. All efforts made in the latter direction will tend to settle many of the *x*-ray mysteries, explain the radically different results obtained, dissipate the present public fear of *x*-ray treatment, and place Roentgen-ray therapy on a more scientific basis.

Radiant energy, just as chemical, mechanical, electrical, and heat energy, has four distinct therapeutic properties—sedative, stimulant, irritant, and escharotic. While most mistakes can be summed up in one word, overdosage, recent experimentation shows that this was the natural and unavoidable consequence of following the universal custom of administering *x*-rays continuously. Although the primary action of a continuous exposure is that of a stimulant, in the absence of both subjective and objective perceptibility, it stealthily passes to that of an irritant and finally to that of an escharotic. Even in the hands of cautious and skilful operators regenerative influences are shortlived, and when unskilfully handled the treatment generally results in degenerative tissue changes.

The endeavor to separate the purely stimulating from the irritative action led to the perfection of the *x*-ray flash which subsequent experience has shown not only to be regenerative, but which develops this potency to a hitherto unknown degree of efficiency.

Every agent for stimulation is employed intermittently, but if given continuously with the same intensity beyond a certain period, it becomes irritating and destructive. It is also a general law of stimulation that the power can be increased in proportion to the decrease in the time of action. Just as one would naturally surmise, this has been found to be equally true with regard to *x*-ray energy. By making and breaking the primary current, thereby securing flashes, it is possible to shorten the distance of the tube, greatly increase the amperage, eliminate the danger of the accumulative effect, secure greater penetration, and at the same time obtain a far greater degree of stimulation than has hitherto been possible with the continuous rays.

The degenerative action of the continuous and the regenerative action of the intermittent rays were first demonstrated in the eye. If a cataract approaching maturity were exposed to the continuous rays an ephemeral stimulation and improvement in vision was sooner or later followed by ripening through hyperstimulation or irritation. This discovery led to the development of a technique for maturing a cataract for extraction.

With flashes, however, although using much greater amperage, irritation and ripening were avoided in such cases, and in incipient cataract not only a purely stimulating and regenerating action was invariably obtained with more or less improvement in vision, but this effect could be maintained throughout the entire course of treatment.

Degenerative Actions of the Continuous Rays.—Continuous ray degenerations are both local and general. They vary from the hyperemia so commonly seen on the hand of *x*-ray operators to that of the deeply seated necrosis or *x*-ray burn. The former undoubtedly results from a paralysis of the vasoconstrictors inducing a chronic hyperemia which leads to a hyperoxidation degeneration of the skin and its glandular appendages. The skin becomes dry and wrinkled, the latter from oxidation and absorption of subcutaneous fat. Superficial irritation in such an area leads to papilomatous growths, while deep seated irritation or loss of continuity in the skin leads to fibrous growths. These phenomena may throw some light on the etiology of benign tumors, epiblastic and mesoblastic, the factors here being irritation and passive hyperemia. Subsequent exposures are apt to set up an obliterating endarteritis with degeneration of trophic nerves and the process ends in general atrophy.

The next stage is ulceration from the slightest trauma and repeated irritation favors malignant degeneration. Important deductions might be made from a careful study of these pathological changes, bearing upon the cancer problem, especially so, inasmuch as it is the first and only instance in the history of medicine where a definite agency has been found that has unquestionably produced cancer. Such evidence seems to point to the persistent irritation of degenerate cells, as one important factor.

The most common form of degenerative action is that which results from a prolonged course of treatment. Repeated bombardments with an accumulative action induce a chronic productive inflammation not unlike that resulting from alcohol, syphilis, and lead. Normal tissues degenerate to fibrous tissues characterized by a deficiency in glands, nerves, and blood and lymphatic vessels. Hence we may conclude that fibrous degeneration results from the persistent irritation of normal cells.

X-ray burns vary from a coagulation necrosis of the superficial epithelium, commonly called a dermatitis, to that of the deep seated ulcer. The peculiar pathological and clinical features of the deep *x*-ray necrosis are explained by virtue of its different modus operandi from all other forms of energy. The field of action is not only extensive, with greater penetrability, but the latter varies in different points of the field. Corresponding to these variations in the *x*-ray field we can recognize in the tissues three distinct zones of action, which also represent the three distinct pathological changes induced by *x*-rays; a central zone of absolute necrosis, and intermediary one of fibrosis, and a peripheral one of passive hyperemia.

Before healing is accomplished the area of necrosis must extend beyond and include the zone characterized by an obliterating endarteritis. These necroses are therefore always painful and progressive within certain limitations and the rapidity of progression is the most distinguishing feature when they undergo malignant degeneration.

The accumulative and degenerative action of the continuous rays is also observed in the blood-forming organs. While the primary action is one of regeneration with an increase of the red and white blood cells, especially the latter, degeneration is finally evidenced by a decrease. This has been most strikingly demonstrated in the prolonged exposures to which animals have been submitted, and notably so in one case, in which the autopsy revealed the total destruction of the white cells and a diminution and disintegration of the red cells.

Highly specialized cells are most susceptible to

this action, which accounts for the well known action of the *x*-ray in producing sterility. In the hair follicles the primary regenerative action is shown by a new and more vigorous growth which causes temporary baldness in displacing the old growth. Degenerative action is shown by the permanent baldness which follows prolonged and powerful exposures. In the organs of special sense, blindness and deafness have resulted after a prolonged treatment for recurrent cancer in close proximity to the eye and ear.

Clinically, the variable results obtained by *x*-ray therapists in treating various disorders demonstrate the same peculiar accumulative property of the continuous rays. In tuberculous adenitis glands that do not yield after a certain period become more resistent and are more apt to break down, as the treatment is continued. This is undoubtedly due to a degeneration of blood and lymphatic vessels and an impairment of the primary leucocytosis.

In the treatment of deep cancer the rule has been at first an improvement in these cases and finally a marked increase in the rapidity of growth. The former is undoubtedly due to a general cellular regenerative action and leucocytosis, the latter to a local degenerative action in the normal cells surrounding the growth and irritation of the cancer cells from the failure of the operator to discriminate between the radically different impressions which must be made upon the malignant and the environing normal, or at least, non-malignant, cells.

The same therapeutic transition is likewise accountable for the difference of opinion with regard to the efficacy of *x*-rays in leukemia, pseudoleukemia, and pernicious anemia. The best results have been obtained by small dosage frequently repeated. With average dosage the rule has been marked improvement for a time, followed by a more rapid decline. With maximum dosage a few cases of rapid fatality have been reported.

In chronic Bright's disease the same experience has been repeated. There have been some favorable and a few disastrous results. The dictum, "beware of *x*-rays in chronic diffuse nephritis," is readily seen to be based on simple scientific principles, when we consider that the accumulative action always induces the same pathological changes that exist in a chronic interstitial nephritis, and hence must only aggravate these cases.

Regenerative Action of X-Ray Flashes—The regenerative action of flashes is both local and general and is accomplished principally through their action upon the blood vessels. They dilate arteries, lower blood pressure, and induce an active and natural hyperemia. They stimulate cellular metabolism without exhaustion and each subsequent stimulation is followed by an improvement in cellular vitality, a stepping up process as it were, made manifest in a regeneration of tissue. This phenomenon has been accomplished in bone, nerve, muscle, glandular, vascular and epithelial structures. In the eye it can be obtained in the cornea, iris, crystalline lens, choroid, retina, and optic nerve.

As an active hyperemia is always in evidence when the natural forces are engaged in defensive or regenerative work, the frequent association of an abnormal pulse-tension ratio with either a local ischemia or passive hyperemia, in localized degenerations, indicates an inability on Nature's part to establish an active hyperemia through some loss of equilibrium in the forces that control the circulation. The local hyperemia of powerful *x*-ray flashes is too constant and too manifest to be open to doubt, and explains the local regenerative action of the rays in diseases of chronic degeneration.

To appreciate their action upon the general circulation, their vasodilating power on the whole arterial system, and hence their influence on general metabolism, we have to observe their influence on the heart and systolic blood pressure or pulse tension ratio.

With a high tube focused over the chest and abdomen, the pulse rate has been lowered ten beats per minute, and the blood pressure ten manometers with one instantaneous flash. With sixty such flashes, a fall of sixty manometers, and thirty-five in the pulse rate has been accomplished in a minute and twenty seconds. The subject is too vast for consideration at present, but we might add that the effects upon the general system are most remarkable and in selected cases seem equivalent to a saline infusion. These observations undoubtedly give an important clue to the physiological and therapeutic rôle which *x*-rays play in their general regenerative influence in chronic and local degenerative diseases, especially as such that have been favorably influenced by Roentgenization are almost invariably associated with a disturbance of general metabolism.

Therapeutic Application of Intermittent Rays.—*X*-ray flashes have been used in both acute and chronic infections. Tension is lowered, the circulation is improved, leucocytosis is induced, and a more rapid recovery has been effected.

In fatty degenerations and infiltrations a regenerative action is obtained. In these conditions *x*-rays stand out in contrast with the action of heat. With the former there is little or no loss in body weight, showing that coincidently with the ovidation of fat there is a development of normal tissue. In one instance where immense fatty deposits in the calf and around the knee-joint were exposed to *x*-ray flashes, a diminution in circumference of three inches was effected in ten treatments, with a development of the muscles of the lower extremeties. In cystic degeneration the regenerative *x*-ray action has been demonstrated. In one case the result was most unique. A mass the size of an English walnut, situated in the breast, having been observed for two years, disappeared entirely after one treatment.

In the degeneration leading to fibrosis, this regenerative action has been observed in many and varied conditions. The rapidity with which recent scar tissue becomes permeated with new blood vessels is at times almost incredible. Breaking down and displacement of the fibrous elements with normal epithelium ensues after complete vascularization. In corneal opacities the latter does not obtain, but absorption takes place through an indirect regenerative influence on the corneal cells and a hyperemia of the normal blood-vessels that supply nutriment to those tissues. In varicose veins the hard and thickened walls have become soft and elastic and thrombi removed through absorption. Regeneration is most likely effected through a hyperemia of the vasa vasorum.

In arteriosclerosis the same regenerative influence in fibrosis has been amply established.

This is shown by both local and systemic changes in senile degeneration. Numerous cases of senility have been treated by the *x*-ray flashes. The local morbid processes in these cases have been an epithelioma, rodent ulcer, chronic eczema, senile cataract, and impairment of vision through senile changes in the various tissues of the eye. They are almost invariably associated with mental worry, irritation of local cells, and a high arterial tension.

In some instances, in which the local condition has ceased to be progressive, the blood pressure is either normal or below normal, the latter showing a natural reaction. With the high tension the heart's action is either rapid or slow, sometimes intermittent, but invariably exaggerated. With the low tension, either fast or very slow, but always sluggish. Local improvement is always accompanied by more or less general rejuvenation and a radical change in the pulse tension ratio. Further proof of the regeneration of *x*-ray flashes is seen in their influence in degenerations induced by the accumulative action of the continuous rays. Favorable results are being obtained in *x*-ray hyperemia, necrosis, fibrosis, and atrophy. In one instance some vision was restored where total blindness had resulted from overdosage during the treatment of a malignant growth in close proximity to the eye, and in another hearing was restored where it had been lost in a similar manner. In both cases there was an extensive facial necrosis with ulceration that had existed for a period of more than four years. While regeneration was tedious, it began immediately after the first treatment. In one the pulse was 120 and the systolic blood pressure 175 manometers before treatment: after 200 flashes which a fluoroscope detected at a distance of 60 feet the pulse dropped to 76 and blood pressure to 125 manometers. The head and face were flushed with arterial blood which began to issue from the necrotic area. A regenerative process began at once, and many new blood vessels, both arteries and veins, appeared and extended throughout this area. Sensation which had been absent for four years was in time restored, showing a regeneration in nerve tissue. The gradual exfoliation of necrotic cells through an aperture in the cornea pointed to a new growth of cells within the eyeball, and eventually perception of light, and even the motions of the eyeball, were restored. Inasmuch as many *x*-ray operators are suffering from the accumulative action of the rays while no form of treatment has hitherto been found to afford relief, it would seem that in these cases much might be expected in the skilful administration of *x*-ray flashes.

In the treatment of chronic skin diseases intermittent rays possess every advantage over the continuous rays. Not only is the danger of degeneration entirely eliminated, but results are more readily obtained. In tuberculous glands this technique gives better satisfaction. A medium to hard tube is employed, amperage 10 to 25, distance of tube from 12 inches to contact, and the number of flashes is gradually run up from 200 to 1,000 or more. After an active hyperemia has been induced, which may persist for several days, treatment should be suspended until the hyperemia subsides. Following this line of treatment the glands do not break down or become unyielding by virtue of the fact that there is no impairment or destruction of normal tissues.

In raying the deep seated organs, the intermittent method of administration is the only one that permits of prolonged and powerful treatments without damaging the skin and superficial tissues. This method can also be utilized in fluoroscopic examinations. Many physicians have abandoned this useful means of diagnostic precision in fracture work, on account of the danger to both patient and examiner. Intermitting the rays during such examinations not only eliminates all danger, but serves to maintain a more uniform degree of vacuum, prolongs the life of the tube, and strengthens the vision of the operators by virtue of the tonic action of the flashes on the retina and optic nerve. The discovery by the writer of the regenerative influence of *x*-ray flashes in degenerative conditions of the eye has led to its employment in more than a hundred cases which are now being prepared for publication. These cases include atrophy of optic nerve, detachment of the retina, chronic glaucoma, cataract, keratitis, leucoma adherens, staphyloma, chronic iritis, iridochoroiditis, and impairment of vision not associated with any specific local disease.

In a number of cases where the blindness was of such a degree as to necessitate the use of a guide, sufficient restoration of sight has been given to enable the patients to be independent and to read ordinary print. Perception of light has been obtained where it had been lost for twenty years. In one case where vision was only perception of light for a period of eight years, it was restored to that of reading large print in one treatment. In one case where vision was zero, and had probably been so for twelve years, ability to count fingers and read large type at close range was obtained after two weeks' treatment. In several cases where vision was only perception of light for less than two years' duration, ability to read large type was obtained.

Failures have occurred in extreme cases of more than one year's standing, but we have rarely failed to obtain some improvement in fairly severe cases of comparatively short standing, and moderate but always grateful results in moderate cases of long standing.

Mechanism of Flashes.—Roentgen-ray flashes are made by a special apparatus. It consists of a small motor, a condenser, and a moving shaft. It can be regulated to give from sixty to six hundred flashes per minute. Treatment is measured either by the number of flashes, which is preferable in eye treating, or by the measure of time, having estimated the number of flashes per minute. The record also includes the amperage and distance of tube. The quality of rays remains decidedly more uniform with the intermittent rays and there is an economy in tubes, coils, and current.

Conclusions.—1. A simple and prolonged stimulation can be obtained only by an intermittent bombardment of tissue cells.

2. An intermittent bombardment not only eliminates the dangers arising from *x*-ray treatment, but enables us to increase the amperage, and hence to obtain a far greater degree of stimulation.

3. With flashes we do not use any protective measures, and inasmuch as the general action is just as important as the local, if not more so, the whole body is included in the *x*-ray field, the rays of maximum intensity being focused on the local area under treatment. For the same reason we use a tube approaching hardness.

4. The effort to secure pure stimulation by the customary continuous method was against the established principles of stimulation and must be attended with danger, as experience has amply shown.

5. In all conditions where *x*-rays have been useful it has been due to their general as well as their local action.

6. The general action is shown by the inevitable improvement in general metabolism with a local regenerative action in an area of localized degeneration.

7. The most striking proof of the systemic action is obtained through sphygmomanometric observations.

8. Sedation is obtained by a mild and continuous bombardment. This suggests low amperage with tube at a distance measured by feet rather than by inches. Tension is lowered and tendency to sleep

induced. This is an *x*-ray bath. The whole body is included in the *x*-ray field.

9. Escharization is obtained by a powerful and continuous bombardment. Maximum amperage, minimum distance, maximum time of exposure. All normal tissues should be thoroughly protected with heavy sheets of lead with an opening exactly corresponding to the parts to be destroyed.

10. Irritation is obtained by a moderate and continuous bombardment, prolonging the time of exposure or by repeated exposures. It comes through over-stimulation, which is the primary action. Like all irritants, it tends to induce a fibrosis, obliterating endarteritis, and culminates in atrophy. It should never be used on normal tissues, and when used on local morbid cells the surrounding normal cells should be carefully protected by sheets of lead foil.

In a general way we may state that it is our conviction that the evolution of Roentgen-ray flashes not only eliminate the danger of *x*-ray treatment, but that this method will extend the field of its influence, that its use in the eye will prove to be its most valuable therapeutic application, and there is a strong probability that if employed skilfully in the early and acute stages of many heretofore incurable diseases of the eye, it may prove to be a valuable preventive of blindness.

120 East Thirty-fourth Street.

SOME NOTES ON THE MEDICAL TREATMENT OF INFLAMMATIONS OF THE BILIARY TRACT.*

By WM. N. BERKELEY, A.B., M.D.,

NEW YORK.

The writer of this paper was one who, in his medical school days, listened with the ready conviction of youth to the confident claims of his surgical teachers that cholecystitis and chronic cholangitis, with and without stones, are surgical diseases. It has been only through a rather shocking series of experiences in recent years that his faith has been shaken and he has felt serious temptation to go over to the unbelievers.

There is a little touch of grim humor in the recent statement of a well-known Philadelphia surgeon, as follows: "The actual work at the operating table has been the prime factor in elucidating the very obscure facts in connection with the etiology, pathology, and diagnosis of cholelithiasis, assisted though it has been by many brilliant researches, and careful post-mortem pathology."

With admirable reserve the author has failed to add that the careful post-mortems have been largely on surgical cases of fatal termination. After having done about a baker's dozen of such autopsies myself in the last four years, all from the hands of reputable surgeons of large experience, I have been induced in the cases coming clinically into my own hands to consider far more seriously and anxiously than formerly the alternative methods of treatment. And I have been so surprised and pleased at the results that it seems worth while to talk about them, albeit much of the ground has been already acrimoniously disputed.

To introduce the subject of treatment a few brief notes on the causation of inflammations of the bile tract cannot well be omitted.

Upon the bacteriology it is not my purpose specially to dwell. Exhaustive and competent studies have referred most of the cases of cholecystitis and cholangitis to the typhoid germ, to *B. coli,* or to the common pus organisms. The same germs are very frequently present in the bile of normal gall-bladders. When we recall the speed with which pyelitis may complicate inflammations of the urinary bladder, or the ease with which the influenza germ creeps from the pharynx into the middle ear and the accessory sinuses of the nose, it seems reasonable enough to suppose that bacteria in the biliary tract work in from the gut.

In order to start up an inflammation we should expect, as elsewhere, an increase in the virulence of the infective germ—as doubtless happens in catarrhs directly transmitted from the duodenum—or a solution of continuity of the biliary mucosa resulting from mechanical injury.

Such damage results occasionally from rupture of an echinococcus cyst into the ducts, one or more daughter cysts causing a blockade of the bile. Two such cases have come under my notice in the last two years. Very rarely one or more roundworms may crawl into the choledochus communis, causing a dangerous condition not recognized usually until the autopsy is performed. Other intestinal parasites have been also found, but generally these are mere clinical curiosities. Far and away the most common source of trouble is gallstones. In order to understand more of gallstones, and to refresh our memories, I quote for convenience of reference a recent analysis (Halliburton) of the constituents of normal bile: A fat-splitting ferment; sodium glycocholate; sodium taurocholate; biliverdin; bilirubin; a mucinoid substance, and small amounts of fats, soaps, cholesterin, lecithin, urea, chloride of sodium, and phosphates of calcium and iron. Its reaction is faintly alkaline or neutral.

Regarding our knowledge of the bile itself we have made few advances upon the classic work of Frerichs in the sixties of the last century. The newest text-books of physiology are still quoting Frerichs's chemical analyses. One important statement of older writers has been modified, namely, that normal bile kills germs. It seems quite certain, in the light of recent work, that the bile is only feebly, if at all antiseptic.

Gallstones consist mainly, it is said, of cholesterin, which is mixed with varying quantities of epithelial detritus, inspissated mucus, phosphates of calcium and iron, and bilirubin. Cholesterin is a curious substance of which little is known, not even its exact chemical relations, nor whether it is a secretion or an excretion. It is commonly supposed to be a monatomic alcohol of the terpene series. It is soluble in ether, chloroform, dilute acids and alkalies, bile, and various other reagents. It appears to be quite easily soluble in the intestinal juices, as is evidenced by the eroded and seamed appearance of gallstones passed per rectum.

It has been known for many years that stones, even up to the number of many hundreds, may exist in the gall-bladder through long periods of time without symptoms. Several series of autopsies have been reported in which 5, 10, 15 and even 25 per cent. of all the gall-bladders examined contained stones. They may antedate or follow catarrh of the tract.

Exactly why they appear is little better understood to-day than it was by our professional grandfathers, and that, too, in spite of a vast deal of intelligent and scientific labor. A recent paper of Kramer's is illustrative (*Journal of Experimental Medicine,* 1907, IX., 309). Kramer was able, by growing typhoid and colon bacilli in bile and alkaline peptone, to produce in about four weeks a closely packed, semi-solid mass in the bottom of

*Read before the New York Medical Union.

his tubes corresponding in chemical analysis to the make-up of gallstones. He thinks he has thereby shown that certain bacteria play an important part. A brief notice of similar literature would require many pages. So far, however, no conclusions of more than provisional value have been arrived at.

A familiar clinical fact is that stones are more frequent in women than in men.

Another fact of importance, now well attested by statistics from both continents, is that 95 per cent. of all cases of cholelithiasis occur after the thirtieth year, and 20 to 25 per cent. after the fiftieth year. This I mention with some emphasis here because it has important relations to treatment.

Volumes could be filled with the futile and unscientific speculations as to the formation of stones, which have appeared from time to time from the pens of medical men who were never in a chemical or pathological laboratory in their lives. Some have laid their appearance to beer drinking, some to drinking too little water; some to eating too much fat; some to an excess of carbohydrate or proteid. I have no heart myself to add another guess. I shall only call attention to the simple fact, true of all solids in fluid solution, that the probability of precipitation increases with the concentration of the solution and the sluggishness of its movement. That is, simply, that the thinner the bile and the faster it flows, the fewer the stones and the smaller their size. This fact, we may note incidentally, seems enough to explain the prevalence of gallstones in women. Their habits are sedentary, their tissues often relaxed after child-bearing, and their anemia being on the average greater than that of men, tends to reduce the muscular tone of the gall-bladder.

As a preliminary argument for medical treatment we may fairly, and without prejudice, enumerate a few of the surgical difficulties encountered in operations on the bile-tract.

First of all, the anatomical structure of the parts makes interference with the biliary tract *vi et armis* one of the most ticklish tasks in abdominal surgery. Many surgeons are lacking in the manual dexterity required to do this work in even a passable way. Furthermore, one can have no previous notion, in any individual case, even if nothing more critical than a cholecystotomy is projected, whether the gall-bladder hangs below the lower edge of the liver, or is retracted far behind it. In the latter case it is proposed to make a path for the escaping bile by stitching up a canal in the adjacent peritoneal tissues to reach as far as the opening in the belly-wall. All I know of these is what was left of them at the autopsy after general peritonitis had set in. Again, old and dense adhesions often bar the way to the ducts in the very cases where a supposed stone is most loudly calling for removal.

The new connective tissue around the ducts, furthermore, is often so thick that it simulates stone when no stone is present.

Again, even after a stone has been removed, stitching up the ducts at the bottom of a surgical opening six inches deep and dark as Erebus, is no easy undertaking. The portal vein, lying just behind and to the left of the choledochus, is apt to be caught in the stitches, even if they can be inserted.

Still another troublesome and sometimes disastrous fact is the frequent coincidence of general jaundice, which increases the hemorrhage, retards the healing, and at times precipitates a fatal result.

We must not forget, also, that the shock incident to surgical operations on the gall-bladder is unusually profound. In patients over fifty it is by no means inapt in itself to be fatal. My last three autopsies were all on such cases. But it is precisely in such cases that the operation has oftenest to be performed.

If it be said that suppurative processes in the bile tract never recover without operation, I rejoin that while this is the usually accepted statement, yet there is no hard-and-fast line in this region, between the so-called catarrhal and the true suppurative inflammations, and all cases ought to be first given a chance for palliative measures to be put into rational operation before the surgeon is called.

Lastly a permanent biliary fistula may result.

With these difficulties (of all of which I have personal knowledge) staring us in the face, it becomes a matter for serious thought whether medical measures may not, in all but the plainest suppurative cases, have some greater value than we are in the habit of allowing.

I shall first mention some therapeutic practices "more honored in the breach than in the observance," and afterwards sketch the mode of medical treatment that seems best to meet the indications.

First of all let me say that there is no solid nor fluid medicament so far known which will have any perceptible effect in dissolving stones already present in the gall-bladder. The old French method of giving ether and turpentine on the supposition that they are eliminated in the bile, and will gradually wash away gallstones, is neither warranted by experiment nor justified by clinical results.

The olive-oil treatment owes its celebrity solely to the lumps of oil-soap (sodium oleate) made by the reaction of oleic acid with the alkaline juices of the gut, and slightly simulating gallstones. Analysis of these concretions will show to anyone's satisfaction that they contain few or none of the constituents of true gallstones.

A particularly dangerous practice is massage of the liver and of the region of the gall-bladder.

The medical treatment obtaining the most general indorsement of conservative practitioners may be considered under the heads of drugs and mineral waters, diet, and exercise.

I need not stop to say again that no drugs so far known have the least demonstrable solvent effect upon gallstones, any more than upon stones in the kidney and urinary bladder. We may, however, select among a large number of medicines which have more or less effect in increasing the fluidity of the bile, and apparently stimulating its secretion.

Any of the saline purgatives will act in this way to some extent. Sodium phosphate in dilute aqueous solution before breakfast has long been approved. The alkaline mineral waters have this additional advantage, that they are in extremely dilute solution, and the patient in taking his medicine is compelled to take a large amount of water at the same time. Glycocholate and taurocholate of sodium have been experimentally and clinically proved to be direct and very valuable cholagogues. Their nauseous taste, long a serious objection, has been latterly removed by dexterous admixtures in several of the new proprietary preparations, and they may be given as required.

Inasmuch as glycocholates and taurocholates are both split in the alkaline intestinal juices into cholalic acid ($C_{24}H_{40}O_5$) and a by-product, it has been also proposed to give cholalic acid directly, and the results so far with my own patients have been better than with anything similar that I have personally tried.

It is claimed for all these drugs only that they

put into healthy condition an inflamed biliary mucosa, enabling the gall-bladder to take care of the stones it already contains, facilitating the discharge of those already actually lodged in the ducts, and preventing the formation of new stones.

All these remedies, furthermore, reduce intestinal putrefaction, move the bowels more freely, promote digestion, and by improving the patient's general condition, increase his resisting power all along the line.

Anti-fermentative drugs, like salol, are often helpful. I have one patient, a lady of fifty-eight years, who liked salol so well some years ago, when she was recovering from an attack of cholecystitis, that she has kept a box of 2-grain tablets by her bed at night ever since—for use when in discomfort from flatulence.

Patients will ultimately find out for themselves what laxative remedy suits them best. By some means or other it will be absolutely necessary to keep the bowels open. Copious enemata are good.

Regarding exercise and hygiene, it will, of course, be a matter of common sense that riding in rough vehicles over stony roads, horseback riding and tight lacing should be forbidden. If any lady can be found who is willing to support her skirts by shoulder straps, she should by all means be advised to do so. Regarding diet for such patients the received authorities differ, and differ so radically that one is soon led to suspect the truth, namely, that we do not know enough yet to lay down any rules of general applicability. Practically I have found that to most patients a mixed diet will be most suitable, and that they may be allowed within limits almost any article of food that agrees. During the existence of jaundice of course fats should be excluded.

Finally—and this is a matter of great importance—the quantity of food should be small at each feeding, and the intervals between meals short. The reason for this is simple: At every feeding the gall-bladder contracts, the papilla dilates, and bile is discharged into the gut. Frequent meals hence prevent a stagnation of bile and, *a fortiori*, a precipitation to make stones.

I would remark, finally, that the diet and hygiene of these cases are fully as important as medicine. Almost all recurrent attacks of cholecystitis are associated with a fresh attack of indigestion.

36 East Fifty-third Street.

PROPHYLAXIS VS. TREATMENT, OR PREVENTION RATHER THAN CURE.

By SAMUEL WESLEY SMITH, M.D.,

NEW YORK.

The war of extermination now being waged against house flies and mosquitos by the Government and by various Boards of Health throughout the country promises at no distant date to considerably diminish the number of these intolerable pests and transmitters of disease. Simultaneously, the war against tuberculosis is being prosecuted with vigor, not only in the United States, but in all other civilized countries. Independent of the value of tuberculin, as a preventive or as a remedy for consumption, the means adopted to stamp out the disease are bearing salutary results, and at no distant date tuberculosis may be relegated to the limbo of ailments which have ceased to be a menace to humanity. It is the same all along the line; medical science in its persistent efforts to eradicate disease will doubtless leave to the physician of the near future, as his special, almost sole work, prevention rather than cure. Physicians recognize, as never before, such agencies as proper diet, pure air, environment, and absolute cleanliness as essentials in the cure of the sick; less reliance is being placed upon medication. Prophylaxis rather than treatment seems to be the salient feature of recent medical practice.

Hence the physician of the future may be glad to adopt the method of the Chinese physicians and be paid for preserving health and beautifying human life and not for curing disease.

Strange that in our medical practice we are now reverting to methods of treatment recommended in the Papyrus Ebers, written in Egypt in the year 3500 B.C. In that, the most ancient medical writing, special emphasis is placed upon cleanliness as a preservative of health, and in the case of sickness careful attendance, proper diet, and pure air are recommended. The Children of Israel, who were in medical practice the followers of the Egyptians, also recommended similar methods for the continuance of health and the removal of disease. Even a cursory reading of the Pentateuch will show that various laws were embodied in the religious code of the Israelites which had special reference to the preservation of health and the eradication of disease. In cases of plague and diseases of a peculiarly offensive nature, the wearing apparel and bed clothes of those afflicted were burned.

But the general practitioner, in that future of which medical optimists dream, will have his place and it will by no means be a narrower sphere of operations. From the dawn of life until its close, he will be the friend, the consoler, the preserver, and the confidant of the family. He will be no less competent to deal with troubles of the mind than with disorders of the body, and his aim will be to preserve the *mens sana in corpore sano*. He will prescribe the rules of health and correct living, and through his beneficent influence and abhorrence of the artificialities and habits which have debased human life, he may aid in restoring to man the physical perfection of the Apollo Belvidere and to woman the symmetry and beauty of the Venus de Milo.

Among the ancient Egyptians and the Children of Israel the priests attended to the physical ailments, as well as to the spiritual needs of the people. In the new era now dawning upon the medical profession, it is not unreasonable to suppose that the physician will perform somewhat similar duties. Brought into the most intimate relationship with patients and their families his voice would be potent on the side of good morals and correct living. Essential as these are to health of body and mind he could not be accused of going beyond his sphere in becoming a preacher of righteousness—a righteousness which not only exalts a nation, but which also sanctifies and purifies individuals, and keeps them wholesome and clean.

Needless to say there is a great deal to be done before the dawn of the auspicious day I have been anticipating. The public, however, are alive to the importance of adopting measures for preventing disease and conserving health. In the department "News of the Week," in the Medical Record of July 18, the health plank in the platform of one of the great political parties is quoted. This plank recommends the organization of all existing national public health agencies into a National Bureau of Public Health, with such powers as are properly within the jurisdiction of the Federal Government.

Several sources of danger apparently have been lost sight of in the precautionary measures adopted to prevent disease. Many of the vessels arriving in this port are in an unsanitary condition, and though

no specific disease may exist on them, disease germs may be conveyed from them by passengers and sailors. A thorough process of cleaning and fumigation would remove this danger.

It is notorious that sleeping cars and even other passenger cars are sources of danger, not only to those traveling on them, but to the public at large. Though generally well ventilated in summer, they are at all seasons improperly cleaned, especially the sleeping cars, and are never so cleaned as to remove, or render innocuous, all disease germs which may be lurking in plush covered seats, carpets, and hangings, awaiting a proper medium for their development in the human system.

Sleeping cars upon arriving at the terminus of a journey should be fumigated or cleaned with the suction pneumatic cleaner, and not by the compressed air blow pipe, as is now in general use. In fact all cars on passenger trains at the end of each and every single trip ought to be subjected to the same purifying process. The Board of Health of New York City, I think, has an opportunity in this direction. It should compel railroad companies either to fumigate their sleeping cars upon arrival in the city, or to have them cleaned by suction pneumatic cleaners such as are now in use by some of our best equipped hospitals. If the Board exercised its authority in this respect, instead of ordering the indiscriminate slaughter of dogs during the summer months only, it would confer a greater boon upon the public, for the fact is that cold weather does not make a dog immune from hydrophobia any more than it makes a man immune from typhoid fever; besides there are so few who die from dog bites as compared with the number who die each year from infectious diseases. In this connection, I desire to direct special attention to the suction cleaners, as a preventive of disease. While they do not, of course, destroy any disease germs, they largely remove them from carpets, rugs or hangings, and capture the germ-laden dust which can easily be taken care of. Small suction cleaners, as easily handled as the ordinary carpet cleaner, or the whiskbroom and dustpan of the sleeping car, are now on the market, and they can be used in private houses and public places with excellent effect. The ordinary carpet cleaners have the fatal defect of removing only the heavier surface of bacteria-laden dust, while others dangerous to human life are left undisturbed or are sent adrift by the whiskbroom or rug-beater in the air to be inhaled by any person who may be there at the time.

I have been led to make the foregoing reflections by a case which attracted my attention not long since, when I had occasion to spend a part of two days and one night in a sleeping car returning from a Western city to New York. It so happened that a lone traveler like myself occupied in the sleeper a section opposite mine. I became interested in the man; his emaciated appearance and the drawn look of the face with the tell-tale rose-colored spot on the cheeks, the clubbing of the fingers, attacks of spasmodic coughing, followed by shortness of breath, and the sputum of a greenish-gray which he expectorated on the spittoon, attracted my attention and enlisted my sympathy. I did not need a bacteriological examination of the sputum to enable me to diagnose the case as one of pulmonary tuberculosis.

I casually made the inquiry as to his destination. He informed me that, by the advice of his physician, he was going to the North Woods to get rid of malaria and intermittent fever. "You poor man," I said; "if the change of climate and environment rids you of your malaria and fever, remain in the woods all winter and next summer and next winter too."

It is to be regretted that in this enlightened day such mistakes in diagnosis are made—yet they are.

On the morning of the second day when the sleeper had been turned into a day coach I saw the porter of the sleeper with his whiskbroom and feather duster vigorously dusting seats, carpets, and the wearing apparel of the passengers, *not* forgetting a frantic effort at dusting the top of the spittoon. Had the sputum deposited by my consumptive friend become sufficiently dried so as to be a part of the million particles of dust that had settled on it, and were its tubercle bacilli being dissipated with the cloud of dust through the car? We cannot deny the possibility or even the probability of this being so.

Again, a case of scarlet fever in my own practice leads me to believe that more care and supervision by the various Boards of Health throughout the country ought to be inaugurated.

Some time ago I was called to see a child who had recently arrived from a Western town. The little girl of five years had occupied a stateroom in a sleeping car with its mother for a day and a night. It was on the morning of the fifth day in the city that I was called to the bedside of the little patient. I found a temperature of 104°, reddened throat, and the strawberry tongue. My diagnosis was, probably, scarlet fever, which subsequently proved to be correct. At the time of my first visit the mother was very loath to accept my diagnosis. She informed me that there was no sickness of any kind at her Western home and that the child had not been out of the house for two or three days preparatory to leaving for New York; nor had any children visited the home of the patient during this time. There was certainly no scarlet fever in the house where my patient was nor had she been out of the house during the first two or three days following her arrival here. Hence I was led to the conclusion that in all probability the disease was contracted in the sleeping car. We cannot consider such a case in any way unique.

Remedial measures to become effective must be comprehensive and universal. When the medical profession, keenly alive to its responsibilites, is aided by Government and State officials and an intelligent public in the war against all kinds of pathogenic bacteria as well as *Bacillus tuberculosis*, we may reasonably hope for the disappearance of at least all preventable ailments that for ages have afflicted the human race.

7 West Twenty-sixth Street.

THE SURGICAL SITUATION.

By LUCY WAITE, B.A., M.D.,

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HEAD SURGEON MARY THOMPSON HOSPITAL.

Twelve years ago a clarion voice rang throughout the professional world calling a halt on reckless surgery. In his address before the American Medical Association at Atlanta our lamented surgeon Nicholas Senn accused the profession of being dominated by a *furor operativus*, and warned the overbold surgeons that they were laying up wrath against a day of wrath. If his charges were true at that time with how much more force do they apply today?

The *furor operativus* seems to have only gathered momentum during these years until today it has burst upon the surgical world in all its fury, bearing down before it all other branches of the medi-

cal profession, anatomy, physiology and pathology, medicine curative and prophylactic all must make way for the knife which like an all conquering and all powerful giant stalks through the medical ranks leaving, alas too often, devastation and ruin in its path.

We are rapidly becoming a nation of scars. Is this a necessary condition? If so, let us satisfy ourselves that it is, resign ourselves to our scars and forever after hold our peace. If it is not necessary let us rise up in our might, for when aroused we are a mighty people, and turn back the sharp edge of the surgeon's knife. Let us insist that the surgeon shall stop cutting long enough to take a deep breath and hold converse with the pathologist, the neurologist and the physiologist, yea, even the anatomist, and the men of medicine might give him a few clarifying points.

The time has come when a reformed movement is bound to be inaugurated. If it does not come from within it will come from without. If we do not reform ourselves we will be reformed, *nolens volens*. The laity are not all fools and the surgical situation is no longer a professional secret. Putting aside all question of ethics, of our duty as a profession toward a confiding laity; the law of self-preservation forces us to take up this question in earnest. That portion of the laity which has not already gone over to Christian Science, Osteopathy and psychotherapy is casting a critical eye upon the medical profession, and if I mistake not the signs of the times will require a speedy accounting.

Let us, therefore, bravely face the situation; let us probe the ugly wound to its very depths; let us fearlessly apply the cautery while it yet remains in our own hands, and while we can make a thorough aseptic operation.

What are the abuses in the surgical camp to-day, and how can they be remedied? In the first place there is no doubt that the profession is in the throes of a "furor operativus." The great professor must have his large clinics; the amateur must get his experience, so that he may some day fill the great professor's chair; every surgeon must invent at least one new operation or modify an old one, and these must be justified to the profession by a glittering array of statistics; post-graduate schools must have clinical material to make mushroom surgeons who return to their small towns and start a hospital which must be supported from the appendices of the entire surrounding country; and alas, everybody must have money for necessary and unnecessary expenses.

I do not mean to accuse surgeons as a rule of operating for a fee. But that there are a few who will do so knowingly is a lamentable fact. But the surgical conscience has become so warped that we don't know it ourselves when we are operating for a fee. When a surgeon says to himself—"This patient is determined to have an operation; if I don't do it Dr. A, or B, or C will, a wealthy man like Smith can't expect to carry his appendix around with him"—Is he operating for appendicitis or for the check which he knows Smith is anxious to hand over to some one? And would he operate if he thought there was any danger of his patient dying under the knife? Certainly not. But there is so little danger now in making an incision one and a half inches long and removing a normal appendix; and the patient can sit up the next day and be at his desk in a week! Nothing really has happened except the transfer of a few thousand dollars from the bank account of a man who didn't need it to the account of one who did. Where is the harm? It would indeed be difficult to say if we were speaking of dry goods or green groceries, but is this surgery? Word comes from Lord Lister that at the age of eighty he is sitting with bowed head wondering if after all he has brought any real benefit to humanity in introducing antiseptic and aseptic surgery to the profession; that he views with alarm and consternation this wave of surgical furor which is sweeping over Christendom. And no wonder. It is safe to say that every year thousands of unnecessary operations are to be laid at the door of aseptic surgery. Would any surgeon have the temerity to remove a normal appendix or open the abdominal cavity to "hang up" a uterus if the mortality was 50 per cent? Certainly not, for with all our faults we are not butchers.

But why do I seek for words when it has been said for me so much better by the "Master Surgeon."* "To the immortal Lister," he said, "belongs the honor of having opened a systemmatic and successful crusade against the surgeon's most treacherous enemies—the pathogenic germs. * * * No wonder that a sense of security created by such wonderful changes made the surgeons bold. * * * The physician found himself suddenly out of his long, time-honored routine practice. * * * Much of this ill applied energy in the surgical world has resulted in detriment to patients and in retarding actual surgical progress. Operative surgery has been carried to extremes. * * * The bold surgery of to-day upon organs of the abdominal cavity is largely due to the comparative safety with which the peritoneal cavity can be invaded under proper aseptic precautions. This new field for the display of surgical talent and ingenuity has been diligently cultivated in a legitimate way by the honest, progressive surgeon, but it has also been made the playground of unscientific sensational surgery by men who are ignorant of the legitimate limits of the art of surgery. * * * The greatest onslaught of modern surgery has been upon the organs of generation, male and female. * * * When I arraign the gynecologist for innumerable and inexcusable transgressions of the rules which ought to govern and control the art of surgery, I do not include the scientific, honest, conscientious workers in that department of surgery, but my remarks will apply to the class of routine operators which has recently grown to alarming dimensions. Not only in this but in nearly every country which has been penetrated by the dim rays of so-called bold surgery. * * * The new generation of doctors finds no longer satisfaction in practising their profession in some rural district. They have their eyes on large cities and have heard of enticing fees paid to specialists for insignificant operations. Why buy a horse and saddlebags when a fortune awaits them in devoting themselves to a specialty. The recent graduate seeks a much employed gynecologist, follows his work for a month or two and returns a full fledged specialist. * * * Has humanity been the gainer since the gynecologists became surgeons? This is a timely and serious question. * * * It is difficult to say where this rage will end or what organ will be the next battleground for the aggressive gynecologist. The clitoris, the vagina, the cervix uteri, the ovaries, the Fallopian tubes, the uterus and its ligaments have successively passed through a trying ordeal of the *furor operativus*. What the next fad will be is impossible to foretell. * * * If gynecology is to live and become a real benefit to women it must become more conservative. * * *

*On some of the Limits of the Art of Surgery, By Nicholas Senn, M.D., address delivered before the American Medical Association at Atlanta 1896.

Let us have in the future more of the *nil nocere* in place of the *furor operativus*."

But the remedy? Aye, there's the rub. It is such a very elusive subject, this "furor operativus." Can it be checked? I fear not in a legislative way. The spirit of the times is opposed to any medical censorship nor is this practicable at least in any form that has as yet been suggested.

Since then it is a question between a more or less intelligent profession and a more or less intelligent laity (for the laity are by no means altogether blameless for the present conditions) how is the situation to be handled? By education perforce, and I very much fear that the curriculum must include not only anatomy, physiology, and pathology, but a system of ethics in which the golden rule shall be given a conspicuous place. The cultivation of the individual conscience would be no doubt the radical remedy; a conscience which would not allow us to perform an exploratory incision until we have exhausted every means to make a diagnosis without the knife; a conscience which would say, am I sure that this is a surgical case in the first instance, and secondly is the operation that I am contemplating conformatory to the laws of anatomy and physiology, and the one most likely to rid the patient of the pathological condition; a conscience which would hesitate before attempting to improve nature's arrangement of organs—or to deprive the human system ruthlessly of organs evidently created for a purpose; a conscience which would finally ask itself: "Am I certain that I am operating for a pathological condition in the patient and not in my own purse." "Would I that some surgeon (more or less skillful) should perform such an operation upon me or upon one who is dear to me as I am contemplating on my patient," is a very good question to ask ourselves before we give the routine order to prepare the patient for the operating table. If all surgeons were women, conscientious women I mean, I am thoroughly convinced that all manner of hysteropexies for so-called uterine displacements would rapidly disappear for want of statistics.

The "golden rule" was certainly promulgated for a purpose, and here is a beautiful opportunity to use it. The most skilled surgeon needs to ask himself these searching questions. Then what of the unskilled, the amateur surgeon who has succeeded in obtaining a hospital position, the recent graduate and the hospital interne?

Already there are voices crying in this surgical wilderness. Let those who have ears to hear—listen. Not long ago Dr. Henry T. Byford made the statement that no amateur should be allowed to do an independent laparatomy until he had done at least one hundred abdominal sections under the direction of a master. What a revolution this one reform would make in the surgical world! Dr. Morris Richardson during the last few years has written a series of articles condemning overbold and unscientific surgery which should rouse the profession to the necessity of reform. Dr. J. M. Baldy in his presidential address before the American Gynecological Society has outlined most needed reforms. In a recent number of the *Boston Medical and Surgical Journal* Dr. J. C. Monro has a stirring article on the "Surgical Rights of the Public."

There are, of course, many others thinking and writing on this subject. Then why can not some concerted action be taken by those who are aroused to the situation? At least some system should be devised by which the laity and the profession as well may know whether they are dealing with a surgeon or an unskilled, unscientific cutter. Surely it is not asking too much that a physician shall give some guarantee to the profession and to the public that he is also qualified to practise surgery. It is absurd that the same college degree which confers the title of M. D. should give the right to perform operations to a student who has never taken the knife in his hand. If there is any way in which the laity can protect themselves by law from the ignorant and unscrupulous in the medical ranks let it be thought out by those who have the confidence both of the profession and of the laity. If it can come only in the form of recommendations, we are waiting for them and some of us at least will accept them.

The time is ripe and we are looking to the conscientious skilled surgeons of our country to institute some movement toward rescuing our beloved profession from those who would make it only a stepping stone to a passing greatness or exploit it for their own selfish interests, that the noble art of surgery which yearly saves thousands of lives and restores a lost health to thousands more, may be raised to the lofty pedestal to which its legitimate achievements have richly entitled it.

SYNOVITIS OF THE KNEE-JOINT AS A LATE MANIFESTATION OF ACQUIRED SYPHILIS.

REPORT OF A CASE.

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Richet[1], in 1853, was the first to express the opinion that a joint disease may be caused by the syphilitic virus directly, without the influence of another etiological factor. This opinion was not accepted immediately, and Ricord[2] and a number of others held that if an individual suffering from syphilis contracted a joint disease, it simply meant an incidental complication of the syphilis with another disease, possibly tuberculosis or rheumatism. But since then cases of purely syphilitic joint disease have multiplied to such a degree that no further doubt can be entertained as to the existence of this clinical condition.

The joints may be affected in one degree or another in every stage of both acquired and congenital syphilis, and usually each stage is characterized by different pathological conditions of the affected joint. Already in the period of secondary incubation the patient may suffer from pains in the joints, but this so-called "arthralgia" is not accompanied by any anatomical abnormality in the joint. The same arthralgia usually manifests itself at the beginning of the period of secondary symptoms during the time of fever and roseola, and it resembles them very closely, the rheumatic pains accompanying any other acute exanthema or muscular fatigue. The only peculiarity of this arthralgia that differentiates it from other conditions is that the pain increases greatly during the night.

Another form of a joint disease, which also appears early in the period of secondary symptoms of syphilis, is subacute synovitis. Here, besides the pain, there is some swelling and all the other symptoms of an acute inflammation. This condition resembles very closely both gonorrheal arthritis and polyarticular rheumatism. Fournier[3] calls the disease syphilitic pseudorheumatism. The disease usually appears simultaneously with secondary skin eruptions and disappears together with the latter. The condition that usually occurs in the later part

of the period of secondary symptoms of syphilis is chronic synovitis or hydrathosis. It appears most frequently during the third year after the initial lesion, takes a more chronic course than the subacute synovitis, but, like the latter, involves only the serous covering of the capsule, and, if treated, heals without leaving any trace of abnormality in the joint.

In great contrast to the forms just described, the joint lesions of the tertiary period of syphilis are very grave in character. They usually take the form of chronic arthritis secondary to formation of gummata either in the tissues surrounding the joint, so-called perisynovitis gummosa, or in the interior of the joint, the chondroarthritis gummosa. Both conditions lead to destruction of tissues and impairment of function. They resemble clinically tuberculosis of the joints, and were, therefore, described by Richet and subsequent French authors under the name of *tumeurs blanches syphilitiques*.

The clinical difference between acquired and congenital syphilis consists mainly in the absence in the latter of the primary lesion and the period of incubation, and besides the symptoms of the secondary and tertiary periods are not so clearly separated in the congenital as in the acquired syphilis. Otherwise the clinical manifestations that are met with in acquired syphilis occur also in congenital cases. All the forms of joint diseases described in cases of acquired syphilis can be seen in congenital cases. The only condition peculiar to congenital syphilis is the "deforming arthritis." This form, first described by Mericamp[4] in 1882, usually occurs in the later period of congenital syphilis. The disease manifests itself with enlargement of the epiphysis of the bones, absence of effusion in the joint cavity, and impediment of the function of the joint.

While it may seem from the foregoing description that we have to deal here with a clinically well defined disease, the differential diagnosis of which presents no difficulties, it is far from being so in practice. When the lesion of the joint is accompanied by other symptoms of the disease, then it is comparatively easy to reach a conclusion, but when the joint disease is the only manifestation of syphilis, the correct interpretation may be very hard indeed. As Morestin[5] puts it, in considering the cases of chronic synovitis in syphilis, "the cases are much more frequent than one would think, but, common as they are, they remain commonly unrecognized." It is of great importance, therefore, to bring forward and discuss clinically every additional case as it occurs. Besides this, the case that I shall report here has certain characteristics that distinguish it from the majority of the reported cases and gives it a peculiar interest from the standpoint of the conditions of syphilitic joint disease, and also of the general question of syphilis.

Mrs. W., aged 35, consulted me in May, 1908, for "rheumatism" in the left knee, from which she had suffered for six months. She had been unsuccessfully treated by large doses of salicylates and the usual antirheumatic remedies. On close questioning I could collect the following history. Parents, brothers, and sisters healthy—at least, there is no indication of tuberculosis or syphilis. Patient was not nursed by her mother, but by a wet-nurse, who, as she had heard, was at the time suffering from "scrofulosis." The patient herself never suffered, to her recollection, from anything resembling syphilis. She had been married for thirteen years, gave birth three times at term to stillborn children at intervals of about two years, and the fourth time, six years ago, gave birth to a living and perfectly healthy child. Her obstetricians explained the first three stillbirths by an abnormality in the pelvis. Her present illness, dating back six months, began suddenly with severe pain, swelling, and impairment of motion in the left knee-joint. The pain was most severe at night and did not yield to treatment. On examination I found several characteristic syphilitic scars on the skin of the chest and back. The patient could not give any account as to their origin. There were no enlarged lymph nodes nor thickenings of the bones; no abnormality in any of the organs of the chest, abdomen, or pelvis. The pelvic measurements were normal. The left knee-joint was enlarged, filled with fluid; the capsule felt somewhat thickened, and on the inner surface of the tibia there was a tender spot which did not feel softer, or in any way different to the touch, than any other part of the bone. The radiogram showed nothing abnormal either in the bones or capsule. I made a diagnosis of syphilitic hydrarthrosis, and ordered large doses of potassium iodide, with daily inunctions of mercurial ointment on the surface of the knee-joint, with two days' rest after each four inunctions. In ten days after the beginning of the treatment the pain ceased, and in four weeks the fluid was absorbed and the appearance and function of the joint were restored to normal.

This case presents several points of interest. The syphilis was acquired by the patient innocently in her infancy through her wet-nurse, and, though never treated, did not present any symptoms with the exception of the few skin lesions until she married, twenty-two years later. She apparently was then in the tertiary period, as her husband remains healthy, but she had three successive stillbirths, which was the first indication that she was not cured of her syphilis. Then, several years later, she got a lesion in the knee-joint. But here again the disease took an unusual course. As stated above, the joint lesions in the tertiary period of acquired syphilis are usually of a severe destructive character and based on formation of gummata, while in this case there was a simple chronic synovitis with severe nocturnal pain as the most prominent symptom. Such a mild form of the disease takes place, as a rule, in the earlier stages of the secondary period. A very plausible explanation of the condition would seem to be that the patient received an attenuated infection and, though untreated, the disease took all along a benign course.

For the practitioner there are two points in connection with the case that ought to be kept constantly in mind. In the first place, a patient, and particularly a woman, may carry an uncured syphilitic infection for years and show no indication of it. In the second place, a syphilitic joint disease does not show any pathognomonic clinical difference from a joint disease due to some other cause, and, unless the physician thinks of syphilis, the case may go on without the right treatment for months. Such a lack of treatment not only causes a great deal of unnecessary pain and discomfort to the patient, but, as Frauenthal[6] has shown, such a syphilitic arthritis, if untreated, may readily become infected with tuberculosis.

Joint disease in syphilis, both acquired and congenital, is a great deal more frequent than it is thought to be, and of all the joints the knee-joint is the most frequently affected.

How little the general surgeon is familiar with the subject can be seen from the statement of Hippel[7], who says that congenital syphilis of the knee-joints is hardly ever recognized by the surgeons, but usually by the ophthalmologists, because the disease

usually follows an attack of parenchymatous keratitis, which is considered by opthalmologists to be always of syphilitic origin.

When the joint disease is the only manifestation of syphilis and there are no other symptoms, the nocturnal exacerbation of the pain is in itself a sufficient indication of the true etiology. But even in the absence of this pain, in every case of chronic hydrarthrosis of unknown origin that does not respond to the usual treatment, syphilis ought to be considered. A couple of weeks of treatment with large doses of potassium iodide may cure the case completely.

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THE ACTION AND DOSAGE OF PHENOLPHTHALEIN.

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Phenolphthaleix has been known as a purgative for about eight years,[1] but so little has been written concerning its physiological action and definite dose that it has not received the attention from the medical profession that it deserves.

In reviewing the literature the following problems present themselves: (1) What is the physiological action? (2) Has it toxic properties or is it broken down in the course of its passage through the body into substances which are toxic? (3) What limits, if any, must we place on the dose prescribed, and how is it best administered?

Valmosy[2] and Tunnicleffe[3] believe that phenolphthalein remains unchanged in the acid media of the stomach, but on reaching the intestine forms a sodium salt in the presence of the bile. This salt is said to increase the osmotic pressure in the intestine and thus to act as a hydragogue cathartic.

It is a well-known fact that phenolphthalein is much less active in dogs than in man, and Valmosy[2] explains this by saying that less of the sodium salt is formed in dogs.

With these statements in view, I performed the following experiments on dogs: Three dogs were selected, weighing 35, 25, and 7 pounds, respectively. The stools were carefully watched for ten days, the average number and consistency being noted. On the eleventh day phenolphthalein in aqueous suspension was administered by means of a stomach tube in doses of one grain per pound of body weight; *i.e.*, the 35-pound dog received 35 grains; the 25-pound dog received 25 grains, and the 7-pound dog received 7 grains. During the forty-eight hours following no change was noted either in the number or consistency of the stools, although phenolphthalein could be detected in the stools of all three dogs by the end of thirty-six hours.

On the fourteenth day 70, 50, and 14 grains, respectively, were administered in the manner described above, with the same negative result as regards the number and consistency of stools, although larger quantities of phenolphthalein could be detected.

On the seventeenth day doses of 95, 75, and 21 grains produced no noteworthy changes. On the twentieth day 140, 100, and 28 grains were given. Twelve hours later the 25-pound dog developed a moderate diarrhea (five stools in twenty-four hours), and examination of the urine showed traces of phenolphthalein. The consistency of the stools, while somewhat thin, was by no means watery.

The 35-pound dog showed no changes in the stools, but the urine gave a fairly marked reaction for phenolphthalein. The 7-pound dog showed no changes either in stools or urine.

On the twenty-third day, after a dose of 175 grains, the 35-pound dog developed a moderate diarrhea (seven stools in twenty-four hours). The reaction for phenolphthalein in the urine continued. The stools of this dog resembled those of the 25-pound dog, viz., thin but not especially watery. Phenolphthalein in large quantities and absolutely unchanged could be detected. The 7-pound dog at this time was given 40 grains without effect.

During this series of experiments the dogs were fed on boiled beef and bread, and allowed free access to water at all times. They were kept in roomy wire cages so placed that urine could be collected, and with a wire grating in the bottom, so that the stools were kept fairly well separated from each other. The general condition of all the dogs remained good; there was no loss of weight; in fact, the 7-pound dog at the end of twenty days had gained three-fourths of a pound. The appetite was unimpaired, and no evidence of any ill effects from the drug could be observed.

After a rest of ten days, a further set of experiments were undertaken, but in the meantime the 7-pound dog was accidentally killed, so that further experiments were performed on the 35-pound and the 25-pound dogs. The same quantities of phenolphthalein were again administered, this time suspended in 100 c.c. of N/40 sodium hydrate. After the first three doses the results were the same as in the previous experiments, except that the stools were streaked with the red sodium salt from twenty-four to thirty-six hours after each administration, and continued to be so colored for from twelve to twenty hours, showing that the sodium salt left the body unchanged.

After a dose of 95 grains the 35-pound dog showed traces of phenolphthalein in the urine. The urine of the 25-pound dog showed phenolphthalein after a dose of 70 grains. Both dogs continued to show small amounts as long as the experiments were continued, the urine never being free from it even at the urination previous to the following administration.

After 140 grains the 35-pound dog developed a moderate diarrhea, similar to that appearing after the administration of 175 grains of the watery suspension of the drug.

The 25-pound dog developed a similar diarrhea after 100 grains. The stools of both dogs were soft, but not watery, and contained considerable quantities of the unchanged phenolphthalein, together with the sodium salt.

After another ten days' rest, the 25-pound dog was given 70 grains suspended in 100 c.c of 0.3 per cent. hydrochloric acid, without result; 110 grains produced practically the same results as previous suspensions of a like amount.

I conclude from the above experiments that while there is slightly greater absorption of phenolphthalein when suspended in N/40 sodium hydrate, there is not sufficient difference to warrant a conclusion that sodium plays any part in the purgative action of

the drug. This conclusion is also strengthened by the results in the two cases of catarrhal jaundice reported below, where the bile was almost entirely absent from the stools. Suzzor[4] and Tunnicleffe[3] report similar observations in jaundiced patients.

As to whether the action of the drug is directly on the mucous membrane as an irritant *per se*, or indirectly as a hydragogue, I am not prepared to state; but, from the character of the stools, both in dogs and in man, I am inclined to believe that the action is that of a direct irritant, otherwise the stools should be more fluid.

In regard to the toxic properties of phenolphthalein, little can be found in the literature. Best reports a case of poisoning from a 15-grain dose, but I am unable to find the records of any other case of poisoning. My own experience with dogs, cited above, and the statement of Valmosy[2] that doses up to 1 grain per kilo of body weight can be given to animals without danger, would indicate that phenolphthalein is practically without toxicity for animals. In my experience four patients have taken 30 grains or more daily for at least two weeks, one taking from 30 to 60 grains daily for fourteen months without ill effect.

As to its fate within the body, according to Valmosy[2] 87.17 per cent. of all phenolphthalein taken by the mouth can be recovered from the stools. Allowing for the usual errors of such determinations, it would appear that practically all of the drug is excreted by the bowel unchanged. After very large doses small quantities appear in the urine.

If phenolphthalein were broken down, one would expect an increase of the aromatic sulphates in the urine; this, however, neither Valmosy[2] nor Tunnicleffe[3] was able to obtain. It should be borne in mind, however, that active purgation decreases the aromatic sulphates to some extent, so that these observations are not absolutely conclusive, but for practical purposes are sufficiently accurate. The statement of Suzor,[4] that 0.3 grains will cause the drug to appear in the urine is not confirmed by the majority of observers, and was not true in any of my cases. For this reason Tumminia's[6] claim that phenolphthalein may be used as an indicator, for the functioning power of the kidney is without foundation, at least, in the vast majority of cases.

My conclusions then in regard to the toxic properties of phenolphthalein are: It is not toxic in any dose that I have given it, and can certainly be given with safety up to twenty or thirty grains daily. It is not broken down within the body so far as can be determined. Best's case I am inclined to regard either as an idiosyncrasy, such as at times gives rise to statements of toxicity in regard to almost all drugs; or else the symptoms described were due to something else beside the phenolphthalein.

The more recent writers, as Tumminia, state that the dose of phenolphthalein varies greatly with different patients. To a certain extent this is true, but in 90 per cent. of patients the variation is not greater than with most drugs. A brief summary of one hundred and sixteen cases of various diseases, combined with constipation and treated with phenolphthalein at the St. Louis University Dispensary and in private practice, will best illustrate this uniformity.

In one hundred and twelve cases the dose varied from one to ten grains daily, the average being 3½ grains. The above cases included the following conditions:

Chronic constipation without other symptoms other than those referable to this condition, eighteen cases. Chronic constipation, accompanied by hemorrhoids, ten cases. Contrary to the experience of Buckley,[7] the hemorrhoids were not aggravated by phenolphthalein.

Catarrhal jaundice, two cases, in both of which were acholic stools. In neither case was more phenolphthalein required than in cases where the stools showed abundance of bile, although both patients were quite constipated. The remaining cases included: influenza, eleven cases; actute and chronic rheumatism, seventeen cases; neurasthenia, seven cases; hypochlorhydria, ten cases, and hyperchlorhydria, thirty-five cases. Of the four cases requiring large doses three were diagnosed spastic constipation; each patient took from thirty to forty grains for at least two weeks without satisfactory results, but without any symptoms of intoxication.

The fourth case was that of a man, 68 years old, with benign stenosis of the pylorus contracting the opening so that a bead three-eighths of an inch in diameter was the largest that passed through the stomach. This patient requires from forty to sixty grains of phenolphthalein daily, and has taken such doses for eighteen months. Of other cathartics tried, all require from five to eight times the usual dose, and most of them produce disagreeable symptoms, such as cramps and tenesmus.

I have secured better results from using phenolphthalein in powder than when compressed into tablets, or even when given in capsule. Usually I prescribe 2 drams of the powder, and direct the patient to take what will lie on a dime (about 3 grains) before going to bed. It is best taken by placing it on the tongue and taking a swallow of water. The powder is tasteless and odorless, and as a rule is not objectionable; the dosage is easily regulated by the patient.

General Conclusions.—Phenolphthalein probably belongs to the class of intestinal irritants, but its action seems to be accompanied by less discomfort than the majority of cathartics of this class.

It is nontoxic, at least in doses up to 25 or 30 grains. It is extremely stable, very little if any being broken down in passing through the body. A little is absorbed, but is excreted by the kidneys as such.

The average dose may be placed at from 1 to 5 grains, best given in the powdered form, either at night or in divided doses after meals. In cases of hyperacidity it can be advantageously combined with an antacid powder.

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346 North Boyle Avenue.

Measles.—For the cough George R. Tubbs recommends:

℞ Terebene ..... ♏xii.
Ammon. chlor ..... gr. xii.
Tr. opii ..... ʒss.
Syr. pruni virg ..... q. s. ad. ʒiii.
M. S.: A teaspoonful every hour till the cough is relieved, then as needed.

For the fever:

℞ Spt. ætheris nit ..... ʒss.
Pot. acetatis ..... ʒi.
Liq. ammonii acetatis
Aq. camphoræ ..... āā ʒiss.
Tinct. aconiti ..... ♏xii.
M. S.: A teaspoonful every two or three hours.

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CLERICAL HEALING.

THE announcement made a few weeks ago by the rector of an Episcopal church in this city, that he was going to take up the practice of medicine as a part of his clerical work, calls renewed attention to this curious movement. While it was confined to the Emmanuel Church people in Boston it was generally regarded as a sort of Neo-Eddyism, one more of the many queer fads with which the citizens of that town are wont to amuse themselves, and little more was thought of it. Now, however, two at least of the Episcopal churches in New York are going to adopt the Emmanuel plan of treating disease, and doubtless some of the rectors of other churches in that denomination will be ready to join the ranks of irregular practitioners. It is time therefore to ask what the movement means, and why physicians, even trained neurologists, are to be found lending themselves to the movement and supporting it by voice and pen.

The first question raised by a perusal of the official book of the Emmanuel movement, is, why? Why clerical healing, and why the limitation of clerical healing to functional diseases? We do not find either question answered satisfactorily in this book and we do not see how they can be answered. If the physician is to entrust the care of his patients to the clergyman why not to the lawyer? The latter is as much the confidant of his clients as the minister of his parishioners, and could speak just as authoritatively to the subliminal self of the sick. But the physician ought to be able to speak with much greater effect. When he cannot, the explanation must be found in that curious state of mind which leads the ignorant to trust the confident amateur rather than the professional, to pin greater faith to quack remedies or grandmother's simples than to the prescription of the physician. The skilful physician despises no remedy which may benefit his patient, and if he believes a word from a sincere and tactful minister of the gospel will help, he is glad to send, and often does send, the sick man to the clergyman. As physicians we should regret indeed to lose the powerful therapeutic force that resides in religion, but it does not follow from this that we are ready to welcome the priest as a fellow practitioner of medicine, or even to acknowledge that he can exercise that function in the public and wholesale way of the Emmanuel rectors without the danger of doing far more harm than good.

Clergymen are no more than human, like all the rest of us, and once this movement is well launched it is safe to predict that medical men will have less and less to do with it—not, we fear, because they will become convinced of their folly in committing patients to the care of men ignorant of the rudiments of medical science, but because the clergymen will no longer care for their help. When men speak with the confidence, shown by the authors of "Religion and Medicine," of matters concerning which their words show them to have only uncertain knowledge, it is but a step to the rejection of all advice and suggestion from the physician. Pride, we are told, is one of the seven deadly sins, and there is no form of it more enthralling and ineradicable than the therapeutic pride of the unlearned.

At present the catchword of the Emmanuel movement is "functional disease." We are told repeatedly that the clerical healers will have nothing to do with any sufferer from organic disease, and they use their medically trained allies to separate the functional sheep from the organic goats, the latter being thrust back into the outer darkness of legitimate medical practice. But what do these people mean by "functional nervous disorders?" Do they really believe that there are two distinct kinds of disease—functional and organic? If they do not know, their medical advisers should tell them, that every day we are shifting so-called functional diseases into the class of organic diseases. Will these clerical healers abandon a functional disease to the medical healers when it is discovered to be dependent upon an organic lesion of brain, spinal cord, or sympathetic nervous system, or will they simply deny its organic basis and continue to treat it? And once they find themselves treating one disease called organic, why not others? why not all? Every physician knows that "cheerfulness, hope, courage, and religious faith and prayer," which constitute the pharmacopeia of the New York school of clerical healing, are just as necessary in the treatment of tuberculosis as in that of constipation, and indeed that they are often distinctly curative in various organic diseases. If the clergy have a divine commission to heal the sick they are recreant to their trust and cruel to the suffering to deprive any of the benefit of their healing words, and it will not be long before they recognize that fact and act accordingly. That the law forbids them to practise medicine is, of course, a detail of no importance.

THE NATURE OF GANGLIA AND THE STRUCTURE OF SYNOVIAL MEMBRANES.

LAYMAN as well as physicians are familiar with the so-called "weeping sinews," or ganglia, that often appear in the form of small oval or round elastic swellings on the dorsal surface of the wrist in piano players, needle workers, typewriters, etc. It would seem that so common an object would be well understood so far as its nature and development are concerned, but an article by Dr. W. C. Clarke in *Surgery, Gynecology and Obstetrics* for July, 1906, shows that this is far from being the case. Thus the common view is that ganglia are produced by the protrusion of the synovial membrane of joints

or tendon sheaths, and are distended by the fluid secreted by this membrane; some look upon them as fetal sequestrations of synovial membrane or recesses occluded in the development of the joint; others still claim that distention of regular or adventitious bursæ may be responsible for the swellings, while the most recent writers classify ganglia among cysts caused by the degeneration of connective tissue. The material examined by Clarke leads him to think that the distention of bursæ, because of some inflammatory condition, may be responsible for the appearance of some ganglia; most frequently, however, they are degeneration cysts, the finding of typical ganglia within the substance of tendons in cases described by Thorn, Franz, Borchardt, Hofman, and Clarke supporting the truth of this explanation.

Of wider interest are Clarke's investigations into the structure of synovial membrane, which were carried out in connection with the study of ganglia. Everyone remembers the textbook statement that these membranes are covered by a layer of endothelial cells, the secretion of which is the synovial fluid that lubricates the joint. According to Clarke, however, no such cells are found in the lining of joint cavities. Endothelium is a single complete layer of flat cells that covers a free surface, and is supported by tissue differing from it in structure. Histologically it is easily recognized in preparations of peritoneum, pleura, and blood-vessels by the beautiful mosaic of serrated or wavy lines which outline its cells, when impregnated by solutions of silver salts. The elements lining synovial membranes, on the other hand, are flattened or rounded connective tissue cells, but little differentiated from the deeper cells supporting them and having no such specific appearance when impregnated with silver salts. The endothelium of superficial vessels often precipitates these salts when the synovial membranes are exposed to their action, and it is this, as well as threads of coagulated synovia, that have probably misled earlier investigators of the structure of synovial membranes.

It is thus seen that the innocent "weeping sinews" which physicians treated, before the days of aseptic surgery, by slapping with a heavy book and by the application of pressure, are of much scientific interest so far as their structure and their relation to joints are concerned. Dr. Clarke's investigations suggest further questions for research and study. In the first place, it must be shown whether trauma, low-grade infection, or other causes are responsible for the degeneration of tissues which result in the formation of the cysts called ganglia. On the other hand, the new microchemical methods must be applied to the study of synovial cells and of the fluid lubricating the joints in order that more light may be thrown on the ultimate origin of the differentiated cell complexes in the animal organism.

DANGERS OF DIRECT TRACHEOSCOPY AND ESOPHAGOSCOPY.

It is now several years since Gustav Killian of Freiburg first made known his method of direct examination of the upper respiratory tract and published his description of the instruments and technique. The supposed difficulty of the procedure and the cost of the necessary outfit have precluded the use of this very excellent method save for those few investigators who have possessed all the facilities and requirements essential to carry it out successfully. There is no question that this is the method *par excellence*, for the diagnosis and treatment not only of respiratory conditions, but also of tumors, injuries, and diseases of the esophagus. It is now possible to introduce a light-carrying tube into the esophagus, or, in some cases, into the stomach, obtain a view of any growth present and remove a section for examination; and it is therefore not difficult to understand what a great good this maneuver is in skilled hands. Removal of foreign bodies and tumors from larynx, trachea, and bronchi is carried out much more easily than by the old indirect method, and with less injury to sound tissues.

A word needs to be said, however, against the careless or indiscriminate use of tubal exploration of these cavities. In the first place this operation should never be performed (unless the saving of a life in an emergency demands immediate and quick action) without preparing the patient as if for a major surgical operation. Introduction of unsterile tools by unsterile hands into a cavity which has not been made as aseptic as possible is a dangerous thing and is unfair to the patient. The procedure is not to be recommended for office routine nor for use in the unclean rooms of an out-patient clinic. Killian has collected reports of 164 cases of foreign bodies in the lower respiratory tract, in 159 of which the results were definitely known: two patients died of cocaine poisoning, two of stenosis, sixteen of pulmonary complications, five with the foreign body *in situ*, and eleven in spite of its successful removal. In America E. Fletcher Ingalls reports two fatal cases supposedly from irritation of the vagus nerve by instrumentation.

It is doubtful if cocaine anesthesia should ever be used in children for this purpose, since children do not withstand cocaine at all well, and the dosage must be necessarily of 10 to 20 per cent. strength and of uncertain amount. Adults, however, suffer very little inconvenience from its use, and from the operator's viewpoint, local anesthesia is less troublesome and the results are quite as good as under general narcosis.

In esophagoscopy there is also some danger of rupture of the walls, due either to normal thinness or to an ulcerative process brought about by aneurysm or malignant growth. Where such condition is suspected the tubes should be used with extreme caution, and the surgeon should surround himself with every facility for carrying out a major emergency operation.

The Stomach's Protection Against Self-digestion.

The old question of the immunity enjoyed by the stomach and other parts of the gastrointestinal tract against self-destruction by the active secretions produced in the process of digestion has acquired new interest since the various operations involving artificial connection of the small intestine with the stomach have been devised. The success of these operations proves that the intestinal mucous mem-

brane, when connected with the stomach, is protected somehow against its digestive power, so that permanent artificial communications between the stomach and the intestines can be established. More systematic study of this matter has been recently made by Katzenstein, who reports a number of animal experiments in the *Berliner klinische Wochenschrift* for September 28, 1908. He has found that closed loops of the jejunum introduced into the stomach are completely digested within that organ; one end of the spleen treated in the same manner was likewise digested; on the other hand, part of the duodenum, sewn into the stomach, remained intact, and the same effect followed the suturing of a part of the stomach itself into the cavity of the organ. The conclusion therefore must be reached that living tissue is digested by the stomach juices, even while retaining its connection with the rest of the organ to which it belongs; on the other hand, tissues which produce gastric juice or are constantly bathed by it are able to withstand the digestion within the stomach. Katzenstein's results throw new doubts upon the various theories offered in explanation of the absence of selfdigestion in the stomach, one of which ascribes the protective powers to the mucus of the organ, another to the lining epithelium, still another to various chemical and biochemical protective substances, while John Hunter claimed simply that all living tissue withstands digestion because of its very vitality. One greater interest, however, was the application of the observations made by Katzenstein to the therapy of gastric ulcer which affection partly depends upon the diminution in the self-protecting power of the gastric or duodenal wall. The author claims to have obtained very gratifying results with a new treatment of gastric ulcer founded upon the above results of his study of self-digestion. It is in one sense a specific treatment, depending upon the administration of antipepsin to the patients, and the description of the method, publication of which is promised by Dr. Katzenstein for the near future, will be looked for with interest.

Orrhotherapy in Chronic Nephritis.

Although no microorganisms have been found that could account for the origin and continuation of such chronic inflammatory conditions in the kidneys as are classed under the general name of Bright's disease, yet it had seemed reasonable to Casper and Engel to apply the recently developed orrhotherapeutic measures to the treatment of these conditions; the results which they report in the *Berliner klinische Wochenschrift* for October 12, 1908, seem encouraging, however empirical are the reasons for such novel treatment of nephritis. The serum used was prepared in the usual way by immunizing rabbits with the blood of the patients, and eleven nephritics were then treated by subcutaneous injections of such serum. The results showed first of all that the treatment was quite harmless; in one case albumin and casts permanently disappeared from the urine; in several other cases these elements were diminished in quantity, while in a few no changes were noted. The general condition of the patients seemed much improved by the treatment and one troublesome symptom, edema, was in all cases favorably affected. The *rationale* of this therapeutic experiment lies of course in the supposition that the ultimate cause of the kidney lesions is to be found in the blood of the patients. This view is supported by the fact that as a rule all elements of the organs are affected, however different may be the degree of the lesions in the various elements; that frequently other organs are simultaneously impaired in function or in anatomical structure as is exemplified in amyloid disease of the kidneys; and, finally, that acute infectious conditions are often responsible for the beginning of nephritis, the toxins derived from the infected foci irritating and injuring the kidneys when brought to them by the general circulation. The small number of cases observed by Casper and Engel are not enough, of course, to decide the value of the treatment proposed by them; chronic nephritis, however, is an incurable disease with the means at our disposal at present, and further reports of the results of orrhotherapeutic measures will be awaited with interest.

Multilocular Branchiogenous Cysts.

A certain confusion exists in the classification of congenital cystic tumors of the neck. E. Estor and G. Massabuau, writing in the *Revue de Chirurgie* for September, 1908, after a careful examination of all the cases of this kind that they could find described in literature, state that there are to be found on the side of the neck complex multilocular tumors which arise from the ectoderm, the eneoderm, or the mesoderm, or which contain tissues of all three layers mixed. These tissues form the lining of the cystic cavities or the intercystic stroma. Such tumors should be carefully separated from the polycystic parathyroid tumors. The origin of these tumors is not entirely explainable by the hypothesis of the development of neoplastic growths from remains of the embryonic tissues of the branchial clefts. We must enlarge our conception of their origin. They are embryonic cysts of a mixed type. Among them are tumors of all embryonal types from true teratomata to solid or cystic tumors of mixed type, and simple embryomata, or dermoid cysts. The origin of all these tumors is to be sought in a vice of embryonal evolution more or less early in the process of development. Up to the present time only sixteen undoubted cases of multilocular cysts have been reported.

News of the Week.

Public Health and Marine-Hospital Service.—The examination of candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service will be held on Monday, January 11, 1909, at 10 o'clock A.M., at No. 3 B street, S.E., Washington. Candidates must be between twenty-two and thirty years of age, and graduates of a reputable medical college. The examinations are physical, oral, written, and clinical. After four years' service, assistant surgeons are eligible for examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority and after due examination. Assistant surgeons receive $1,600, passed assistant surgeons, $2,000, and surgeons, $2,500 a year. For further information application should be made to the Surgeon General, Public Health and Marine-Hospital Service, Washington, D. C.

The Society for the Suppression of Unnecessary Noises is about to consider the possibility of eliminating the shouts of hawkers and peddlers, and Mrs. Rice, president, has suggested that different colored signs be displayed by persons wishing to purchase pushcart wares, just as merchants hang out signs for express drivers. Thus a green sign

would signify that the housekeeper desired to buy apples, a red sign that she wished potatoes. The plan seems esthetic as well as practicable.

Tuberculosis Exhibit.—An echo of the International Congress on Tuberculosis has reached New York, in the shape of the exhibit which will be displayed at the American Museum of Natural History, beginning on November 20. The exhibit was brought to New York recently in over a thousand packing cases, filling thirteen large freight cars. On the opening night, the committee in charge plans to have addresses by Governor Hughes, Mayor McClellan, and others. The exhibit will remain here for at least six weeks, and it is thought that while thousands viewed it in Washington, hundreds of thousands will view it here.

Tuberculosis in the Aleutian Islands.—Forty per cent. of the natives of the Aleutian Islands are said to be sufferers from tuberculosis, and the death rate is very high. It is suggested that the spread of the disease may be due to the ceremony of kissing the dead, which is a part of the religious ritual among the islanders.

Yellow Fever in Yucatan.—It is reported that a serious epidemic of yellow fever has broken out among the Yaqui Indians who were deported to Yucatan from Mexico, and that they are dying in large numbers. Many Spanish settlers in Yucatan are also said to have contracted the disease.

The Hewitt Lectures.—Dr. William J. Gies, Professor of Biological Chemistry in the College of Physicians and Surgeons will deliver this course of lectures at the Cooper Union on Monday evenings beginning on February 8, 1909. The subject will be the Chemistry of Nutrition, and Prof. Gies is arranging a series of experimental demonstrations to accompany the eight lectures. The course is given under the auspices of Columbia University.

Death Rate in New York.—For the week ending October 31, the death rate in New York was 13.75 against 16.49 for the same week of last year, the total number of deaths being 1,355 for 1907, and 1,166 for 1908.

Christian Scientists on Trial.—The New Jersey Supreme Court is at present hearing the appeal against a verdict of voluntary manslaughter in the case of the parents of a seven-year-old boy who died in May, 1907, without medical attendance. The counsel for the defendants contends that the trial judge erred in charging the jury that it was the duty of parents to furnish food, clothing, and medical attendance to their children, and quoted from Oliver Wendell Holmes, and others, to show that lack of medical attendance was in many cases of benefit. He argued that each person had the right to choose his religious belief, and that the boy's parents did their full duty in treating him according to such belief, and called upon the State to prove that there was nothing curative in Christian Science. The Prosecutor, in reply, said that as the child was incapable of judging the duty of providing medical attendance devolved upon his parents, that the religious belief of the parents was no defense of their action, and instanced the fact that the State recognized medicine by licensing its doctors. A charge of manslaughter has also been brought against the father of a twelve-year-old girl who died recently in Mt. Vernon. The coroner who investigated the case found that the child's death was caused by acute toxemia, the result of the negligence of her parents in failing to provide proper medical attendance.

Restricting the Height of Buildings in Denver.—The Medical Society of the City and County of Denver at a recent meeting approved the appointment of a committee of physicians to confer with the city officials and remonstrate against the proposed changing of the ordinance restricting the height of buildings to 125 feet. "Culture beds for germs" was the appellation given to the tall buildings, and it was contended that New York was polluted with tuberculosis because of its many-storied piles.

Dr. Frederic Brush of Boston has been appointed Superintendent of the New York Post-Graduate Medical School and Hospital. Before assuming the position, it is announced, he will devote some time to a study of post-graduate instruction and hospital administration in the various American medical centers.

Dr. Brown Pusey has been appointed head of the Department of Ophthalmology in the Northwestern University Medical School, Chicago, vice Dr. Casey A. Wood, resigned. Dr. Frank Allport has also resigned from the Faculty of this University.

The Harlem Eye and Ear Infirmary has just completed a new building, and funds to furnish it are being raised by the Ladies' Auxiliary, who held a fair for the purpose during the past week.

The Boston Insane Hospital will, on December 1, be taken over by the Massachusetts State Board of Insanity, the Board assuming control over the land and buildings constituting the hospital, now owned by the city. This is done under an act of the last legislature, which also provided for a considerable extension of the hospital and the work.

Fire in State Institution.—The State Custodial Asylum for Feeble Minded Women, at Rome, N. Y., was badly damaged by fire on November 1. Ward B of the group of buildings was totally destroyed—a loss of about $140,000. Forty of the inmates were paralytics and it was only with great difficulty that they were saved from the flames. That there was no loss of life was due to the efficient work of the fire fighters connected with the institution and of the Rome firemen who responded to the alarm.

The New Bellevue.—The first of the new buildings at Bellevue Hospital was opened in November. This has just been completed at a cost of something over a million dollars. The building is seven stories high, and contains two pavilions, known as A and B, of eight wards each, altogether accommodating about four hundred patients. The top floor will be devoted to wards for maternity cases, and the children's and medical wards will be housed on the lower floors. In the main building it will now be possible to have four wards for the tuberculosis patients, who have hitherto been housed in small wooden buildings along the river front. These will be abandoned, as will the building outside the hospital grounds which has been used for maternity cases.

Dr. Samuel T. Armstrong, who has been General Medical Superintendent of Bellevue and the Allied Hospitals, New York, since July, 1905, resigned on November 4.

Colleges Merge.—The Keokuk Medical College of Keokuk, Iowa, has recently been merged with the College of Medicine of Drake University at Des Moines, and a number of its students will continue their studies at the latter place. The Keokuk Medical College was organized in 1849, and in 1899 absorbed the College of Physicians and Surgeons; later on colleges of dentistry and pharmacy were added. The library, museum and laboratory equip-

ment will be transferred from Keokuk to Des Moines.

Chicago Urological Society.—At the annual meeting of this Society, held October 23, 1908, the following officers were elected: *President,* Dr. David Lieberthal; *Vice-President,* Dr. Robert Herbst; *Secretary-Treasurer,* Dr. V. D. Lespinasse; *Councilor,* Dr. William T. Belfield; *Alternate,* Dr. B. C. Corbus.

Association of Military Surgeons of Illinois.—At the annual meeting of this Association, held in October, the following officers were elected: *President,* Major Thomas C. McCord, assigned Fourth Infantry; *Vice-President,* Lieut.-Commander David W. Graham, Naval Reserve; *Secretary,* Major Charles Adams, Surgeon-General; *Assistant-Secretary,* Major S. C. Stanton, assigned First Infantry. The next meeting of the Association will be held at Dixon.

Western Illinois District Medical Society.—This Society held its annual meeting October 30, at Jacksonville. Dr. James W. Pettit, President of the Illinois State Medical Society, delivered an address, as did also Dr. Edmund W. Weis, of Ottawa. It was decided to hold the next meeting in Quincy. The election of officers resulted as follows: *President,* Dr. John W. Adams, Carrollton; *Vice-Presidents,* Drs. John H. Rice, Quincy, and David W. Reid, Jacksonville; *Secretary-Treasurer,* Dr. Wm. P. Duncan, Jacksonville; *Censors,* Drs. Robert J. Christie, Jr., Quincy, Frank P. Norbury, Jacksonville, and Levin H. A. Nickerson, Quincy.

The Pathological Society of Philadelphia, at its meeting on October 22, elected the following officers: *President,* Dr. Joseph McFarland; *Vice-Presidents,* Drs. Edsall, Reisman, Kelly, and Smith; *Secretary,* Dr. R. S. Lavenson; *Treasurer,* Dr. C. Y. White; *Recorder,* Dr. F. H. Klaer; *Curator,* E. H. Goodman.

The First District Branch of the Medical Society of the State of New York, at its second annual meeting in Poughkeepsie on October 21, elected the following officers: *President,* Dr. Charles E. Townsend of New York; *Vice-President,* Dr. Theodore D. Mills of Middletown; *Secretary,* Dr. C. E. Denison of New York; *Treasurer,* Dr. J. E. Sadlier of Poughkeepsie.

The Fifth District Branch of the Medical Society of the State of New York, at its annual meeting held in Utica on October 15, elected the following officers for the ensuing year: *President,* Dr. G. D. Gregor; *Vice-President,* Dr. F. E. Fox; *Secretary,* Dr. W. D. Garlock; *Treasurer,* Dr. F. Edward Jones.

The Sixth District Branch of the Medical Society of the State of New York, at its annual meeting in Binghamton, elected the following officers: *President,* Dr. S. A. Mereness; *Vice-President,* Dr. F. DeW. Reese; *Secretary-Treasurer,* Dr. H. W. Fudge.

Death of Centenarian.—Mrs. Julia O'Brien died on November 6, at the St. Francis Home in New York, at the age of 104 years. Born in County Tipperary, Ireland, she came to this country seventy-five years ago, and up to the time of her death took the keenest pleasure in smoking a corncob pipe, "to which habit she attributed her long life."

Obituary Notes.—Dr. Walter R. Gillette of New York died on November 7, at the Roosevelt Hospital, where he had recently undergone an operation for intestinal cancer. Dr. Gillette was born in Philadelphia in 1841, and was graduated from Hamilton University in 1861, and from the College of Physicians and Surgeons, New York, in 1863. For two years following he served in the United States Army as assistant surgeon, and for thirteen years thereafter was surgeon of the New York Postoffice. For fifteen years he was a member of the Faculty of the University Medical College. He was also a member of the New York Academy of Medicine and of the County Society, and consulting physician to Bellevue, St. Francis', and the Manhattan State Hospitals.

Dr. Walter J. Corcoran of Brooklyn, N. Y., died at his home on November 5, aged 51 years. Dr. Corcoran was graduated from the College of Physicians and Surgeons of New York in 1882, and has since practised in Brooklyn. He was a member of the Brooklyn Pathological, Surgical, and Gynecological Societies, and visiting gynecologist to St. Mary's Hospital and St. Mary's Female Hospital.

Dr. Francis F. Parker of Chicopee, Mass., died at his home on October 29, after several years of ill health. Dr. Parker was born in 1841, and was graduated from Tufts College in 1865, and from the Harvard Medical School in 1869. He had practised in Chicopee continuously for thirty-eight years.

Dr. David J. Doherty of Chicago, Ill., died on October 27, at the hospital of St. Bernard de Dieu, aged 58 years. Dr. Doherty was graduated from the medical department of the University of Minnesota in 1887, and from the University of Freiburg in 1888, and for several years had made a study of the language and customs of the Filipinos, having become interested during a trip to the islands.

Dr. Thomas Gregory Walsh of Milwaukee, Wis., died at his home of kidney trouble, on October 25, aged 47 years. Dr. Walsh was graduated from the Rush Medical College, Chicago, in 1888, and after a year as interne at the Cook County Hospital, settled in Milwaukee. For twenty years he served as visiting physician to St. Vincent's Orphan Asylum, and was on the staff of St. Mary's Hospital up to the time of his death. He had recently attracted attention because of a successfully performed operation of skin grafting on a young woman whose scalp was torn off in an accident in a knitting mill where she was employed.

Dr. John H. Jackson of Fall River, Mass., died at his home on October 27, in the 71st year of his age. Dr. Jackson was a native of Maine, and was graduated from the Colby College in 1861, and from the medical department of Bowdoin College in 1868. He was a member of the American Medical Association, the Massachusetts State Medical Society, and the Fall River Medical Society. In 1893 he was appointed registrar and professor of the theory and practice of medicine in the College of Physicians of Boston, and was for many years on the staff of the Union Hospital of Fall River.

Dr. William G. Buckley of Philadelphia, Pa., died on October 26, aged 74 years. Dr. Buckley was graduated from the medical department of the University of Pennsylvania in the class of 1861, and served as surgeon in the 1st Pennsylvania Reserve Corps during the Civil War.

Dr. Engelbert Voerster of St. Louis, Mo., died at his home on October 26, after a short illness, aged 66 years. Dr. Voerster was graduated from the Washington University, St. Louis, in 1865, having interrupted his studies to join the Union army during the Civil War. He served as coroner of St. Louis County from 1870 to 1878.

Dr. Nathan C. Gunder, one of the oldest practitioners of Columbus, Ohio, died at his home of

arteriosclerosis, on October 22, aged 76 years. He was graduated from the Cincinnati College of Medicine and Surgery in 1860, and had been in active practice until two years ago.

Dr. Emil G. Rehfuss died at Philadelphia on October 30 at the age of 47 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1884 and became resident physician in the German Hospital.

Correspondence.

A QUERY.

To the Editor of the Medical Record:

Sir:—I take the liberty of asking you and the editor of the *New York Medical Journal* a question. As you, in your capacity of medical editors and teachers, naturally take a warm interest in the subjects of alcohol and of therapy, have you no room for discussions on the hygienic and medical uses of alcohol and on psychotherapy? Both are of vast and universal import. If you have room for them—provided they are more than mere momentary notions—can you and will you tell your colleagues and readers why some of our brethren swamp the daily newspapers with their knowledge, or their convictions, or opinions, or impressions? A. Jacobi, M.D.

New York, November 9, 1908.

THE ABUSE OF A CALLING.

To the Editor of the Medical Record:

Sir:—One of the greatest impediments to progress at all times has been the liability of the crowd to respond to appeals to its subjective weaknesses, with the result that it has blindly followed some leader or adopted some cult which has done the most in the way of emotional stimulation, and appealed but in a minimum degree to the proper exercise of judgment. In all ages we have been furnished with examples of this, and LeBon in his excellent work sketches the psychology of the crowd most admirably. The genesis of new religions, the influence of "Messiahs," and the history of "Cures" are full of picturesque examples of what may be done by a clever, or even a dull and persistent leader and a receptive mob. These popular movements are more or less short-lived, but the original frailty of human nature continues, ever ready to be played upon by the designing rogue or the unbalanced fanatic.

Just now we are upon the summit of a wave of this kind; the sensational newspapers are playing their part, the pseudoscientists and the medical amateur are in evidence, and the meddlesome divine is appealing to the unstable members of his flock, just as his predecessors have done for centuries.

"Regular medicine" is unpopular just now, and an ignorant Assembly legalizes one species of fraud after another, while our own profession, secure in its conscious sense of dignity, sits quietly without protest, hugging to its soul the flattering delusion that the public will some day see its error and the disloyal patient will return to the fold after he has had his experience. Unhappily he does nothing of the kind, for new frauds are as numerous as the leaves—or let us say, rather, the toadstools—in the forest of Vallambrosa, and all are inviting. In this connection it is to be regretted that much supineness exists, and that medical men can be found to encourage these abuses. One physician of good standing has added to the popular unrest by the peculiar stand he has taken in regard to an alleged cure that has been recommended for a hopeless organic disease, which, after all, is a very ancient and popular method with various "old" doctors whose names and pictures appear from day to day in the cheap newspapers, and who treat all disease through the male urethra.

Medical approval has also been given to what has been facetiously called "Christian Science with Worcester Sauce," an imitation of the methods of Mrs. Eddy and her followers, who are at least, to a degree, original and apparently prosperous, and not dependent upon the languishing of their own churches and the loss of interest of their parishioners. It would appear from an inspeciton of the "year book" of one Episcopal Church of this city that there has been a decided falling off in attendance and actual interest in church work; and the empty church of another clergyman has been filled only through a sensational play to the Socialists from the East Side, who themselves have finally become disgusted with well-dressed and clean people, and finding it was not "the real thing" have abandoned their opportunity. No wonder a new craze is demanded!

The suggestion has been made that a remedy for all this is that the public should be instructed. As a Utopian proposition, this is very attractive—as a practical one it can only be compared to the trouble that would arise if lawyers taught their clients law, which they were subsequently to utilize at their own discretion. Information as to the public health and what to do in emergencies is well enough, but "domestic medicine" certainly has its limitations, which nowadays seem broad enough, and we are always reminded that a little knowledge is a dangerous thing when we take into account the ease with which patients procure tabloids of many dangerous drugs with perfect impunity.

Instead of the present apathy of our profession, we should in some measure arouse ourselves to expose fraud more actively than we have hitherto done—if necessary, by tracts or other publications, and there should be a publicity committee of the County Medical Society for this purpose. Other medical bodies should *visé* every paper submitted for delivery; unlicensed practitioners should be more rigidly prosecuted than at present, and new and comprehensive laws should be enacted, including the prohibition of various forms of treatment, as well as the giving of drugs, by unqualified individuals. Persons who have been swindled or maltreated should be helped and encouraged to bring suit against those who have not kept faith with them. Physicians themselves should cultivate the lost art of prescribing, and never be tempted to cater to the fanciful idiosyncrasies of their patients at the cost of their own dignity and self-respect for fear that the latter would go elsewhere. Allan McLane Hamilton.

New York, November 9, 1908.

OUR LONDON LETTER.

(From Our Special Correspondent.)

THE HARVEIAN ORATION—ROYAL SOCIETY OF MEDICINE—GENERAL PARALYSIS IN CHILDHOOD—GASTROSTAXIS—TRAUMATIC RUPTURE OF INTESTINE—WOMEN ADMITTED TO COLLEGE OF SURGEONS—GUILD OF ST. LUKE—MEDICAL EXHIBITION—OBITUARY.

London, October 23, 1908.

The Harveian Oration at the Royal College of Physicians was delivered on Monday by Dr. J. A. Ormerod, who devoted it to the subject of heredity in disease. He began by referring to the wishes of Harvey, who in founding these orations desired them to be exhortations to search out the secrets of Nature by observation and experiment. Harvey meant to emphasize the importance of independent, individual research as opposed to blind and lazy submission to authority. He refused to let learning trammel investigation, and this frame of mind was most necessary in the study of medicine. In directing attention to heredity, especially in disease, Dr. Ormerod said that though a German physician had denied the existence of hereditary disease they need not argue the point, as they would all admit that heredity had a good deal to do with the production of disease. In Harvey's work, "De Generatione Animalium," he gave probably the best account that could be given at that time of the phenomena of development, and in that book he wrote: "Some diseases propagate their kind, but why speak of diseases when the moles, warts, and cicatrices of the progenitor are seen in the third and fourth generations?" As to whether acquired characters are transmissible or whether the forces which help to fashion us have similar effects on our unborn offspring: The unlearned man said yes, and so did the learned until some time ago. Darwin's theory of selection assumed this, but it was incompatible with Weissman's. His central idea was continuity of the germ plasm—a plasm not manufactured afresh within the individual of each generation, but continuously handed on from one generation to the next, only changing in this sense, that as each successive individual is made, a portion of the germ plasm is set aside within him, with which to carry on the work of propagation. Thus we are not links in the chain of life, but flowers or leaves springing from a common stem—the germ plasm. The relationship was not that of father and son, but of brothers, the real father of all being the family germ plasm, and the duty of each individual was to accommodate him in the house he had built, that is, one's body, until another house, viz., that individual's son's body, was ready to receive him. The

next question might be: Do the ills acquired by parents affect the well-being of their children? If they suffered the germ plasm would have to suffer. It was another question altogether whether when a parent acquired some particular disease, the same or a similar one would affect his offspring. Those who denied this said it would not be, because it contradicted the theory. Here was a legitimate field for observation. At first sight syphilis seemed a decided instance, but this was answered by ascribing it to infection. If a healthy man acquired phthisis or gout, would his children be consumptive or gouty? Dr. Ormerod did not profess to be able to reply to this question, but observed that many of those he addressed had experience which might supply some material towards the determination of these problems. He passed on to refer to the value of Galton's statistics, and then to the work of Mendel as to the hypoidization of plants, but what we wanted to know, he said, was whether Mendel's laws were applicable to man, or how far they were so. In some cases where observations had been made on special points, such as the color of the iris, hereditary diseases of the eye, and hereditary deformities of limbs, the Mendelian proportion worked out, and perhaps more than that could not be asserted. With plants and animals experiment was possible—but not with mankind; we could not select our parents. On the Mendelian principle consanguineous marriages were the means of bringing to life hidden characters, and these might be either good or bad. The orator also spoke of the manner in which heredity was seen in the nervous system, and mentioned the curious fact that a person might develop late in life a disease which had potentially existed from birth.

After the oration the Bissett Hawkins medal was presented to Sir Shirley Murphy. This medal is awarded triennially for distinguished service in sanitary science. Sir Shirley expressed appreciation of the honor, and held it to be a compliment to those who worked with him as well as himself.

The clinical section of the Royal Medical Society was among the early ones to meet, and some very interesting cases were exhibited and discussed. Dr. Poynton showed a girl of 11 and a boy of 8½ whom he considered to be subjects of general paralysis—a rare affection in childhood. In the first there were some signs of syphilis, but not in the other, which dated from two seizures at night, in which there was screaming and trembling. Sir T. Barlow thought that the first case syphilitic and the other infantile paralysis, though there was room for doubt. Such cases were seldom met with in asylums, and so general physicians more often saw them than alienists. Dr. Walter Carr thought the diagnosis of the second case was between general paralysis, disseminated sclerosis, and a tumor of the pons. He had seen tremors in such a tumor, but here the other symptoms did not support that diagnosis.

Dr. Stanley Green of Norwich showed a case which he called gastrostaxis, from its correspondence with the description of Dr. Hale White and no pathological lesion having been found at two operations. The patient, a young woman, was first seen in January, 1901, in collapse from hematemesis—had had pain after eating for three years and gastric ulcer which had perforated was suggested. Recovery was slow, and for twelve months she acted as a lady's companion, but hematemesis recurred, with melæna. Gastroenterotomy was done, and for six months there was no hemorrhage, but it then returned as bad as ever. The stomach and duodenum were therefore opened and explored, without any discovery. In 1907 gangrene of the fingers began, and some digits were successfully amputated. A younger sister had had hematemesis and lost a phalanx of one finger. Sir T. Barlow said surgeons recognized that the bleeding point could not always be found. The attention to this condition had been called by Dr. Donald Hood, and many years later by Dr. Hale White. Dr. White himself said he knew of no record of gangrene of the fingers in these cases, though he always thought the capillaries must be affected, and this case showed imperfect vascular supply to the hand.

A case was shown of a man with a foreign body in a bronchus, and who had cough, dyspnea, purulent expectoration, and hemoptysis; no tubercle bacilli. At this meeting also Brüning's recent modification of Killain's instrument for exploring the trachea, etc., fitted with a suction pump by which secretion and a foreign body might be withdrawn, was exhibited. Mr. Godlee asked how far down the air passage could a foreign body be removed. He mentioned a case in which a pin lying across the left bronchus had been extracted, and remarked that, unfortunately, the prognosis of these cases was unfavorable, on account of bronchiectasis soon setting in and the persistence of this dilatation. He also referred to some operations done by German surgeons under modified atmospheric pressure, by which manipulation of the lung could be carried out without producing pneumothorax.

In the surgical section Messrs. Berry and Giuseppi contributed a paper on traumatic rupture of the intestine without external wound. They related a case of recovery after operation, and then analyzed all the cases admitted into ten London hospitals during the last fifteen years. These numbered 132, and no less than ten had been under one of them and seven others came under his notice, the post mortem being in most cases performed by him. Only seventeen of the 132 recovered; eighty-four were operated on, and seventeen of them were the recoveries. In fifteen the rupture was not found, and in seven of these it was duodenal, and only one recovered. The authors discussed these and other points, and submitted as conclusions: (1) That rupture of the duodenum was by no means so rare as usually supposed; (2) that rupture was usually produced by direct crushing, not by bursting or traction; (3) that the early symptoms of primary complete rupture were few, but fairly characteristic; (4) most important were severe, continuous pain, rigidity of the abdominal muscles, and vomiting; (5) that secondary rupture was by no means uncommon (the symptom there might be delayed for hours or even days); (6) early operation was the only treatment; (7) if operation is delayed until the abdomen is distended or liver dullness absent, there is practically no chance of success; (8) after operation the patient should be set up in bed and treated with massive saline infusions *per rectum*.

The Royal College of Surgeons has decided to admit women to its diplomas. They will therefore now be eligible for the double qualification of the two colleges as soon as the arrangements are concluded.

The Guild of St. Luke had their annual service at St. Paul's on the 20th.

The fourth annual medical exhibition, organized by the "British and Colonial Druggists," was held last week, and was highly successful.

Dr. Jas. Grey Glover died on the 14th inst., aged 76. He took his M.D. at Edinburgh in 1854. He was one of four brothers, and all of them attained a high position in their different professions. Dr. Glover for many years held a high position in the North of London, and continued in general practice to the last. Of late he was in partnership with his son, who is following in his profession. Journalists as well as medical men regret the loss of Dr. Glover, who for some forty years was on the staff of the *Lancet*, and always upheld the best traditions of his profession and contributed to the high tone of medical journalism. He was one of the first elected representatives on the General Medical Council, was a visiting justice of Holloway prison, and one of the warmest supporters of the Hospital Saturday Fund, and served on its first council. To many Glover's death seemed sudden. He was attending to the practice while his son was on holiday, and taken ill on the Monday, he died on the Wednesday.

Dr. Cuthbert Collingwood, the eminent botanist who has died at the age of 82, was a member of our profession. He was educated at Oxford, Edinburgh, and Guy's Hospital, graduating at Oxford in 1840. He became a member of the College of Physicians in 1859, was then a lecturer on botany at the Liverpool Medical School until 1866, when he went to the Far East to study marine zoology. His "Rambles of a Naturalist on the Shores and Waters of the China Seas" grew out of this voyage. His other investigations were recorded in scientific journals.

Dr. John Taylor, who died on the 10th inst., had been blind for the last few years. He was 73 years of age, and greatly respected in Hampshire, where he had practised for some time. In early life he served in the army, was through the Crimean War, and subsequently the Indian Mutiny.

INTERNATIONAL CONGRESS OF UROLOGY.

(From Our Paris Correspondent.)

PARIS, October 15, 1908.

FOUNDED at Paris in 1907, the International Association of Urology has for its object the study of all questions that pertain to urology. It meets as a Congress every third year, in a city designated by the General Assembly, under the presidency of a member elected by the preceding Congress. The number of members of the association is limited, and only those can be members who are agreed upon by the international committee, having been proposed by the committee from their own country.

The first International Congress has just been held at Paris, from September 30 to October 3, 1908, under the presidency of Professor Albarran of Paris. The vice-presidents were Posner of Berlin and Watson of Boston. The inauguration of the Congress took place in the large amphitheater of the Paris Faculty of Medicine, under the presidency of the Minister of Public

Instruction, who welcomed the many foreign members of the Congress who had come from all parts of the world. Then Professor Guyon, in a few words, which were much applauded, showed the usefulness of Congresses, and especially of International Congresses. Israel of Berlin spoke in eulogy of Professor Guyon, who has, so to speak, created urology. All the urologists of the world are proud of proclaiming themselves his pupils.

Four questions were studied by this Congress: (1) "Pathogeny and Treatment of Anuria"; (2) "Vesical Retention Without Mechanical Obstacle"; (3) "Normal and Pathological Physiology of the Prostate"; (4) "Operative Indications in Tuberculous Kidney."

The first question, "Pathogeny and Treatment of Anuria," was presented by Kümmel of Hamburg, Watson of Boston and Achard of Paris. Kümmel distinguishes two kinds of anuria; the first, true anuria, in which the kidney produces no urine and the secretion of urine is entirely absent; the other, false anuria, in which the urine secreted by the kidney cannot reach the bladder on account of the obliteration of the ureters. The most frequent cause of ureteral obliteration is the presence of calculus, but it may result from the pressure of pelvic tumors, tumors of the ovaries, and especially cancer propagated from the uterus. True anuria, in which the renal function is entirely suppressed, may be produced by nephritis, whether this arises from chronic inflammatory phenomena, from toxic conditions, or infectious diseases. It may also be caused by tumors of both kidneys or by an affection of one kidney coexisting with a congenital absence of the other kidney. Lastly, reflex anuria, from lesions of a single kidney, is particularly interesting to study, as is hysterical anuria. The treatment of anuria will vary with the cause: if the ureter is obliterated we must remove the cause of the obstruction (calculus or tumor); in true anuria produced by nephritis, incision of the capsule or nephrectomy is indicated. In reflex anuria on account of disease of one kidney, the cause of the morbid condition of the kidney must be removed.

Watson of Boston had especially studied calculous anuria; he considered that the first kidney to be operated on when the two organs have a sufficient functional power should be the one least involved; in case of bilateral calculus the two kidneys should be opened at the same time whenever the operator doubts whether the first kidney opened will be sufficient to maintain life. Achard of Paris had studied the question of the pathogeny and treatment of anuria principally from the medical standpoint. Like Professor Kümmel, he distinguished two kinds of anuria: one consists in an arrest of secretion, the other of an obstacle to secretion. The type of excretory anuria is represented by calculous anuria, but it may also be produced by a tumor, such as uterine cancer. Secretory anuria has a more obscure pathogeny; sometimes it is possible to believe that obstruction by means of the epithelium of the convoluted tubules is the cause of the anuria, but in reality the mechanism of anuria is complex and several conditions may act separately or conjointly; in the anuric patient we often see coincident lesions of the kidney of a complex nature, epithelial, of the connective tissue, and vascular. The treatment of excretory anuria belongs to surgery, that of secretory anuria to medicine; stimulation of the secretory mechanism of the kidneys may be produced by renal diuretics and by subcutaneous injections, either of saline serum, or better still by intravenous injections of solutions of sugar; lastly, two operations may be done in these cases, nephrotomy and decapsulation of the kidneys.

After the reading of these papers and some interesting discussion Chauffard spoke, insisting especially on anuria produced by intoxications, and chiefly that by corrosive sublimate. This intoxication has been known to produce immediate anuria, ending in death. At the autopsy it has been found that the glomeruli were normal, the lesion being in the epithelium of the convoluted tubes which were completely necrosed. He believes that the alteration of the epithelium of the convoluted tubes is the principal cause of anuria of nephritic origin and medical anuria. Tessier of Lyons believes that anuria of medical origin finds its cause not so much in the kidneys as in the liver; it is the toxins not eliminated by the liver but acting on the kidneys which cause the alterations of the kidney epithelium and secondarily the anuria. Nicolich of Trieste and Albarran of Paris insisted on anuria of calculous origin. Jeanbrau of Montpellier demonstrated the good results of injections of sugar in two cases of anuria; the advantages of the solution of sugar are that they need much less work by the kidney to dispose of them than solutions of chlorides; second, they do not introduce any chlorides into the organism, thus being less toxic than salt solution; third, the sugar that they contain is partly burned up by the organism and eliminated as water and carbonic acid by the lungs. As to the doses, in urgent cases he advises the injection of 500 cubic centimeters of a 25 per cent. glucose solution into a vein. Pavone of Palermo recalled the usefulness of catheterism of the ureters in calculous anuria. He reported three cases in which this method of treatment gave him excellent results. Ponsson of Bordeaux insisted upon the value of nephrotomy in anuria and oliguria of medical and surgical affections of the kidneys. The principal advantages of these operations is to open a way for the escape of the fluid which engorges the renal canaliculi, and thus to prevent the alterations of the tubal epithelium. He believes that incision of the kidney offers a precious resource in the acute periods of nephritis caused by calculi with oliguria. Legueu of Paris insisted in calculous anuria on the alterations of the kidneys on the opposite side from the obstruction. He operates at once on the obstructed kidney, and the diagnosis of the side to be operated on is made by him an indication noted by him, which consists of the contraction and resistance of the abdominal parietes of that side.

The second subject of the day was "Vesicular Retention without Mechanical Obstruction." This question was treated by Frankl-Hochwart of Vienna and Albarran and Nogues of Paris. Frankl-Hochwart insisted on the rôle played by the nervous system in vesical retention without mechanical obstacles; among the nervous maladies are those of the spinal cord which often cause retention, and among them was especially noted tabes; of the neuroses hysteria often causes complete anuria from retention. Albarran and Nogues distinguished three different divisions in retention of urine; they studied, first, retention occurring with an insufficient obstacle such as occurs in the course of small hypertrophies of the prostate in prostatitis, and in stricture. They then considered retention without any obstacle and with lesions of the bladder. These are the so-called medical retentions which are due to an acute or chronic intoxication; they are met with in acute affections, such as typhoid, eruptive fevers and diphtheria. In such cases the authors insist on the rôle of spasm, which is simply due to the normal inhibition of the sphincter. Lastly, retention of urine with no obstacle, but with lesions of the bladder, are due sometimes to true degeneration, such as is seen in the aged; sometimes to inflammatory lesions. It is these that are seen in tuberculous cystitis. Finally, there are cases of chronic nature that have an etiology that is obscure, and which cannot be classified under any of these three heads, and which cannot be explained. There is still much to be studied with reference to cases of obscure etiology.

An interesting discussion now began, in which Hock of Prague and Edward Keyes participated. The latter author insisted on the importance of slight obstructions of the neck of the bladder; these cannot be diagnosed except by palpation of the lower part of the posterior urethra with the finger introduced into a perineal buttonhole; he also insisted on the benefit obtained by electrocauterization of the sphincter (Bottini) practised by the perineal route; he is reserved with reference to all operative procedures, which generally aggravate the condition. Fenwick of London and Rothschild and Frank of Berlin then mentioned cases of interest in this connection. Serralach of Barcelona believes that testicular secretion is of great importance, and may be employed with success in vesical retention without obstacle. He has observed in such cases that an injection of testicular juice has produced excellent results in stopping incontinence. The mode of action of testicular juice is due to the fact that it increases the nervous power. Bartrina of Barcelona attaches great importance to deformities produced by even slight hypertrophy of the prostate; this is also important in prostatitis without hypertrophy.

The third question was "The Normal and Pathological Physiology of the Prostate." The readers of papers were Posner of Berlin and Haberern of Budapest. Posner believes that the prostate has no single function, but serves several purposes; it contributes slightly to the closure of the bladder; it is above all the apparatus that serves at the moment of ejaculation; mingling with the spermatic fluid, the prostatic juice protects the vital force of the spermatozoa and prolongs it. The prostatic extract of one animal is poisonous to other animals; thus rabbits and guinea pigs are killed by even a small dose of the prostatic juice of the bull; however this may be, the importance of the prostate has not been completely elucidated and many obscure

points still exist. Haberern thinks that the most important function of the prostate is the secretion of a thin, milky, slightly alkaline fluid, having the characteristic odor of spermine. It acts upon the movements of the spermatozoa, perhaps by dilution, perhaps by a specific excitation, and its powers are most important at the moment of ejaculation. An important discussion followed, and among the views detailed must be mentioned those of Pardoe of London, who, following the evolution of the prostate in the animal series, presented many interesting facts on this subject. One series of experiments made by him showed that the prostatic juice is indispensable for the movements of the spermatozoa, so much so that when this juice does not exist the spermatozoa cannot produce fecundation. He has made observations on many patients on whom he has done transvesical prostatectomy, and in many cases he has found the presence of living spermatozoa.

The fourth question was "The Indications for Operation in Tuberculous Kidney." Among the readers of papers present the most remarkable work was that of Brongersma of Amsterdam. The author studied especially the way in which the tubercular infection reaches the kidney; he believes that if ascending infection is possible it is exceedingly rare; entrance of bacilli by way of the blood, regarded up to the present time as most frequent, and as proved to exist by miliary tuberculosis, does not appear to this author to play any considerable rôle. He believes that much more frequently renal tuberculosis is brought by the lymphatics, and this theory explains the unilaterality that is frequently observed in renal tuberculosis, as well as the consecutive propagation to the other kidney. With reference to spontaneous cure of renal tuberculosis, the author denies the possibility of it; by clinical observation, by autopsies, and by statistics it is proved that the normal kidney must be fatally infected as soon as the lesions of the diseased kidney are of considerable amount. The natural deduction from all these observations is that when there is a single tubercular kidney a nephrectomy should be done as soon as possible. The only possible contraindications will be bilaterality, advanced lesions of other organs and bad general condition of the patient.

A second paper was presented by Dr. Barthélémy Guisy of Athens. This author thinks that total nephrectomy is the only procedure that will bring about a cure of unilateral renal tuberculosis. Operation is contraindicated only when there are bilateral renal lesions; on the contrary, operation should be done early; it should be done equally in cases in which one kidney being tuberculous, the function of the other is not perfect; when there are pulmonary lesions, or lesions of the lower genitourinary region, nephrectomy is indicated when the general condition of the patient is not bad. The author does not advocate the resection of a large part of the ureter, since he thinks that the ureter will atrophy of itself and become a fibrous cord. Dr. Heresco of Bucharest also presented a paper. Like the other writers, he believes that renal tuberculosis is incurable by medical means, and since its course is progressive, there is only one operation that can be of value. This operation is nephrectomy, the results of which are much more certain when it is done early. the disease must be diagnosed at its beginning, and the watchword of the author is: Early diagnosis with early operation.

Finally, Dr. George Luys of Paris, admitting as an established dogma that unilateral renal tuberculosis demands immediate nephrectomy of the diseased kidney, thinks that the entire history of operative interventions may be summed up by early diagnosis and certainty that the tuberculosis involves only one kidney; to establish perfectly this diagnosis the clinical history and the ordinary methods of exploration are not sufficient. Precise diagnosis of unilaterality of renal tuberculosis can only be obtained by the study of the separate urines of the two kidneys, and the separation of the urines should be made either by endovesical separation of the urine with the separator of Luys, or by ureteral catheterism, but the two methods of investigation should never be placed in opposition with one another; on the contrary, they should be mutual aids to one another and each should be applied in its own way. In the immense majority of cases the separator is the instrument to which we should have recourse; it will show, thanks to the careful chemical analysis which should be made of the separate urines, which is the diseased side and which the sound side. It is only in the most doubtful cases that it will be necessary to confirm the work of the separator by ureteral catheterization of the diseased kidney. This will happen when the separator, having shown pus and Koch's bacilli in one side, there are combined with a possible lesion of the other kidney tuberculous nodules in the corresponding lobe of the prostate, or in the seminal vesicles. Under these conditions ureteral catheterization of the corresponding diseased kidney will show whether the pus comes from the kidney, or the prostate, or the vesicles, or whether an abscess has been produced by Pott's disease of the spine, which has opened into the bladder. In children the smallness of the passages to the bladder will not always allow of the employment of the separator reduced in size for use in children. When there is a secondary tuberculosis of the bladder and the organ is intolerant of manipulation, and will not admit any exploratory instrument, and it is absolutely necessary to know whether the renal tuberculosis is bilateral or not, only one method is possible, ureteral catheterization of the healthy side with the direct vision cystoscope designed by Luys. With this instrument used under chloroform it is generally possible to find the orifice of the ureter of the healthy side, and having done this, it is possible with a tampon soaked in silver nitrate to make the ureteral orifice itself antiseptic; thus a thoroughly sterilized sound will not come in contact with the portion of the vesical mucous membrane which surrounds the ureteral orifice, while this will be entirely aseptic; in this way there will not be any risk of infection of the kidney which is supposed to be healthy by the introduction into the ureter of the ureteral sound. Practised in this way ureteral catheterization will never be harmful, as would be the case when it is done with a cystoscope with prisms through a limpid liquid, or an obscure infected one.

The members of this first International Congress of Urology had come in great numbers to Paris. Receptions and entertainments were given in their honor. Besides receptions by the official Faculty, the members of the Congress were received by the Municipality of Paris at the Hôtel de Ville, and after the close of the sittings of the Congress all the members were received at a private audience at the Elysée by the President of the Republic. M. Fallières congratulated his guests on enriching the field of science by new studies for the good of the object of their first reunion at Paris.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 29, 1908.

Fractures of the Os Calcis.—A preliminary paper on this subject is presented by F. J. Cotton and L. T. Wilson, who emphasize the following points: Comminuted fractures of the os calcis are comparatively common and nearly all of them are of substantially the same type. Following the injury, there is apt to be permanent deformity or disability with reference to raising or shortening of the heel or its outward deviation, flattening of the arch, projection of fragments into the sole of the foot, loss of motion between the astragalus and the os calcis, and mechanical interference between the latter and the external malleolus. These results are often so pronounced as seriously to interfere with the patient's work or disable him entirely. The trouble arises, not from the fracture as such, but from the various displacements. Treatment heretofore has been practically mere negligence. In fresh cases certain measures are practicable. Difficulties in handling them arise from the hard task of correcting displacements and retention in position. The authors have employed an ordinary cast of plaster-of-Paris equipped with two felt pads, one over the tendo Achillis and os calcis, one over the dorsum of the foot. After the plaster is on, the foot is put up at about 15 to 20 degrees of plantar flexion, and during the setting of the plaster, downward traction is made with the hands on the dorsum of the foot and behind at either side of the tendo Achillis. Usually it seems wise to secure some inversion as well as very slight plantar flexion. The reaction following such reduction is surprisingly slight. The patient can be up on crutches (if the lesion is of one side only) within a week. In a week or ten days the primary callus seems adequate to hold the connection. At this time removal of the cast occasionally for massage and guarded active motion is wise. They have not allowed weight-bearing for a month, though delaying the beginning of use so long may be unnecessarily conservative. There seems little tendency to reproduction of deformity or stiffening. Return of full function is rather slow; probably three months will be a fair average of time. Provided such measures have not been carried out, and provided disability is present, palliation is possible by apparatus in some cases, while in others certain safe and simple operations will insure decided improvement of function. These operations are necessitated by loss of motion in the joints,

excessive bony thickening below the external malleolus, bony spurs in the sole, outward displacement of the heel, and extreme upward displacement of the heel. Forcible correction may be done under ether with early passive motion, bony thickening and spurs may be removed with a chisel, etc. The paper is presented as a plea for a more accurate study and a more active and real surgical treatment of the condition.

New York Medical Journal, October 31, 1908.

The Expectant Treatment of Pulmonary Tuberculosis.—A. B. Judson considers that the problem of pulmonary tuberculosis is paralleled by that of tuberculosis of the hip. The tissues affected in these respective maladies have peculiarities of anatomy and physiology which make it reasonable to believe that the treatment accorded to one may be applied, *mutatis mutandis,* to the other. The lung is a semidetached, almost pedunculated organ. The hip is an inherent part, interlocked with other parts of the body by far-reaching and rigid processes. The construction of the lung is simple, that of the hip complex and jointed. Lung tissue is soft and homogeneous, completing development with the cry of the new born, while the tissues of the hip range from hardest bone to impalpable synovial membrane, and reach development in late adolescence. The vascular network of the lung invites infection and encourages repair, while the hip, with its comparatively deficient circulation, reluctantly yields to disease and reacts so slowly that a typical case of hip disease covers several years. If the hip rises superior to tuberculous infection, what forbids the expectation of signal recovery in the lung, so separate from the rest of the body, so simple in construction, with rapidly developing, homogeneous, and plastic tissue, so infused with vascularity, and altogether so alert and responsive to the appeals of disease and recovery? And the factor of safety is to be considered. If both lungs were seriously impaired the case would be fatal, but when it is known that with only part of a lung life may be indefinitely prolonged who can put a limit to recovery in a favorable environment? The local treatment of pulmonary tuberculosis based on the teaching of orthopedic practice may be thus outlined: (1) The omission of whatever unduly excites respiration and circulation, (2) habitual reduction of the volume of respired air to a minimum, and (3) inhibition of coughing.

Family Tuberculosis.—A recapitulation of the facts given by W. C. White in regard to a certain family may be stated as follows: There developed in fifteen months eight cases of tuberculosis in a family of nine who had not lived together for ten years, who were scattered in six different homes in five different American and Canadian cities. The ages of the victims ranged from seventy-one to twenty years. There was no known source of infection; they had always lived under the best conditions. Four were diagnosticated by the presence of tubercle bacilli, one by tuberculin, and three by physical signs and symptoms. The writer made or confirmed the diagnosis in every case. In this group of patients most careful inquiry failed to reveal any source of infection of human origin. Far more likely is the other possibility that all were infected with approximately equal doses at approximately the same time from some source other than human. This allows the difference in the chemical resisting powers of the individuals caused by innate and extraneous factors, such as work and worry, to explain the paltry differences in the time of the appearance of the malady in each case. Such a view is strengthened by the bovine morphology of the infecting organism in those cases in which it was found, by the habit of the family in consuming large quantities of milk, and by the escape of the only one who used very little milk; which facts also go to prove that the source of infection was bovine. The writer also calls attention to the facts shown by charts based on the death rate from tuberculosis in various countries for the past fifty years. These demonstrate that in the first twenty-five years of the half century the decline in death rate from tuberculosis was quite as great and in some countries greater than in the last twenty-five, or, in other words, greater in the quarter century preceding the discovery of the tubercle bacillus than in the quarter of a century following this discovery.

Journal of the American Medical Association, October 31, 1908.

The Work Cure.—A. S. Thayer calls attention to the utility of stimulating the normal activities in abnormal conditions as a therapeutic measure, and points out that this is largely the secret of the success of modern psychotherapy, faith cures, etc. Among the first to discuss the value of occupation as a means of cure were the physicians in charge of the insane, and while work was first provided as a means of reducing expense, its other good effects could not fail to be observed. It has passed as a means of cure to the various sanatoria for nervous conditions and also to general hospitals, and he suggests that it might advantageously be introduced into tuberculosis sanatoria whose inmates are sometimes only too well satisfied with their life of fed and fatted monotony. This has been done at the asylum for consumptives at Frimley, near London, where, when conditions favor, the patient turns loose into his system a fresh dose of bacterial vaccines when indicated by the opsonic index, by regulated work. In treating most of our patients, Thayer says, the end toward which we strive is heightened resistance to disease, and he asks is there any single agent more effective for the development of antibodies than work?

Serum Treatment of Carcinoma.—S. Strauss relates his experience with the serum treatment of carcinoma. He discusses first the various theories of the origin and nature of the disease and formulates his own theory as follows: The cancer elements are found *in utero;* that is, there is an abnormal development of the embryonal cells, which group is the starting point of a carcinomatous growth. Intermingled with the healthy epithelial cells are these cancer units, and whenever the conditions for hemming them in or retarding their growth is overcome by exciting causes, such as improper living and eating, mental worry or grief, senility, etc., they multiply very rapidly, destroying and penetrating into the surrounding tissue, giving off a toxin which in time infects the entire system. Therefore, our endeavor should be to demonstrate a cancer specific reaction in the human body by means of a serum precipitant establishing its identity, irrespective of a microscopic examination. The serum which he uses he obtains directly from lower animals suffering from malignant growths, principally the horse; the diagnosis being substantiated microscopically. He describes his technique for obtaining and sterilizing the serum and states that shortly after injecting it the patient's face becomes flushed and there is an increase in the blood pressure. The serum, he states, seems to have a marked effect on the spinal centers, producing pain in the back, radiating down the legs. In some cases a chill appears within the first few hours. After from four to six hours there is an elevation of temperature, but not exceeding three degrees in any case observed. Strauss reports cases and summarizes his paper as follows: (1) Visceral carcinoma is incurable and fatal in nearly all cases. (2) Superficial or surface carcinoma is curable and amenable to treatment if attended to early. (3) Carcinoma is hereditary, the tendency to its formation being transmitted to successive generations, and it becomes evident whenever the natural restraining influences are removed. (4) Carcinoma is on the increase, the death rate being over seven thousand in New York State in 1907 (Gaylord). (5) The serum treatment should be used after every operative case to immunize the system and prevent recurrence. It raises the opsonic index and causes a leucocytosis. (6) The serum treatment should be used in inoperable cases, because it relieves the pain and ameliorates the symptoms without interference with the natural functions of the body.

Milk and Infections.—J. W. Trask remarks that when it is considered that available evidence seems to show that between 2 and 4 per cent. of typhoid convalescents become chronic bacilli carriers, the probability that some of them are employed at dairies in milking cows and handling milk is very great. The dangers of infected bottles in typhoid epidemics is also emphasized. Diphtheria outbreaks and their relations to milk distribution have been studied, and he points out the methods of observation by which outbreaks of these three diseases have been traced to special milk routes and stamped out before they had reached very formidable dimensions. The question of human tuberculosis from cattle is not altogether settled, but the facts seem to show that man is capable of infection with bovine bacilli and that a certain proportion of cases in the human species are of bovine origin. The prevalence of tuberculosis among cattle is estimated in many parts of the country as ranging from 15 to 40 per cent., and the possibility of milk infection, even though the udder is not diseased, is always to be considered. We may expect to find tubercle bacilli in market milk and milk products, and this has been frequently shown. Other diseases in the epidemiology of which milk plays an important part are dysentery, epidemic diarrhea, cholera, and milk sickness.

Typhoid Prevention.—W. F. Dutton says that from all that can be learned typhoid has existed in the Ohio Valley since the early settlement of the region, but accurate data do not go back of 1850. We know, however, that whole colonies were nearly depleted by epidemics at earlier periods. In Pittsburg, Dr. J. F. Edwards, superintendent of the bureau of health, has said that since 1878 50,000 people have been stricken with typhoid and 7,615 have died.

This does not account, however, for those living in the outlying towns from which the city draws largely its office and working population, which would nearly double the above figures. In 1907 there were 5,729 cases and 608 deaths, and in some years the death rate per 100,000 population has been as high as 140 or 150, the latter the highest figure for typhoid for any city of the world. Dutton points out that the filtration plants now in use or under construction are insufficient, to say nothing of the objectionable source—the taking of water from the river. Steubenville, Ohio, also gets its water directly from the Ohio and is never free from typhoid, many physicians having as many as twenty and thirty cases at a time. The health of the city of Wheeling for 1907 gives 39 deaths from typhoid, a decrease of 13 from the preceding year in a population of 40,000. In Cincinnati the people for the most part are drinking badly polluted water, but some improvement is shown within the last year. The death rate for 1905, 1906 and 1907 was 155, 39, and 157, respectively. Dutton gives his recommendations for improvements of the conditions, including sewage purification, cremation of garbage, regular inspection of water supplies, public education on the subject, etc., and says that in almost any place along the river it is not necessary to use the river water, as a pure supply can be obtained from other sources.

Fresh Air for Children.—A. McAllister holds that if fresh air treatment is demanded for the tuberculous adult it is threefold more imperatively needed for the child. It is indicated, moreover, in all children of delicate, frail, or puny growth; in fact, it should be general. In other words, there is a great need for a return to the old practice of "hardening children." He says that modern research has shown that the majority of cases of tuberculosis begin in the earliest years of life; when it appears in a youth it is probably from germs that have lain a long time dormant in the lymphatic system. The earlier the system can be stimulated to throw off the infection the better. Children are generally readily responsive to the treatment; what they need is that it be carried out under the intelligent supervision of the physician with the cordial cooperation of the parents.

The Lancet, October 24, 1908.

Hernia Through the Foramen of Winslow.—T. Carwardine reports the case of a man who was suddenly seized with severe colicy pains, which recurred at intervals for two days and were then followed by ink-like vomitus. Extremities were cold, pulse feeble, and temperature subnormal. The abdomen was distended but not tense, except in the epigastrium, where there were impairment of resonance and resistance corresponding with the position of the lesser peritoneal sac. Constipation had been absolute for twenty-four hours. The general condition at operation was very poor. On abdominal section the bowel, black and lusterless, was discovered on tearing through the gastrohepatic omentum. A portion of the bowel was reduced, but an uncertain vascular band seemed to prevent reduction of the remainder; and as the patient's condition was bad, drainage tubes were put into the involved gut, the patient dying three hours afterwards. The autopsy showed that about 2¼ feet of the lower end of the ileum were present in the lesser sac. The entering portion had passed over the ascending and right part of the transverse colon, and then into the lesser sac. From the point of entry the lower part of the ileum dragged on the ileocecal valve, the mesentery being twisted so as to form a distinct, sharp edge, simulating a band containing bloodvessels.

Acute Goiter.—S. J. Dickins reports the case of a girl of sixteen years who, when first seen, had a simple parenchymatous goiter which was causing some slight pressure symptoms. The latter were more in evidence the next day. On the following morning she suddenly suffocated and tracheotomy was advised, and finally agreed to by the parents, but in spite of the procedure the patient died. The obstruction seemed to be opposite and below the isthmus. The author calls attention to two points. First, did the iodide of potassium and the syrup of iodide of iron, which had been prescribed in moderate dosage on the first visit, cause contraction of the gland so as to increase the pressure upon the trachea and increase the irritation of the recurrent laryngeal nerve? He hardly thinks so, as he has successfully treated several other cases of simple goiter in the same manner. Secondly, the fact that the heart was still to be heard beating, although very slowly (the pulse at the wrist was imperceptible), led him to hope that there might have been some response after the tube was inserted and the lungs inflated and artificial respiration resorted to for some time. But the gradually progressing slowness of the pulse noted from the first appears to point to cardioinhibitory action being the real cause of death, which might have been relieved by division of the isthmus in time, and perhaps should have been done at once, after the tube had been introduced. Most unfortunately, the patient was practically moribund before permission to operate was obtained.

Some Points About Puncture of the Brain.—H. Tillmanns enumerates the diagnostic and therapeutic purposes of this procedure. After this he proceeds to the description of the techniques of puncture. The proper point must be localized by a study of the symptoms, and the area selected is to be prepared as for trephining. When the spot has been selected either a small incision is made down to the bone and the periosteum is pushed aside, or else section of the pericranium is avoided altogether. In the latter case a hand or electric brace, fitted with a round-headed Doyen or Sudeck drill, is pressed firmly on to the skin, which is pierced at the same time as the bone below. When drilling through the bone it is advisable to press more firmly at first than later in order to avoid injuring the dura mater after piercing the inner table. Injury of the dura mater is best avoided by first using a broad-pointed, oval-shaped Doyen drill to pierce the cranium, and then using a ball-pointed Doyen drill to pierce the inner table. With this drill an injury to the dura mater is impossible. Hemorrhage of the bone can be stopped by spreading on aseptic wax. When the cranium has been pierced a fine hollow needle fitted to a Pravaz syringe that closes well is inserted and suction is produced. This suction must be performed as delicately as possible, so as to avoid causing hemorrhage. The fluid matter which is abstracted should, if necessary, be examined at once microscopically and bacteriologically. Should the puncture produce no result, or should it be impossible to elucidate the case sufficiently through the small aperture in the bone, the opening can be enlarged as required either with a larger ballpointed Doyen drill or with a Dahlgren forceps in order, for instance, to judge the pulsation of the brain, intracranial pressure, etc. When a larger opening has been made the dura mater should be taken hold of with a small-pointed hook and cut crosswise with a very sharp, thin knife. The suspected hemorrhage, abscess, or cyst is then pierced with a fine hollow needle or a thicker one; grooved needles or a very fine, sharp knife can also be used. In cases of tumor this simple aseptic piercing of the cranium with a ball-pointed Doyen drill is also devoid of danger, and Neisser and Pollack have shown that with the above-mentioned simple puncture the presence of a tumor can be discovered—for instance, in the frontal lobe of the brain—where it had not been expected and where it would have been impossible to ascertain its existence in any other way. If necessary, the puncture can be repeated, as the operation is relatively simple. Neisser once punctured nine times in succession, and finally succeeded in locating the suspected tumor. In the cases of newly-born children and of hydrocephalus it is usually not necessary to pierce the bone. The cranium is opened at a suitable membraneous spot where there is neither a large blood-vessel nor a cerebral center—for instance, next to the sinus longitudinalis. The author gives the various rules for puncturing the ventricle and finally calls attention to the fact that it may be entered from behind, from the occipital lobe, if the cranium is opened 4 cm. over the external protuberance arch 3 cm. to the side of the central line of the skull, in which case the needle is inserted in a forward and slightly upward direction.

British Medical Journal, October 24, 1908.

Painless Labor in a Primipara.—The patient of H. J. Cates was a woman with normal pelvic measurements. One evening, about full term, she retired at half past ten, feeling perfectly well. At three the next morning she arose to pass a small quantity of urine, and although she felt a slight pain in the thigh, soon fell asleep. Four and a half hours later she woke and found the child born as far as the navel, and labor was soon finished. The child was a male weighing eight and a half pounds. The head showed well marked moulding characteristic of an occipito-anterior position, and there was a large caput succedaneum.

Breurs's Appliance for Use After Colotomy.—The apparatus here described and illustrated by J. Ingram was devised by a patient on whom he had operated. It consists of an oval silver box, the bottom of which is wanting. It is surrounded by a flange which is applied to the skin. This flange is about three-fourths of an inch in breadth, and is provided with studs on its outer surface, by means of which the appliance is fastened to a body belt. The outer part of the box is in the form of a lid, which can be removed and reapplied when it has been fixed in position. At the dependent part of the box it is prolonged in the form of a chute; this is completed by a similar prolongation from the cover. The box is quite small and the intestinal contents do not remain in it, but at once

pass out along the chute, where they are received in an india rubber bag which is fixed over at the end of the chute. The result is that all discharges collect in the bag without remaining in contact with the skin, which is thus preserved from irritation, and the comfort of the wearer greatly enhanced. In applying the apparatus the lid is removed, and the patient then stands in front of a mirror, so that he can see what he is doing; the opening of the box is then fitted so as to surround the colotomy opening or openings completely, the size being such that about a quarter of an inch is left between the mucous edge and the wall of the box. Before placing the box in position, the body belt is attached to it by means of the studs, this belt being a slightly modified abdominal binder with perineal strap. No great pressure is necessary to ensure the appliance remaining in position. The lid of the box is then placed in position and fixed with a screw, and the india rubber bag is applied over the chute and hangs down in front of the thigh, and the whole appliance, being quite small, is not in any way noticeable. The appliance is comfortable to wear, does not get displaced, no leakage occurs under the appliance, the patient gets rid of the offensive smell of the ordinary india rubber cap, and a more hygienic effect is obtained, as the instrument can be easily and thoroughly cleansed. Unless the bowels are loose, it is not necessary to wear the apparatus at night, its place being taken by a pad of wool and a bandage. In the morning the patient has his bath and then fixes on the apparatus, and unless the bowels are loose, the action occurs without any trouble, soon after the patient gets up. When the action of the bowels is finished the apparatus is detached and cleansed, and usually the patient goes through the day comfortably, without any further inconvenience. The inventor, who is a very busy man, and who travels much over the country, always carries two or three spare arrangements with him, along with a small looking glass, and if it should be necessary during the day to change the soiled apparatus, it is placed in a sponge bag and thoroughly cleansed when the patient gets home again.

Cats as Plague Preventers.—A. Buchanan has previously advocated the use of cats as preventives of plague by devouring the infecting animals, the rats. In India he has had the opportunity of comparing villages in which cats were kept with villages in which they were not. It seems that in India the caste ideas allow some persons to keep them but prohibit the privilege to others. Thus there were natural conditions in existence for experiment and control. It was found that the plague was much more common in those villages in which cats were few. The same conclusions were obtainable with reference to "inohulla" or groups of houses and to single houses. The author believes that, owing to the reluctance of many of the native population to submit to anti-plague vaccination, etc., the latter can never come into general use to the extent of eradicating the disease. His remedy, therefore, is to encourage the breeding of cats, not neglecting in the meantime whatever sanitary measures have proved themselves of service.

Berliner klinische Wochenschrift, October 19, 1908.

Transposition of the Viscera.—Smirnoff says that the first case of complete transposition of the viscera was described in 1643 by Marcellus Leccius; since then 215 cases have been observed. His patient was a man forty years of age in whom the curious anomaly was discovered by accident. The thoracic as well as the abdominal organs were all transposed. The curves of the esophagus proved to be placed in the opposite directions to their normal direction; the right testicle hung lower than the left, which normally is the lower of the two. No symptoms whatever were present that could be traced to the transposition of the viscera, the man's complaint being due to an arteriosclerosis and a hypertrophy of the heart of the usual types.

Deutsche medizinische Wochenschrift, October 8, 1908.

Treatment of Whooping Cough.—Feer says that the mortality from whooping cough in the first year of life is higher than that of diphtheria, of scarlet fever, or of measles; in the second year of life diphtheria and scarlet fever are more fatal than pertussis. The most important part of fighting the disease consists in prophylaxis, which is especially possible, as pertussis is transmitted almost exclusively by direct contact with the patient. The first duty of the physician is to isolate the patient or at least forbid his appearance in public playgrounds for children and in schools. As the disease is especially fatal in the first years of life, all infants should be jealously guarded from infection. There is no specific treatment for the disease. Hygienic, physical, and dietetic measures promise most for the recovery of the child. Of these, abundance of fresh air is the most important item, and patients that are not feverish ought to be kept outdoors as much as possible. The room ought to be well ventilated, and if possible two rooms should be used for the patient, so that one could be cleaned and aired while the other is being used. Change of residence to the country is advisable when convalescence sets in, and not at the height of the disease. Hydrotherapy has but little application in pertussis; compresses over the thorax, however, are often of benefit. Of special importance is the psychic treatment, the child being managed with all kindness and quiet. Medicinal treatment is of little use so far as the disease itself is concerned, but the various symptoms may be treated as they come up. Antimycotics and sedatives are the drugs most used: of the former quinine is of use. Codein may be given to allay the cough. Frequently heart stimulation with caffein is required. The sera prepared by various laboratories have proved useless.

Movable Cecum and Appendicitis.—Wilms says that many cases of chronic appendicitis are due not to any conditions in the appendix itself, but to the dragging of the mesappendix or the mesentery of the cecum by a long and very movable cecum. Almost one-fourth of all the cases of chronic appendicitis show a normal appendix on pathological examination; the cecum can usually be very easily brought out of the operation wound, which makes appendectomy an easy operation. However, a number of patients continue to suffer from attacks similar to those of the "chronic appendicitis" for which they are operated upon. Wilms has therefore made it a practice to fix very movable ceca during the operation; the symptoms disappeared even in such cases where the appendix was not removed. The temporary success of internal treatment in chronic appendicitis may likewise be explained by the fact that the laxative measures free the cecum from accumulated fecal matter and diminish its traction upon the mesenteries. Forty patients treated by Wilms in accordance with these views were all cured, thus showing that the cause of their disease was a mechanical and not an inflammatory condition in the appendicular region.

Practical Value of Serodiagnosis in Syphilis.—Ledermann says that patients in the first stage of syphilis may or may not show positive reaction according to the method of Wassermann. In negative reaction excision of the chancre ought to be considered, for the possibility exists that no general intoxication or infection of the organism has as yet taken place; if the reaction is positive treatment ought to be begun without waiting for secondary manifestations. All his patients in the second stage of syphilis gave positive reactions; vigorous specific treatment was followed by the disappearance of the reaction in several instances. The reaction is of special value in latent syphilis; treatment should certainly be insisted upon if the reaction is positive, though no symptoms whatever are present while a history of the disease is obtainable. Syphilitics in the tertiary stage usually give positive reaction, and the same is true of so-called "parasyphilitic" affections of the nervous system. Marriage should not be allowed to such patients as show a positive reaction, though free from symptoms, if much time has passed since their last course of treatment. They should be again thoroughly treated, but if the reaction persists we are unable at the present time to advise surely one way or another in reference to marriage. In the presence of a positive reaction in women who habitually abort treatment should be instituted ,though no symptom of the infection be present in either husband or wife. The fact that the blood, even post mortem, may give a positive reaction is of extreme scientific value, for it will enable us to verify diagnoses made during life even when anatomical lesions are absent.

The Suprarenal Capsules in Puerperal Eclampsia and Gravidic Nephritis.—J. L. Chirié has made a careful examination of seventeen pairs of suprarenal capsules obtained from patients who died of puerperal eclampsia, of which twelve showed retroplacental hemorrhages. He finds that there is a constant cortical and medullary hyperplasia of the suprarenal capsules in retroplacental hemorrhage, puerperal eclampsia, and gravidic nephritis. Medullary hyperplasia occurs before cardiac hypertrophy can be observed. Suprarenal hyperplasia is secondary to the renal lesions. This suprarenal hyperplasia bears a marked relation to the antitoxic function of the gland and may play an important part in the production of the increased arterial tension of puerperal eclampsia.—*La Tribune Médicale.*

Book Reviews.

The Muscles of the Eye. By Lucien Howe, M.A., M.D., Professor of Ophthalmology, University of Buffalo; Member of the Royal College of Surgeons of London; Member of the Ophthalmologische Gesellschaft, of the Société Française d'Ophthalmologie, and of the Ophthalmological Society of the United Kingdom; Former Chairman, Section on Ophthalmology, American Medical Association. In Two Volumes. Vol. II.: Pathology and Treatment. Illustrated. New York and London: G. P. Putnam's Sons, 1908.

The second and concluding volume of Dr. Howe's work is one of 481 pages, of which 374 are devoted to the text, 75 to bibliography, and the rest to index and appendices. Definitions of the various forms of muscular anomaly are given and discussed. Charts for recording the results of examination and history are described. Following this the various forms of intraocular and extraocular muscular imbalance are described separately in logical order. The phorias and trophias are treated of separately. Anomalies of torsion are fully described. The effects of imbalance of the ocular muscles on the eye itself, the nervous system, the digestive tract, in fact, on all parts of the body, and the reflex effect on the eye from abnormal conditions in other parts of the body are fully considered. A typical movement of the eye, such as those that occur in hysteria and the different forms of nystagmus, are described. The treatment of imbalance of the ocular muscles by the application of glasses, by means of orthoptic exercises, by medication, and by operation is entered into fully. The various kinds of operations employed and recommended by the author are described and the results of treatment are given. Appendix "B" consists of a list of questions relating to unsettled points concerning ocular-muscle imbalance which the author suggests as worthy of study. At the end of the volume are photographs and short biographical notes of six noted ophthalmologists who have aided in the work on muscular anomalies, one of whom is now living. This is a continuation of a series of biographical notes which was published in the preceding volume. The volume is sufficiently well illustrated. The second volume of Howe's work is probably of more practical value than the first. It is the superstructure the foundation for which was laid in Volume I. The complete work is monumental. It represents an enormous amount of original investigation and literary research, and cannot but be of great service to the ophthalmological world.

Manual of Psychiatry. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic at the Medical Faculty of Paris; Physician in Chief of the Public Insane Asylums of the Seine Department. Authorized Translation from the French, by A. J. Rosanoff, M.D., Second Assistant Physician, King's Park State Hospital, N. Y. Second American from the Second French Edition. Revised and Enlarged. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1908.

The first edition of this convenient little manual apparently met with a ready sale. The present, or second, edition shows considerable revision by the author; also a number of useful additions by the translator, in the shape of notes. Some of these notes, for example, relate to psychotherapy, to lumbar puncture, to a recent theory of dementia præcox, and to after care of the insane. The author follows the Kraepelin classification. We hope the next edition will have a glossary for the student and general practitioner; but for a small book, it contains much of a useful nature, and the original is a decided advance in French psychiatry.

Ophthalmic Surgery. A Handbook of the Surgical Operations on the Eyeball and Its Appendages as Practiced at the Clinic of Professor Hofrat Fuchs. By Dr. Josef Meller, Privatdocent and First Assistant K.K. II., University Eye Clinic, Vienna. The Translation Reviewed by Walter L. Pyle, A.M., M.D., Member of the American Ophthalmological Society; Ophthalmologist to Mount Sinai Hospital; Sometime Assistant Surgeon to Wills Eye Hospital, Philadelphia, Pa. With 118 Original Illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

The work of Meller forms a volume of 262 pages, quite fully illustrated by excellent original drawings. The work presents the principal operations as practised by the author in the clinic of Professor Fuchs in Vienna. The first two chapters are devoted to a description of the indications for the extirpation of the lacrymal sac and the operation as devised and practised by Meller. Chapters on trichiasis, entropion, ectropion, ptosis, and strabismus operations follow; also chapters on enucleation of the eyeball, extraction of cataract, operations in glaucoma, extraction of foreign bodies from the interior of the eyeball, etc. The work is not exhaustive, but the operations that are considered are described fully and lucidly. There is much that is peculiar to the author in the methods and technique given which tends to make the work indispensable to those who desire to inform themselves fully on the subject of ophthalmic surgery.

Hay Fever, Hay Asthma. By William Lloyd, F.R.C.S., Surgeon-in-Charge of the Nose, Ear and Throat Department, Kensington General Hospital. Second Edition. London: Henry J. Glaisher; Chicago: W. T. Keener & Co., 1908.

This manual covers the general hay fever question without adding anything new. In the present edition certain matters under the heading of palliative treatment have been elaborated, especially in reference to the value of alcohol and coffee. The latter, says the author, should always be taken strong, hot, without sugar or milk, and on an empty stomach. For him the disease is a reflex neurosis. We are rather surprised at his lavish use of cocaine, and cannot wholly share his enthusiasm as to the good effects of the electrocautery in destroying sensitive areas in the nose. At any rate, the therapeutic problem is a more intricate one than is here represented. The author has but little faith in serum therapy, and declares that Dunbar's pollantin and Wolff Eisner's grammol "are altogether devoid of any reliable therapeutic activity and that even when employed prophylactically they are quite powerless in preventing the onset of an attack of hay fever."

The Air and Ventilation of Subways. By George A. Soper, Ph.D., Member American Society of Civil Engineers, American Chemical Society, Society of American Bacteriologists, American Public Health Association. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1908.

Dr. Soper has done a thoroughly commendable and careful piece of work in his efforts to determine the quality of subway air. His recommendations also are wholly sane and seem to be in accord with the best that there is in the modern science of sanitary engineering. However, he seems to hold the opinion that there has been a great deal of unnecessary fault finding on the part both of the general public and of those best fitted to speak through special training. The conditions calling for remedy which Dr. Soper enumerates in his investigation are: heat, dust, germs, odors, and noise. Subway heat, while unpleasant, is not unbearable, he says; at any rate its sources are concerned with the manipulation of trains and it is consequently irremediable in great measure. Dust is sucked in from the street and in part is composed of iron rubbings from rails and wheels. As for germs, the investigator finds twice as many in the street, save after a rain. Odors emanate from trap rock, oil, passengers, and employees. The noise is quite as unavoidable as the heat.

Cancer. Par P. Menetrier, Professeur Agrégé à la Faculté de Médecine; Médecin de l'Hôpital Tenon. Avec 114 Figures intercalées dans le texte. Paris: J. B. Baillière et Fils, 1909.

This book forms the thirteenth volume of the Nouveau Traité de Médecine et de Thérapeutique, edited by Brouardel and Gilbert, and is devoted entirely to the consideration of malignant disase, both sarcoma and carcinoma being included in its scope. A brief historical introduction is followed by the most detailed consideration of malignant disease, which Menetrier interprets as the morbid process consisting in the invasion of the organism by some of its own cells. The characteristics of the cells composing tumors, the effect of their proliferation upon the organism, the clinical and diagnostic features of tumors are first described. This is followed by the study of epithelial tumors which are considered according to the anatomical parts involved. This study is illustrated by drawings that bear the signature of R. Coquelin and present as good examples of the art of medical illustration as we have seen: the text gains very much from the objective character lent to it by the drawings. Tumors of the connective-tissue type are then treated with like thoroughness, every illustrative specimen belonging to the personal collection of Dr. Menetrier. A discussion of teratomata closes the special part of the volume. The remaining portion is devoted to the questions of etiology, pathogenesis, and treatment, much statistical material being found in the various chapters. The book is a notable one in the literature of malignant disease, and should prove of great value to the physician busied with the practical questions of medicine and surgery as well as to the pathologist in quest of well-considered study of cancer.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-Fourth Annual Meeting Held at Louisville, Ky., October 13, 14 and 15, 1908.

DR. ARTHUR R. ELLIOTT OF CHICAGO, PRESIDENT, IN THE CHAIR.

SURGICAL SECTION.

Hernia of the Pelvic Floor.—Dr. CHANNING W. BARRETT of Chicago said hernia might develop at any place in the abdominal wall, due to weak, defective walls and increased abdominal pressure, but the pelvic floor, by reason of its being the lowest part of the abdominal wall, and by reason of its having natural openings, furnished a frequent site for the development of hernia. Following the overstretching or laceration of the levator ani muscle, the pelvic floor sagged and the abdominal contents took a lower position. The abdominopelvic contents began to protrude through the defect, first the bladder or rectum or both, then the uterus and other organs. The terms "laceration of the perineum" and "prolapse of the uterus" were not comprehensive, and had led to erroneous treatment. Removal of a prolapsed uterus alone removed only a portion of the contents of the hernia, and not the most troublesome at that, and still allowed a hernial sac to be formed of the vagina with the rectum, bladder and intestines as contents. While we repaired the defects in the muscles it must also be remembered that a predisposition of the hernia to return was furnished by the vaginal and rectal outlets. The uterus, which had gotten in line with the vagina, must have its axis put at an angle with that of the vagina. In so-called "prolapse of the rectum" again we were dealing with a hernia. The support of the levator ani muscle was defective. The rectum had a congenital or acquired freedom from the levator muscle. The cure of prolapse of the rectum should deal with this muscle instead of being attempted by futile plastic operations upon the rectum.

New Process of Making New Noses.—Dr. R. H. ALLEN of Indianapolis said (1) a plaster-of-Paris mask or reproduction of the noseless space should first be made. (2) Model half a dozen or more different noses that were appropriate to the other features of the face. (3) If desirable, model other features of the face that needed improvement. (4) Construct a hollow metallic bridge or supporting frame, which would reproduce the shape of nose selected when placed beneath the skin. (5) Operation. The upper lip should be pulled forward, and then about one centimeter below the gingivolabial fold an incision should be made, about one-third the thickness of the lip and running parallel with the gum margins of the upper teeth. This incision should terminate about the first molar tooth. The incision should be completed vertically and the soft tissues of the nose and face dissected free from the skull. Care should be taken not to injure the nerves coming out from the infraorbital foramen nor the tear ducts. (6) Then place the nostril hook into the nostrils and pass the points around, so that they come out underneath the upper lip. (7) Traction should be made upward and outward upon the hook, and the entire field for supporting the nose frame then came into plain view. (8) The nasal tissues stretched forward and the foundation prepared for the bridge or metallic support for the new nose. (9) The new hollow metallic bridge should be placed under the lip, where it was to rest permanently. (10) The original wound was to be sutured.

Some Clinical Conclusions as to the Value of Vaccine Therapy in Surgical Infections.—Dr. JOHN C. HOLLISTER of Chicago gave a brief summary of clinical conclusions of a series of staphylococcal, tuberculosis, and gonococcal cases treated by vaccine therapy, guided for the most part by the opsonic index. Thirty-four staphylococcus cases were persistently treated; twenty-five by autogenous, and nine by stock vaccines; cases consisted of 12 of acne, 15 of boils or large furuncles, 2 of empyema, 1 mixed infection with case of lupus, and 2 fistula (mixed). Results: 38 per cent. plus cured; 38 per cent. plus improved; 20 per cent. plus not improved. Of the 25 cases treated by autogenous vaccines, 32 per cent. were cured; 36 per cent. improved, and 32 per cent. did not improve. Of the 9 cases receiving stock vaccine, 7 were cured, and 2 were slightly improved. Forty-one cases of tuberculosis were treated. These were bone and joint diseases, four of which had also pulmonary involvement, twenty-nine in all; two cases of urinary tract infection, three cases of pulmonary tuberculosis, four cases of glands of neck, one generalized (lung, genital tract, skin, conjunctiva), and one case of peritonitis. Results: 70 per cent. improved—15 greatly, 13 slightly; 30 per cent. unimproved, 13. Of the 13 unimproved ten were generalized. Regarding the opsonic index as a guide to treatment, the author said that the index was by no means an unfailing guide for determining the amount of vaccine and the time of administration. There was no normal index, but the opsonic index, when obtained with careful technique, was a distinct aid in diagnosis, especially in the chronic localized infections. A persistently low, or varying, index was a strong indication that the patient was suffering from a specific infection.

Administration of Ether Per Rectum.—Dr. FREDERIC A. BESLEY of Chicago had had sixteen cases in which ether was administered in this way, and felt justified in assuming that the method was perfectly safe, and when the ether was properly given, there was no danger of rectal irritation. In two cases the subsequent stools contained a slight amount of blood. Neither of these cases complained of any rectal irritation, and it was the author's opinion that the slight bleeding was produced by trauma from the rectal tube. One of the marked advantages obtained in this method of administration of ether was a quiet and even respiration with an absence of the excessive secretion of the mucus along the respiratory tract.

Bismuth Paste in the Treatment of Rectal Fistula.—Dr. J. RAWSON PENNINGTON of Chicago said that the paste consisted of bismuth subnitrate one part, and vaselin two parts. When a stiffer paste was desired, from five to ten per cent. each of white wax and soft paraffin were added. He had treated seventeen cases with this paste, in thirteen of which the discharge had stopped; the fistulæ had closed, and the patients seemed to be well. This gave 76 8/17 per cent. as cured, which he thought was rather high. He attributed this high percentage to his good fortune in getting susceptible cases. The patient's bowels were emptied before the injection of the paste was made. In using the paste the point of the syringe was pressed well into the main opening of the fistula, if more than one existed, and the emulsion slowly injected. Should there be an internal opening, the index finger of the hand not manipulating the syringe was passed into the rectum and made to close the internal opening of the fistula so as to prevent the paste entering the bowel and to aid in forcing it into all of the diverticula and tortuous tracts.

Surgery of Venereal Stricture of the Rectum.—Dr. GEORGE B. EVANS of Dayton, Ohio, read this paper. The site of the stricture was generally at or about the attachment of the fibers of the levator ani muscles. This possibly was an important causative factor indirectly, there being more or less constriction here, consequently if there was any ulceration the power of resistance in the patient was not sufficient to overcome the trauma. He was of the belief that rectal stricture might follow chancroidal infection as the result of absorption or lodgment of infectious matter on the mucous membrane or in the submucous or even perirectal tissue, and that rectal strictures might be but a latent manifestation of syphilitic infection.

Obstruction of the Bowel.—Dr. CHARLES T. SOUTHER

of Cincinnati discussed the symptoms and treatment of intestinal obstruction. Under treatment he spoke of the mechanical, medicinal, and surgical treatment. Enterostomy and colostomy, with local anesthesia, would greatly reduce the mortality from intestinal obstruction. The relief of distention and drainage were the essential features in the absence of gangrene.

Enterostomy; Its Value in Intestinal Obstruction.—Dr. Earl M. Gilliam of Columbus, Ohio, said there were times when the surgeon hesitated whether to advise a resection or an enterostomy. This would depend largely on the general condition of the patient and the pathological changes present in the affected structures. Enterostomy for intestinal obstruction was simple in its performance, and it might under certain conditions be classed as a life-saving measure, tiding the patient over the critical stage of the disease until a more opportune time presented for thorough work. This might apply to dynamic, paralytic or mechanical obstruction. Even in inoperable cases an enterostomy might be demanded to establish an outlet for effete matter, and such often contributed greatly to the patient's relief. Acute ileus might call for an enterostomy. Emptying the bowel by such means relieved the acute obstruction, diminished the congestion, and might arrest a fulminating or spreading peritonitis.

Etiology and Pathogenesis of Pancreatitis.—Dr. William D. Haggard of Nashville, Tenn., said that gallstones were etiologically associated with pancreatitis in nearly one-half of the cases. Anatomical peculiarities and variations of the terminal pancreatic ducts were the determining factors in the occurrence of pancreatitis in some cases of gallstones, and not in others. The lodgment of a stone in the ampulla of Vater temporarily or permanently causing the retrojection of bile into the pancreatic duct (Opie) produced acute hemorrhagic pancreatitis. The chronic indurative or interstitial type was caused by stones lodged in or escaping through the common duct. Bacterial invasion was secondary to some unphysiological or mechanical internal injury. Infection of the pancreas by the lymphatics in cases of cholecystitis was probably a more frequent avenue than by continuity. Gastroduodenitis appeared to be responsible for about one-third of the cases. Catarrhal jaundice was probably caused by inflammatory swelling of the head of the pancreas, compressing the common duct of the liver, in many instances. Mumps caused about ten per cent. of the cases of pancreatitis, and some other infections might likewise cause it by metastasis. Fat necrosis with acute hemorrhagic pancreatitis was caused by some injury of the gland cells, access of bile, or of enterokinase which activated the hemolytic property of pancreatic juice.

The Diagnosis of Pancreatitis.—Dr. A. J. Ochsner of Chicago presented a short review of the methods of diagnosis, and directed attention to an area of tenderness on deep pressure over the upper portion of the right rectus abdominis muscle to the right of Robson's point in the presence of pancreatitis complicating cholecystitis. This area was not so circumscribed as Robson's point, and corresponded nearly with the area of tenderness in duodenal ulcer. Especial stress was laid upon continued, careful examination of the pancreas in all surgery of the upper portion of the abdominal cavity in order to obtain reliable statistics.

Dr. J. Henry Schroeder of Cincinnati discussed the physiology and chemical pathology of the pancreas in pancreatitis.

Pancreatic Diabetes and Its Relation to Gallstones.—Dr. Alfred C. Croftan of Chicago called attention to the fact that the peculiar interrelationship existing between gallstone disease and pancreatic diabetes was important clinically, chiefly for three reasons: (1) because cases of persistent, usually very intractable, glycosuria, occurred that ran their course under the guise of an idiopathic diabetes mellitus, but that were in reality due to gallstone factors; (2) because cases occurred which presented all the essential clinical features of cholelithiasis, accompanied by continuous or intermittent glycosuria, which were in reality cases of chronic pancreatitis and not at all of gallstone disease; (3) because the two disorders occurred together much more often than was generally assumed and produced a complicated disease picture that was highly confusing and very commonly misinterpreted. Glycosuria (pancreatic diabetes) was a much more common symptom at the onset of pancreatic disease, especially when associated with cholelithiasis, than later. In occlusion of the pancreatic duct with damming back of the pancreatic secretion, glycosuria was rare, for the islands of Langerhans seemed to resist this insult very well, and underwent degeneration only when nearly all the other glandular elements of the pancreas were destroyed. The glycosuria was a symptom of peculiar value in pancreatic disease, its presence being indicative of pancreatic involvement, its absence not necessarily invalidating this diagnosis. In interpreting the occurrence together of pancreatic diabetes and gallstones, three possibilities were considered: (1) The gallstones might precede the pancreatitis; (2) the disorder about the pancreas might be the cause of the gallstone formation; (3) both the gallstones and the pancreatic diabetes might be due to some common cause acting simultaneously upon the liver and the pancreas.

The Surgical Treatment of Pancreatitis.—Dr. William J. Mayo of Rochester, Minn., said that immediate operation offered the best prospect of cure in acute hemorrhagic pancreatitis. While the mortality was very high, it was not prohibitive. Fat necrosis, the result of leakage of pancreatic ferments, was not necessarily a fatal condition. He had operated in a number of such cases in the convalescent stage. Localized septic accumulations in the pancreas should be opened and drained. If gallstones were present, they should be removed and biliary drainage furnished. The surgical treatment of subacute pancreatitis presented a much more favorable field, as the patient had lived through the most dangerous period and had developed great resistance. The fundamental principle of the surgical treatment of chronic pancreatitis consisted in relieving the common duct of as much of its bile-carrying function as possible. In 62 per cent. of cases jaundice would be present because the common duct ran through the head of the pancreas. In 38 per cent. the common duct lay behind the pancreas, but would usually be found more or less dilated, often without jaundice in all cases of chronic pancreatitis. In the large majority of cases gallstones in the gall-bladder or bile-duct were the direct cause of the chronic pancreatitis. With gallstones in the common duct, 84 per cent. would have a contracted gall-bladder from the connective tissue in the gall-bladder, the result of gallstone irritation. When the chronic pancreatitis was not the result of calculi, the gall-bladder would usually be distended. Chronic pancreatitis, when caused by gallstones, would usually be cured by the removal of the stone and temporary bile drainage. When not caused by stones, cholecystenterostomy was indicated.

Currents and Counter-Currents in Medical Advance.—The President, Dr. Arthur R. Elliott of Chicago chose this as the title of his address. He referred to the education of the public by the medical profession, and agreed with Burrell that public instruction should be placed in the hands of a special board and should not be taken up by the profession generally. Conceding the necessity for a systematic policy of instructing the public in matters of personal hygiene, public health, and the prevention of disease, we should not lose sight of the fact that our influence for good with patients depended very largely on the degree to which we were able to retain a personal hold upon their confidence and loyalty. During recent years there had been an increasing tendency to base not only diagnosis and prognosis, but treatment, on the results of laboratory research, on information obtained by

instruments, rather than on the knowledge gained of specially trained senses and clinical judgment ripened by experience. Careful clinical observation could not be substituted by laboratory investigation, or by mechanical aids. The ideal training of the physician was based as largely on the correct observation of clinical facts as upon skillful interpretation of laboratory findings.

Tropical Diseases and the Mississippi Valley.—Dr. George Dock of New Orleans, La., delivered the Address in Medicine. He emphasized the importance of thorough instruction of medical students in the nature, recognition, and treatment of tropical diseases. There was great activity in the search for new methods of treatment of many tropical diseases, but the most important part of the treatment was preventive. The essentials for this were quite the same in the case of tropical diseases as they were in those of temperate zones. They consisted, briefly, in keeping uncontaminated air, water, and soil, the extermination of vermin, both large and small, and the preservation of the general health at the highest possible pitch. In the carrying out of a campaign for the prevention of disease it was obvious that much could be gained by having the general direction in the hands of a Federal officer, a consummation now near realization.

The Present Status of Kidney Surgery.—Dr. Arthur Dean Bevan of Chicago selected this subject for the Address in Surgery. He presented a brief résumé of the change in kidney surgery and drew an outline of the surgery of the kidney to-day. Floating or movable kidney was first successfully handled by surgical treatment when in 1880 Hahn introduced the operation of nephropexy. Since Henry Morris in 1880 did the first nephrolithotomy there has been a steady improvement in the surgical treatment of kidney stone. Since the introduction of the *x*-ray this development had been much more rapid. The diagnosis of kidney stone could now, by the means at our disposal, intelligently employed, be definitely determined before operation, and the modern operative technique had made it possible to remove renal calculi in uncomplicated cases with a very low percentage of mortality. With reference to tuberculosis of the kidney, the disease was in 90 per cent. or more of the cases at first unilateral and limited to a single kidney. There should be a distinct line drawn between genital and urinary tuberculosis. Urinary tuberculosis began always in the kidney, and then later descended into the ureter and invaded the bladder. Three methods of treatment had been advocated, namely, the general hygienic treatment, which was employed in lung tuberculosis; specific treatment with tuberculin, and the surgical treatment. Primary nephrectomy for early unilateral kidney tuberculosis could be done with less than 5 per cent. of mortality. In unilateral renal tuberculosis early nephrectomy was the best treatment. This should be combined with the well-recognized hygienic treatment of tuberculosis. In bilateral renal tuberculosis the treatment should be hygienic, plus specific treatment with tuberculin, until at least the value of this method had been proven or disproven, and in some cases, where especially indicated, such palliative, surgical measures as nephrotomy and drainage might be of service. The author then discussed neoplasms of the kidney, and reported three cases of hypernephroma. He likewise discussed acute hematogenous infections of the kidney, hydro- and pyonephrosis, essential kidney hemorrhage, anuria, after which he stated that modern surgery could now offer much in the treatment of many diseases of the kidney.

The X-Ray Diagnosis of Stricture of the Esophagus.—Dr. Sidney Lange of Cincinnati gave a small bismuth capsule, a large bismuth capsule, and then several swallows of bismuth mush. From an *x*-ray study of the act of deglutition itself any obstruction to the passage was at once evident; the size and extent of the obstruction, and whether organic or spasmodic could be determined. Weak or deficient peristalsis was registered by the stoppage of the bismuth capsule, and thus an early diagnosis was possible before the stomach tube met with resistance and even before dysphagia was present. Increased mediastinal pressure could thus be recognized early by the stoppage of the bismuth capsule in the esophagus.

Dislocated Kidney.—Dr. Earl Harlan of Cincinnati emphasized the fact that dislocations of the left kidney were more common than formerly supposed, but were more frequently overlooked on account of the absence of gross pathological manifestations such as accompany dislocation of the right kidney, namely, appendiceal, bowel, gall-bladder, stomach, and duodenum, and stated that these cases should be carefully sought for in the presence of severe neuroses by the use of the Luys bilateral ureteral collector and measurement of the solid matter excreted by each kidney. The writer followed with a carefully prepared table of the operative steps and measures which have been employed in fixation of the kidney from the time of the first operation by Dowell of Galveston, Texas, in 1874, to the present, including a description of the technique as used by the most prominent authorities in this work at the present time, with a discussion of the merits of the several methods and their application.

Internal Urethrotomy; Its Indications and Technique.—Drs. Ferd C. Valentine and Terry M. Townsend of New York maintained that the vast majority of strictures of the urethra were better treated by methodical dilatation than by any other method. They specified among the principal indications for internal urethrotomy, urethral calculi; vesical calculi amenable to crushing; ureteral or renal involvements requiring ureteral catheterism; strictures of so irritable a character that instrumentation caused severe reaction; strictures whose resiliency prevented adequate dilatation; heavy callus upon which dilatations made no impression; all strictures of the anterior two-thirds of the urethra; strictures in patients who could not be regularly treated by their physicians; patients who could not be taught asepsis, or who were too awkward to safely entrust with sounds; those who would not refrain from sexual intercourse or alcohol; those who would have to be maintained in a hospital for the long period required by dilatations, and internal traumatisms from forcible instrumentation. They recited the steps of urethrotomy from the induction of urinary asepsis through vesical asepsis, urethral antisepsis and its difficulties, the uselessness of general anesthesia, the relative value of local anesthesia, the patient's position, and the choice of urethrotomies. They classed the instruments into antegrade and retrograde instruments. Of the former they gave preference to the Maisonneuve and the Fluhrer-Maisonneuve urethrotomes, and detailed their construction and use. Of the antegrade instruments, they employed the Albarran urethrotome when the stricture was too tight to admit the Otis, and the latter when sufficient division was not obtainable by the former. The Kollman bougie-à-boule urethrotome was employed by them in heavy strictures to make them thereafter amenable to dilatations, and the Oberlander intraurethroscopic knives when mere division of fine stricture bands partly encircling the urethra was demanded. After thorough division of the stricture by any instrument, they anchored fast a cut-off catheter for forty-eight hours to insure vesical drainage, to protect the incision from infection by possibly septic urine, and to prevent agglutination of the lips of the wound.

Gall-bladder Trouble in Gastric Ulcer.—Dr. J. A. Lichty of Pittsburg presented the following conclusions: 1. The coincidence of independent gall-bladder trouble and gastric ulcer is rather rare, only one in 321 cases of my series. 2. Gastric ulcer with its complications can easily cause an interference with the function of the gall-bladder and duct to such an extent as to produce definite gall-bladder pathology. 3. Gall-bladder disease with its complications may cause such a disturbance of gastric

function as to simulate, if not actually cause, gastric ulcer. 4. While a combination of these two lesions may produce a complexity of symptoms, which makes a definite diagnosis impossible, the indications for operative interference are usually so definite that to disregard them would be disastrous to the patient.

Gastric Ulcer, with Special Reference to Its Precancerous Influence.—Dr. W. D. Haines of Cincinnati said the belief that chronic ulcer of the stomach was often followed by carcinoma was founded on evidence obtained at the operating table and in the dead-room. It was the deep perforating ulcer which healed slowly or remained as a raw surface that most concerned the surgeon in considering the precancerous influence of gastric ulcer. Chronic stomach ulcer should receive the same consideration one would give a breast tumor, uterine fibroid, or other growth which past experience had abundantly proven was prone to undergo malignant change. The excision of the ulcer-bearing area, as recommended by Rodman, was the operation of choice when the surrounding circumstances would admit.

When Should the Prostate Gland Be Removed?—Dr. E. O. Smith of Cincinnati said each case should be considered separately and individually. Palliative treatment should not be persisted in too long. If symptoms were growing worse in spite of treatment, one should operate. Acute retention seldom called for immediate operation. The frequency of cancerous degeneration of the prostate gland argued for early removal.

Fracture of the Astragalus with Dislocation of the Fragments.—Dr. J. H. Stealy of Freeport, Ill., reported two interesting cases that had come under his observation and in which he operated. He concluded: 1. Where an injury to the ankle joint has been sustained, producing great pain and swelling, the diagnosis should be made. 2. Do not expect to make a correct diagnosis of the injuries of the astragalus without calling into service the *x*-ray, with radiographs of the parts. 3. Do not make a diagnosis and attempt reduction of the astragaloid fractures without dislocation before a radiograph has been taken, nor without an anesthetic. 4. Consider the manner in which the injury is received. 5. Remember that reduction of a dislocated fragment is almost always impossible. 6. Do not make yourself believe that these conditions will in time correct themselves, and the patient will come out with a functionally good ankle joint. 7. Remember that the dislocated fragment is liable to necrosis. 8. Destructive inflammation with suppuration may follow. 9. Generally, as soon as expedient, after a correct diagnosis has been made, the dislocated fragment should be extirpated. 10. Operation should be done through one incision, expeditiously, and without destroying important tissues, as nerves, tendons, arteries, thus giving a far more useful member than if left to nature.

Syphilitic Crises Simulating Surgical Emergencies.—Dr. Maynard A. Austin of Anderson, Ind., said that in the larger medical centers syphilis exhibited itself in its protean forms so frequently that its recognition and diagnosis were matters of frequent therapeutic reference. It was not an infrequent occurrence in the surgical clinic of the late Dr. Nicholas Senn to have supposed surgical cases sent home with a prescription for the iodides, with the result that on their return a few months later the supposed surgical condition had entirely disappeared. The external evidence of this disease most frequently resembled the slowly growing tumors, especially of bone, but these should give little trouble in their diagnosis. The abdominal crises might simulate a number of organic diseases. The author reported three cases, one of which simulated gallstones, another renal colic, and a third an obstruction of the bowel. All these patients were referred to him as consultant with the expectation that they would be operated upon, but all improved rapidly under specific treatment.

MEDICAL SECTION.

Differentiation of Oft-Recurring Gastric Pains From Gallstone and Other Visceral Pain.—Dr. Nathan Rosewater of Cleveland, Ohio, said that nearly all pains of the digestive organs occurred during functional activity, while those due to gallstones, visceral, and other causes were independent of the digestive periods. By giving nutritive enemata for periods of one, two, or more weeks, we could put the digestive functions of the stomach and duodenum at rest for so long a period that such pains as would occur during this resting period could scarcely be attributed to gastroduodenal function, but rather to independent causes. In this way the digestive function was eliminated entirely from consideration by this gastric rest test.

Systemic Effects of Chronic Infections of the Throat and Nose.—Dr. F. Gurney Stubbs of Chicago said that in view of the fact that so many systemic diseases were infectious in origin, the atrium of infection assumed a large place in prophylactic and hygienic treatment. The nose and throat offered a large field for local and general infection. Pure cultures of pneumococci, streptococci, and meningococci had been obtained in suppurative sinus discharges. The tonsils and adenoids offered a large percentage of systemic effects, particularly tuberculosis and acute articular rheumatism. The relation of chronic tonsillitis and rheumatism was discussed, and attention drawn to the tonsil as the atrium even of arthritis deformans, rheumatoid arthritis, and the like.

Some Experiences with Autogenous Bacterial Vaccines.—Dr. Oscar Berghausen of Cincinnati said that bacterial injections were of distinct therapeutic value. In most cases the improvement was a gradual one, although marked at the very start. As in all branches of therapeutics, negative as well as positive results would be obtained. He who wished results should follow the methods of Wright, including a careful bacteriological analysis in each case, the preparation of an autogenous vaccine in most cases, and a careful consideration of the clinical symptoms. The opsonic index, although it might only register one phase of immunity, could be of distinct value, especially in mixed infections.

The Cause of Failure in the Treatment of Tuberculosis.—Dr. F. M. Pottenger of Monrovia, Cal., gave a careful analysis of several hundred clinical histories of tuberculous patients, showing that the causes of the mortality in tuberculosis from a clinical standpoint were: (1) An apparent failure on the part of both medical men and laymen to appreciate the fact that tuberculosis was curable, and an especial failnre to appreciate the comparative ease with which the early cases were cured; (2) a failure on the part of both medical men and laymen to appreciate and recognize the signs and symptoms which accompanied early tuberculosis; (3) a failure on the part of both medical men and laymen to appreciate the necessity of prompt, energetic, intelligent treatment as soon as the diagnosis could be made. Tuberculosis must always be considered a serious disease. Delay in its treatment was always attended with risk. What was needed was a better appreciation of the early signs of the disease, a better understanding of the principles underlying its cure, and a determination on the part of both layman and physician to apply appropriate remedial measures as soon as the disease was discovered.

Mediastinal Sarcoma with Special Reference to Differential Diagnosis.—Dr. Robert H. Babcock of Chicago reported a case, not because of the difficulty attending the diagnosis, but because it was mistaken for either pulmonary tuberculosis or pulmonary syphilis. The patient was a young man, 27 years of age, who, when seen, was suffering from orthopnea, anasarca, and slight cough, with scanty mucous sputum. Inquiry into the personal history disclosed the fact that chancre had been contracted

three years before and had led to the use internally of mercury in such doses that its physiological effects were produced nine months prior to the author's visit. These symptoms had been mistaken for the secondary manifestations of lues, and they, together with the discovery by *x*-ray of a shadow at the right of the sternum, had seemed to confirm the supposition that the pressure symptoms subsequently developed were due to gumma in the right lung. Physical examination, however, revealed unmistakable signs of intrathoracic pressure with displacement of the heart, right-sided hydrothorax, and anasarca. Enlarged cervical and axillary lymph nodes were also detected. The subjective and objective symptoms were so plainly unlike those of consumption of the lung or of gumma of that organ, that he had no hesitation in diagnosing a tumor, probably sarcoma, of the mediastinum. A subsequent postmortem examination established the correctness of the *intra vitam* diagnosis.

Multiple Serositis.—Dr. Walter L. Bierring of Iowa City, Iowa, said that the diagnosis of this condition was somewhat dependent on the history of a previous attack of acute pericarditis, pleuritis, or perihepatitis, to the early appearance and subsequent disappearance of the edema of the legs; to the marked ascites, to the enlarged liver, to the absence and very late involvement of the spleen, attacks of pain, tenderness and rigidity in the right hypochondrium, to the rapid recurrence of the ascites, to the signs of pleural exudate, and to the physical signs of adherent pericardium, without which the disease was incapable of diagnosis.

Expert Testimony and the Medical Witness.—Dr. Leo M. Crafts of Minneapolis spoke of the character and essential qualifications of the medical witness in court, his duties, and his relation to the court, the patient, and to himself, as well as his manner, the sacredness of his oath, the full truth and nothing but the truth, the present disgraceful state of expert testimony, and said that the fault lay largely with the attorneys themselves, who wanted only such statements as would help their cases. He then discussed the conscious or unconscious prejudice of the witness, and the power of various nefarious influences. There was necessity for a complete change in the methods in use of expert testimony. The one great function of the medical man in court should be a clear, uncontrolled presentation of full and exact scientific facts and opinions, regardless of who it would help or hurt.

Hysterical and Neurasthenic Conditions Following Accidents.—Dr. B. F. Turner of Memphis summarized as follows: 1. That a plaintiff in an action for damages following an accident need not necessarily be considered as perpetrating a fraud because physical disability cannot be proven. 2. That to assume the grave responsibility of an expert witness demands extraordinary skill, knowledge, and experience, as well as a finely adjusted judicial temperament. 3. That it is no part of the office of the medical expert witness to support either side of the case. 4. That, rather than to run the risk of appearing ridiculous in the eyes of his fellow practitioners, the conscientious physician will decline an attractive fee and refuse to appear in a rôle for which his daily walk and well-established reputation appear to fit him but poorly.

Cerebral Rheumatism.—Dr. Herman H. Hoppe of Cincinnati reported a case. The onset was one of restlessness, delirium, delusions, and hallucinations during the second week of acute articular rheumatism; pulse high; temperature 101.2°. On the third or fourth day the patient rapidly passed into a state of coma; face pale, cyanotic, pupils dilated, respirations 60 to 72 per minute, very shallow, pulse 160, temperature 105° to 110°. Incontinence of urine and feces; exaggerated reflexes; profuse general perspiration. Either the patient died or after six to eight hours the coma gradually disappeared; pulse, temperature, and respirations fell. The delirium, delusions, and hallucinations continued for two or three days longer, and then faded away. The patient made a complete recovery.

Question of Legal Responsibility.—Dr. Albert E. Sterne of Indianapolis laid stress on the necessity for more careful examination and observation of persons accused of criminal acts, and for whom the plea of insanity was advanced. He took the ground that insanity, once established, was a clear basis for irresponsibility in a legal sense, but at the same time he emphasized the necessity for not permitting criminals who had been declared to be of unsound mind to be set at liberty.

Mental Responsibility.—Dr. Charles W. Hitchcock of Detroit said that the inquiry presupposed probable impairment of mental integrity, and this rendered difficult the problem of exact justice. He discussed responsibility both in the sense of legal liability and, on ethical grounds, of rightful liability.

A New Field of Practice in Spirit and Drug Neurosis.—Dr. T. D. Crothers of Hartford, Conn., said the number of persons diseased and suffering from the use of spirits and drugs was increasing, and the physician, who, of all others, should advise and treat such cases, practically ignored the whole subject; hence the field was occupied by laymen, reformers with moral remedies, and quacks with specifics. The profession everywhere recognized the intensity and magnitude of the subject, but the medical colleges gave no instructions to the students, and the physical side of the problem was thought to be mere theory, and hence little or no effort was given to the scientific study.

The Human Element in Medicine.—Dr. Philip Zenner of Cincinnati said that as practitioners we were prone to overlook the human element in diseases. We not only overlooked the characteristics of the patient, his special physiological or pathological reactions, but we were apt to forget that great factor in health and disease—his mental attitudes and aptitudes. He urged that each physician take an inventory of his cases, and by careful study or treatment test the question, what of present suffering was due to the mode of examination, the diagnosis or prognosis given, or the treatment instituted, and how much could be gained by remedying any harm thus done, or by well directed suggestions, or by a heart to heart talk with the patient as to what his mind had done, and might do, in the way of mental and physical health.

Some Object Lessons in Otology for the General Practitioner.—Drs. J. A. Stucky and S. B. Marks of Lexington, Ky., had endeavored to impress the general practitioner with the need of a careful and routine examination of the ears of children in all febrile conditions, especially in the acute exanthemata, as well as meeting such conditions when arising. The frequency of certain nasopharyngeal conditions, notably adenoids, as causal factors in middle ear disease and their complications should bring from every practitioner his hearty cooperation and insistence on the removal of these factors. The value of a microscopical examination of every aural discharge could not be overestimated, since the different organisms causing middle-ear suppuration and consequent mastoiditis differed so in their virulence. Every case where mastoid tenderness had been or was present should be carefully watched. The disappearance of pain and restlessness meant the same thing in mastoiditis as in appendicitis, a relief of local pressure, the pus escaping externally or internally, so that one must be ever on his guard for intracranial complications.

The following papers were likewise read: "Feeding and the Use of Alcohol in Typhoid Fever," by Dr. J. H. Landis, Cincinnati, Ohio; "Hyperchlorhydria and Its Treatment Based on Animal Experimentation," by Dr. M. Milton Portis, Chicago; "Pernicious Anemia," by Dr. J. A. Witherspoon, Nashville; "Causation and Treatment of Infantile Convulsions," by Dr. E. W. Saunders, St. Louis; "Observations on the Liver in Five Hundred Cases of Gastrointestinal Diseases," by Dr. M. H. Mack, Chi-

cago; "Nervous Children," by Dr. I. A. Abt, Chicago; "Consideration of Certain Factors in the Production of Pulmonary Edema," by Dr. Joseph L. Miller, Chicago; "The Treatment of Sciatica by Means of Deep Perineural Infiltrating Injections of Salt Solution," by Dr. D'Orsay Hecht, Chicago; "An Interesting Case of Pulmonary Tuberculosis," by Dr. S. G. Bonney, Denver; "The Problem of Relapses after Apparent Cure in Cases of Pulmonary Tuberculosis," by Dr. Charles L. Minor, Asheville, N. C.; "Early Treatment of Squint," by Dr. George F. Suker, Chicago; "Clinical Facts Speaking for the Identity of the Pneumococcus and Meningococcus," by Dr. Robert B. Preble, Chicago; "Improved Methods for Preparation of Glycerin Jelly for Macroscopic Specimens," by Dr. George I. Hogue, Milwaukee.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. John A. Witherspoon, Nashville, Tenn.; *First Vice-President*, Dr. Louis Frank, Louisville, Ky.; *Second Vice-President*, Dr. Albert E. Sterne, Indianapolis, Ind.; *Secretary*, Dr. Henry Enos Tuley, Louisville, Ky.; *Treasurer*, Dr. S. C. Stanton, Chicago, Ill.

St. Louis was selected as the next place of meeting; time, October, 1909.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held May 11, 1908.

Dr. Leon Louria in the Chair.

Marked Laryngeal Stenosis During the Course of Measles.—Dr. J. H. Bailey of Brooklyn read this paper. He reported a case of measles complicated with hoarseness and a rapidly increasing dyspnea, with all the distressing symptoms of air-hunger. The case, being one of spastic laryngitis, terminated favorably with the routine treatment. Important points in the differential diagnosis between this condition and diphtheria of the larynx were as follows: In the former the dyspnea was chiefly inspiratory, while in the latter it was both inspiratory and expiratory; in the former the quality of the voice was greatly altered, but there was no aphonia as in the latter; in diphtheria there was often a history of exposure to the specific infection, while in spastic laryngitis there was a history of previous attacks; in the former the symptoms were gradual in their onset, while in the latter they occurred suddenly, usually at night, with amelioration and recurrence the following day; in the former there were no systemic or toxic symptoms, nor albuminuria, while a few whiffs of chloroform relieved the spasm; in diphtheria the lower plane of the fauces showed an intense hyperemia, while bacteriological examination revealed the specific organism.

Pneumonia in Children.—Dr. Le Grand Kerr of Brooklyn read this paper. He said that while in the adult the signs of pneumonia conformed to well-defined physical laws, and while the diagnosis was not usually difficult, in the infant and child the physical signs of pneumonia differed materially from those of adult life, and the relative value of the individual signs was not the same during the two ages. Disregard of these facts readily led one into error. As an instance, lobar pneumonia in the adult gave the three cardinal symptoms—chill, pain, and rusty sputum; while in infancy these were all absent. The differentiation between lobar and bronchopneumonia was of recent origin, owing to the greater facility and skill in auscultation and to the application of the principles of histology. Bronchopneumonia was much more frequent during infancy and old age. It was, however, not uncommon during the other periods of childhood, while lobar pneumonia was fairly common even during infancy. Bacteriology was of little help in the differentiation. Lobar pneumonia, due in the majority of cases to the pneumococcus, affected the child at any age, and was even congenitally acquired through the placenta. The occurrence of a crisis was not essential to the diagnosis of the disease, but was at least suggestive, and a termination of the disease by lysis made one suspicious of pleuritis as an accompaniment. A seeming crisis sometimes occurred, followed by a rise of temperature lasting for a few hours or days. In some mild cases the entire duration of the disease did not exceed three or four days at most. In one not uncommon anomalous type there was a complete clearing up of the symptoms in seventy-two hours, the infection not going beyond the stage of congestion. The onset was sudden, in older children accompanied with chills and in younger children possibly with a convulsion, or coldness of the extremities, or cyanosis, most marked about the lips. Characteristic of the disease was the sudden onset with high temperature (103° to 107° F.), independent of a preceding bronchitis or other diseases. A high and continued fever in young children, with little or no remission, was suggestive of lobar pneumonia, and if there were in addition real dyspnea and a marked disproportion between the pulse and temperature, the diagnosis could be made without waiting for physical signs. Vomiting, and, in warm weather, diarrhea, were common at the onset. In older children headache and muscular pains were complained of, and on the second or third day pain in the side, which was increased by coughing or deep inspiration. In the child under five the pain was referred to the loin, epigastrium, or to any part of the area of distribution of the intercostal nerves. This pain was never exactly located. In infancy evidences of abdominal pain, with vomiting and high temperature, were suggestive of lobar pneumonia, for at this age gastric disturbances were not accompanied early by abdominal pain. Suspicion of pneumonia was warranted when there was a rapid rise of temperature, with markedly increased respirations, and the diagnosis was strengthened when there was also vomiting, short dry cough, coated tongue, etc. Increased respiration was to be valued as a sign only when there was a marked increase. It was out of all proportion to the increase in the pulse rate. The respirations were usually jerky, and accompanied by a short moan or sighing effect, characteristic if associated with the other symptoms. Prostration occurred early, the pulse was in the beginning full and frequent, but soon became weak, small, and compressible, and sometimes very irregular. Weill's sign, lack of expansion in the subclavicular region of the affected side, was present in a large proportion of the cases at some time, and was an early sign in the majority of all cases. Cough was usually not present until the second or third day, and continued dry, short, and restricted until just before the crisis, and in children old enough to expectorate there was then usually an abundant expectoration. After the first abrupt rise of temperature there were daily fluctuations of one to two degrees until the time of crisis, when there was an abrupt fall. Cerebral symptoms, suggestive of typhoid or of meningitis, sometimes predominated. The earliest physical signs were those due to acute congestion, with a diminished resonance over the affected area and exaggerated resonance elsewhere. Failure to outline the affected area by percussion was either because the area was limited in extent or covered with healthy lung, or deep-seated, or because a gas-distended stomach or intestine interfered with the examination. On auscultation at first there was feeble, high-pitched respiration over the affected area, while over the healthy part there were frequently exaggerated sounds, sometimes mistaken for bronchial breathing, but differing from the latter in being intensified only during inspiration, while bronchial breathing was of equal intensity both during inspiration and expiration. With consolidation and resolution the usual signs were present. The diagnosis was not difficult. The sudden onset with vomiting might lead one to think of scarlet fever or tonsillitis as the cause. During the first day, in infants, an acute gastroenteritis might be suspected, for vomiting and diarrhea were so common at this time. But in pneumonia the temperature and prostra-

tion were both out of all proportion to the mildness of the intestinal condition. Dullness over the base of the lung was sometimes due to pleuritic exudate, but associated with the dullness there was a weakened vesicular breathing, and not bronchial respiration, as in pneumonia. The presence of herpes excluded pleurisy, in which, moreover, there was not so sudden an invasion of temperature, which persisted for three or more weeks and ended by lysis. Pneumonia in children with obscure symptoms had a remarkable tendency to locate in the more obscure portions of the chest, as high in the axilla or just beneath the clavicles. In the beginning, and in the absence of physical signs, the presence of cerebral symptoms sometimes suggested meningitis. In cerebral pneumonia the symptoms differed according to the period of life—infancy or later childhood. In infancy there was either a sudden onset with vomiting, followed by convulsions and semi-consciousness of short duration, or the convulsions were repeated and the child was in stupor for days. Other cerebral symptoms then appeared, as rigid neck muscles, dilated pupils, possibly strabismus, or temporary facial paresis. In older children the convulsions were usually absent and the somnolent condition suggested the typhoid state more than meningitis, with dry, coated tongue, delirium at night, and possibly involuntary defecation and urination, with rigidity of the neck, general hyperesthesia, constipation, and possibly sunken abdomen. With such cases the character of the fever was important: with a constantly high temperature that had developed suddenly, meningitis was practically excluded. Sudden development with convulsions was peculiar to but one form of meningitis, the purulent. In pneumonia, subsidence of the convulsions was followed by clearness of the mind, which was not true of meningitis. In pneumonia the pulse was not slow and intermittent at first, nor was the respiration somewhat slow and irregular. In meningitis there was a more profound stupor, and a steady increase in the nervous symptoms for three or four days, while in pneumonia they were very marked during the first twenty-four hours and generally subsided quickly as the pneumonia developed. In older children with symptoms resembling those of the typhoid state the history of an initial chill almost positively excluded typhoid fever, while the early somnolence and typhoid symptoms so quickly after the first signs of illness were suggestive of pneumonia and against the diagnosis of typhoid. Bronchopneumonia was a disease essentially of infancy and early childhood, and in a great many aspects it was impossible to decide whether it was a distinct disease or not, at times seeming to be a combination of two or more diseases. Clinically there was a decided element of mixed infection, but in its multiplicity of forms there was one common lesion, capillary bronchitis. Capillary bronchitis, even though it was frequently not detected during life, was to be classed as a form of bronchopneumonia. One chief difference between this disease and lobar pneumonia was that the former was invariably preceded or accompanied by catarrh of the smaller bronchi. Bronchopneumonia was always secondary, and even in cases that were apparently primary the real primary condition was overlooked. The chief predisposing causes were infancy and malnutrition, including marasmus, rachitis, syphilis, etc. Other predisposing causes were poor hygienic surroundings, changeable climate, the cold season, the aspiration of foreign substances, the infectious diseases, etc. Bronchitis was the leading predisposing condition. The mode of onset was gradual or very sudden; the temperature was high or remained only slightly elevated throughout the disease. The only certain thing about the disease was its remarkable uncertainty. The commonest form developed during bronchitis, with an intensification of all the symptoms, chiefly the temperature, This was high, markedly fluctuating, and in rare instances nearly continuous. Low temperatures were apt to be the rule in delicate or marantic infants. Dyspnea was an early symptom, and easily induced by crying, nursing, coughing, etc. The early occurrence of dyspnea was associated with abundant small râles, particularly in the lower portion, behind. Cough was a more constant feature than in lobar pneumonia. The respirations were between 50 and 100 to the minute, and associated with dilatation of the nostrils and sinking in of the soft portions of the chest. The amount of percussion dullness was exceedingly meager in proportion to the extent of the consolidation, and as an indicator it often proved misleading. Bronchopneumonia could exist in a child and run its full course without the signs of consolidation having been present at any time during the disease. This was particularly true of the protracted cases. The well-known auscultatory signs were dwelt upon. Even with its variable symptoms the diagnosis of bronchopneumonia was presumptive if there was a high temperature, with marked daily fluctuations, associated with much increased respiration, cough, and dyspnea, the positive signs of other diseases being absent. From bronchitis it was distinguished by the more marked intensity of all the symptoms except the cough. Real dyspnea was not present in bronchitis. Subcrepitant râles, heard at the base of the lung, and increased percussion resonance were indicative of bronchopneumonia. The distinction from lobar pneumonia was usually easy. In the latter the inflammation at once occupied the lung tissue without a preceding bronchitis; it occurred in later childhood usually and in previously healthy children, with sudden onset of well-defined symptoms, and running a typical course. The temperature was high, and, with slight oscillations, maintained the same level for several days, ending with a crisis. In bronchopneumonia the temperature was not so suddenly developed, nor did it rise to such a height, exhibiting considerable variations daily and with a termination by lysis lasting from three to seven days. When bronchopneumonia was protracted the question of the presence or absence of tuberculosis arose. This was especially the case with bronchiectasiæ present, and with large consonant râles audible upon examination. The onset of tuberculosis was gradual, although sometimes apparently sudden, in which case there was nothing in the physical examination or in the constitutional symptoms that would aid in the differentiation except that at times there was a loss of flesh which was disproportionate to the severity of the symptoms. No positive diagnosis was possible until the time of expected resolution in bronchopneumonia, and then, instead of its occurrence, there was sometimes a persistence of symptoms that at once suggested the possibility of tuberculosis. No reliance was to be placed upon the character of the temperature. Examination of the sputum was of little value. Wasting, out of all proportion to the severity of the symptoms, and the presence of a marked anemia were indicative of tuberculosis. The latter usually developed anteriorly at first, and bronchopneumonia posteriorly. If the condition had developed insidiously during the convalescence from one of the infectious diseases the strong probability was that it was tubercular. Occurring in pertussis, a bronchopneumonia occasionally persisted until the latter had run its course. No matter how irregular the course or how persistent the disease, if thorough examination revealed that the child was previously healthy, with no family tuberculous history or probability of infection, with good surroundings, with the development of the disease under one of the usual etiological factors of bronchopneumonia, then tuberculosis could be excluded as the cause. The confusion of bronchopneumonia with malaria was possible, particularly if the malaria had been preceded by a bronchitis or if the onset was accompanied with congestion of the lungs, as it sometimes was. Watching the temperature was necessary in order to make a diagnosis; in bronchopneumonia there were remissions of the temperature that could be marked, but there was never an intermittence, as in malaria. Enlargement of the spleen favored the diagnosis

of malaria. The test of treatment and the discovery of the plasmodium settled all doubt as to the presence of malarial infection. In differentiating between bronchopneumonia and congenital atelectasis, one noted that the former existed from birth, with difficulty experienced in getting the infant to breathe, while its physical signs were absent or doubtful and cyanosis was not proportionate to the lung involvement, but was excessive.

Dr. Joseph E. Winters of Manhattan said that Dr. Kerr had so ably and comprehensively covered the subject of the diagnosis of pneumonia in children, that there was no room left for its further discussion. He therefore thought it would be well to say a few words about the treatment of this condition. Any such discussion had to be prefaced by the statement that the disease in mind, as indicated by the title of the paper of the evening, was the one caused by the pneumococcus. Usually the amount of lesion and the degree of infection were commensurate, but sometimes the lesion was so slight and circumscribed as not to give rise to a single physical sign to account for the infection. In treating the disease one had to take into account the following variable factors: The patient's susceptibility and resistance to infection, and his physical and constitutional condition. Anatomically, lobar pneumonia was croup of the alveolar walls, which were covered with the exudation of fibrin into the alveoli. The walls of the latter were densely pervaded with a fine network of capillaries, which projected into the alveoli in the form of loops. The pulmonary arteries did not anastomose, but the capillaries anastomosed freely. This rich anastomosis and the capillary loops projecting into the alveoli were matters of importance in the consideration of the treatment. The pulmonary veins had a smaller area than the pulmonary arteries. This fact tended to favor an increased pressure in the pulmonary capillaries. Moreover, the blood in the latter had to pass from and to the heart in the same time as the blood in the systemic capillaries. The first change in pneumonia was an acute distention of the pulmonary capillaries, which became enormously distended, bellying into the alveoli. This explained the fact that one got physical signs before the appearance of the exudation. The distention gave rise to laceration of the vessels and hemorrhage, as first noted by Virchow. The stage of distention and laceration lasted from 24 to 36 hours. At this time it was the physician's duty to lessen the pressure in the alveolar capillaries, and this was to be accomplished in two ways: by means of dilatation of the cutaneous capillaries, and by the use of either aconite or veratrum viride. The latter drug was unsuitable for children on account of its causing nausea. The good effect of aconite, as ably expressed by Wood in his "Therapeutics," consisted in its power of stimulating inhibition. It was the drug *par excellence* in the first twenty-four hours of lobar pneumonia. It not only lessened distention and laceration, but it also lessened the danger of the second stage. Another drug of great importance in the first twenty-four hours was opium. Every case of pneumonia was accompanied with intense shock, and it was the physician's duty to lessen this shock in both adult and child. Opium was indicated in the shock of pneumonia, just as much as in the shock of surgical conditions. The best form for the administration of opium in children was Dover's powder. What one obtained in the average drug store was not Dover's powder, for in lieu of the sugar of milk the druggist substituted sulphate of potash. It was this that caused the free perspiration. In the second stage of the disease the alveoli were distended by fibrin, which also distended the bronchi up to one-fifth of an inch. The circulation in the vessels was blocked by the lateral pressure of the fibrinous exudate upon them. It was necessary to diminish this occlusion. The second stage began at the end of from 24 to 36 hours, and revealed itself by the prolonged expiration accompanying it. This was the time for the use of oxygen, which was to be continued throughout the disease, and not reserved merely for the crisis. Another thing to be thought of was the complications of lobar pneumonia. On the walls of the alveoli there was an abundant network of lymphatics, which were the drainage tubes of the pleural sacs. Overdistention of the vessels cut off all drainage from the pleura. Any lack of tension increased by a hundredfold the danger of pleural complications. The speaker was very much impressed with this phenomenon as a factor in the cause of empyema. He had noted that physicians who had followed the rational method of relieving the distention in the alveolar walls were the ones who rarely or never had any cases of empyema in their practice. To lessen the distention of the pulmonary capillaries it was necessary to keep the cutaneous capillaries dilated throughout the disease. Neglect of this measure increased the danger of pleural complications. The pleural cavity when once filled up with pus and opened was not the same pleural cavity again. There were always adhesions left behind. It required great caution on the part of the medical attendant to prevent the spread of the pneumonic process. Anything that tended to contract the cutaneous capillaries invited a wandering pneumonia. The origin of this was frequently to be found in the cold and ice packs. It was of supreme importance that the sleep of the child should be uninterrupted. A sick child asleep was never to be awakened. It was never to be disturbed for treatment. During sleep its pulse was twenty less than during the waking state. It was important that the abdomen should be kept flat in order that the action of the diaphragm be not interfered with.

Philadelphia County Medical Society.

At a stated meeting held October 14 Dr. Achilles Rose of New York read by invitation a paper entitled "Displacements of the Abdominal Viscera and Their Treatment." He contended that the underlying cause for the disorders in question resided in a weakness or relaxation of the abdominal muscles, the transversales, the oblique, and the recti. For this condition he employed the term "atonia gastrica," pointing out that this referred not to the stomach, but to the abdominal wall. As a result of such relaxation any or several of the intraabdominal structures might suffer displacement downward, with a more or less characteristic train of symptoms, embracing digestive derangement, urinary irregularity, disturbance of menstruation, and especially nervous phenomena. In some cases jaundice might result from interference with the entrance of bile into the duodenum. In other instances so-called mucous colitis had been observed. In Dr. Rose's opinion all of the symptoms noted in these cases were attributable to the want of tone in the abdominal muscles, and the appropriate therapeutic procedure consisted in the restoration of this tone. This he had best succeeded in accomplishing by means of broad strips of adhesive plaster applied firmly to the abdomen, overlapping in the back and passing between the pubis and the crests of the ilia below, the ribs above, and the vertebral column behind. By this means not only was the abdomen given support and its contents elevated, but circulatory and functional activities were facilitated, with relief of symptoms, improvement in appetite and digestion, and gain in weight. The dressing might remain in place for from four to six weeks and its presence was, as a rule, attended with little or no inconvenience or discomfort. Dr. Rose gave a demonstration of the method of application on two patients. In lean persons, with flat or scaphoid abdomens, the application could be made in the erect posture, while in obese persons and in those with relaxed and pendulous abdomens it was better made with the patient in the recumbent posture. Dr. T. Turner Thomas presented a communication entitled "Habitual or Recur-

rent Dislocation of the Shoulder, with Report of a Successful Operation and Exhibition of the Patient." He dealt at some length with the causes usually assigned for the production of the disorder in question, such as abnormalities in the humerus or the glenoid cavity, or the capsule of the joint, but as a result of study upon the cadaver he came to the conclusion that the ultimate cause was a rupture of the capsular ligament. On the basis of this knowledge he undertook in a case under his observation to expose the capsule from the axilla, holding vessels and nerves out of harm's way by means of retractors. He was able to demonstrate a laceration in the capsular ligament, and this he repaired with sutures, with the result that in a short while the function of the affected member was wholly restored, so that at the present time the patient was able to perform all of the movements of the part, and without fear or risk of recurrence of dislocation. Similar operations had been performed in some thirty-four cases that Dr. Thomas had been able to collect, and in almost all instances the result had been equally successful.

Special Article.

THE ROYAL INSTITUTE FOR INFECTIOUS DISEASES IN BERLIN.

By N. MEYER, M.D.,

BAD WILDUNGEN, GERMANY.

THE stranger bent upon visiting the Berlin Royal Institute for Infectious Diseases is directed toward a region in the northern part of the city, which lies quite outside of the busy metropolitan traffic. This site was selected because the authorities desired to remain in close neighborhood to the newest of Berlin's hospitals, the Rudolph Virchow Hospital. It is of course evident that an institute for infectious diseases that is poor in material cannot fulfill an important part of its purpose, while on the other hand it does not seem advisable to bring the patients with general maladies under the same roof with those suffering from infectious diseases, there always being some danger of spreading infection to the general wards. Practical experience in reference to the advantages of such cooperation between clinics and scientific laboratories has already been gathered at the former site of the Institute at the Charité Hospital. In considering

FIG. 1.—The main building.

the past of the Institute we shall also communicate a few details of the arrangement of its former quarters at that hospital.

When Robert Koch communicated the results of his work with tuberculin to the Tenth International Medical Congress, the importance of this study aroused a great deal of public interest and the Prussian House of Representatives devoted several sessions to the discussion of the subject. The outcome of the discussion was the general conviction that the government must provide the means for the continuation of Robert Koch's work. The Min-

FIG. 2.—Rear of the main building, showing the stable and the house for the attendants.

ister of Education at that time was able to make known the fact that arrangements were already being made according to which Koch would receive a ward in a general hospital and a scientific institute for the research work in the subject of infectious

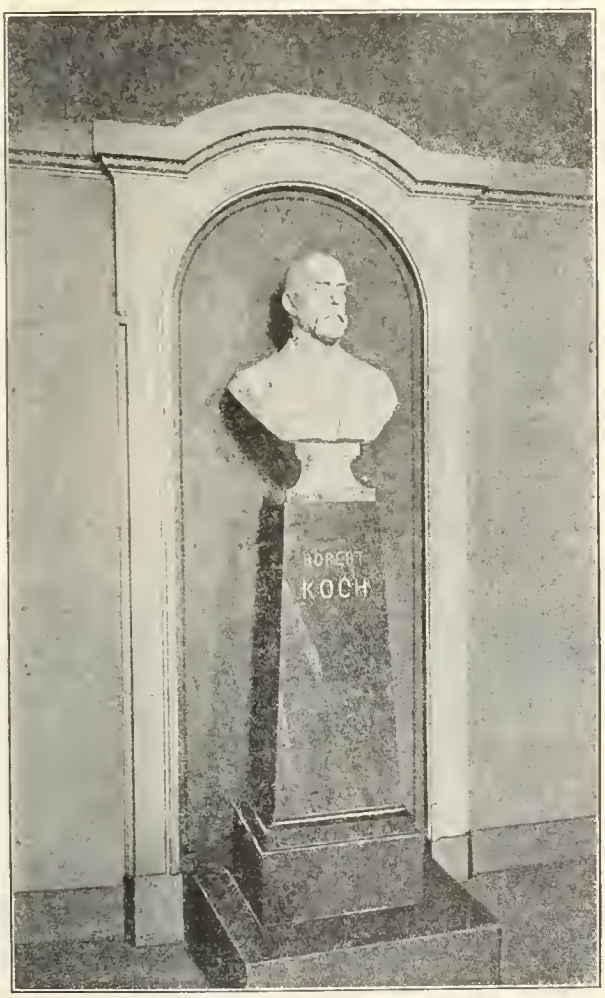

FIG. 3.—Bust facing the entrance of the main building.

diseases. By the first of July the scientific institute was placed at Koch's disposal and a month later a ward of 128 beds in the Charité Hospital was also given up to his work. The scientific institute consisted of a chemical and a bacteriological division. In addition to a large number of prac-

ticing physicians who worked in the institute there was a permanent staff counting among its members at various times such men as Brieger, Pfeiffer, Pfuhl, Frosch, Petruschky, Kossel, Wassermann, Beck, Kitasato, Ehrlich, Donitz, and Cornet. In addition to the work on tuberculosis a great many

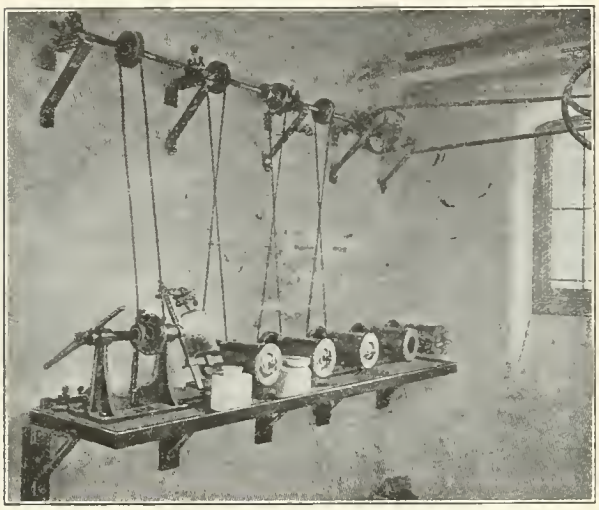

Fig. 4.—Showing mills for pulverizing bacteria, and a shaker.

other subjects were taken up in the Institute. Behring prosecuted his studies on antitoxin immunity in diphtheria, Ehrlich investigated ricin and abrin immunity, Ffeiffer and Wassermann worked up cholera immunity, Loeffler and Frosch studied the foot-and-mouth disease of cattle, Pfeiffer discovered the bacillus of influenza, and a host of other workers, who cannot be named here, contributed to our knowledge of infectious diseases and of immunity. Tropical diseases received special attention from the director of the Institute, Robert Koch, himself. The "ordeal by fire" was gone through by the Institute in the year 1892 when Asiatic cholera appeared in Germany, being especially localized in Hamburg. The most important investigations in this connection were made at the Institute, members of the staff were sent to various places to lead the fight against the scourge, and a great many physicians were instructed in the prophylaxis and diagnosis of cholera and other infectious diseases. The data furnished by the members of the staff who traveled in tropical regions were further worked

Fig. 5.—Chemical laboratory.

up in the Institute. There was established at about that time a division for the treatment of rabies which soon became very busy. Before long the space given up to the Institute proved to be quite inadequate for the many branches of its activity and the authorities decided to build a new establishment in the northern part of the town in connection with the Rudolph Virchow Hospital.

The new Institute has been built in accordance with the directions and specifications of Koch. A twenty years' contract was entered into with the city of Berlin according to which a ward of 100

Fig. 6.—Bacteriological laboratory.

beds for patients suffering from infectious diseases in the Rudolph Virchow Hospital was entrusted to the supervision of the Institute under certain conditions. In addition a special autopsy room was provided for the postmortem examinations of patients dying of infectious disease.

The new Institute is built in the shape of a triangle with apex toward the North, the Spandau Canal forming its base; it is separated from the Hospital by only one street, while direct entrances from the outside connect both buildings. The principal structure fronts on the canal, as is shown in Fig. 1. The view of the rear of the building (Fig. 2) is hidden somewhat by the two buildings, one containing the stables, the other the rooms for attendants, etc.*

The main building contains laboratories, workshops, teaching rooms, a lecture room, offices, rooms for collections of specimens, and a library. Facing the main entrance of this building there stands an impressive bust of Robert Koch (Fig. 3).

In studying the construction of the building we shall describe it story by story, beginning with the cellar. This contains the heating plant for the entire building, a special furnace for cremating cadavers of animals, a laundry, baths, toilet rooms, workshops, storage rooms, and dining-rooms for the attendants. In addition some of the laboratory

Fig. 7.—Thermostat room.

apparatuses have been placed in this basement, among them a distilling apparatus, large centrifuges, a press, and a filter for bacteria, all constructed

*The illustrations in this article are copied by permission from Gaffky's description of the Institute published by Gustav Fischer of Jena.

upon a large scale. The apparatus for drying sera is also located in the basement. Fig. 4 shows a shaker and a number of mills for pulverizing bacteria. A special room is set apart for the examination of the action of gas-forming substances, such as sulphur anhydride, as disinfectants, and another room is provided with a separate gas-heating plant

Fig. 8.—Laboratory washroom.

and serves for other special purposes. All the basement windows are provided with netting of close meshed wire which is intended to prevent the entrance of mice and rats.

The basement floor contains in its western wing a lecture-room seating seventy-six, two smaller rooms for preparation of demonstrations and for the storing of charts and other paraphernalia of teaching adjoining this lecture hall. The same floor contains in addition a room for photography with complete arrangements for the taking of microphotographs. The east wing contains a large chemical laboratory fitted up for twenty-two workers (Fig. 5), and adjoining this there are several other rooms for use by the chemists, such as a room for the weighing scales, a special laboratory for working with offensively smelling substances, a washroom, a dark room, and the private rooms for the chief of this division of the Institute.

The middle part of the basement floor is occupied by offices of the administration and by six rooms devoted to the prevention and treatment of hydrophobia. The western wing of the first story is occupied by a large workroom for bacteriology (Fig. 6) with adjoining smaller laboratories and other rooms for various accessory purposes, such as the

Fig. 9.—The animal cage room.

washing of utensils, for thermostats, etc. The chief of the serum division which is connected with the department of bacteriology has his offices near the laboratory. Similar rooms of the eastern wing serve for the purposes of research into the nature of tropical diseases, while the middle portion of the floor contains on each side a writing room, two laboratories, a washroom, and a thermostat room. These suites of rooms form two independent divisions, one of them being reserved for the use of Robert Koch, who has for the last few years been away on scientific expeditions, the other being occupied by the Director of the Institute, which office is at present filled by Professor Gaffky.

The thermostat rooms (Fig. 7) deserve special mention. The middle of each thermostat room is occupied by a structure which does not appear in the photograph and which consists of an apparatus about two meters high and long; it is warmed by a small water oven and is kept at a constant temperature by means of very accurate adjustments. All the burners used for warming the thermostats are supplied by a separate gas plant. The smaller side rooms contain ice boxes and centrifuges run by hand and by electricity. Fig. 8 gives an idea of the construction of the laboratory washrooms.

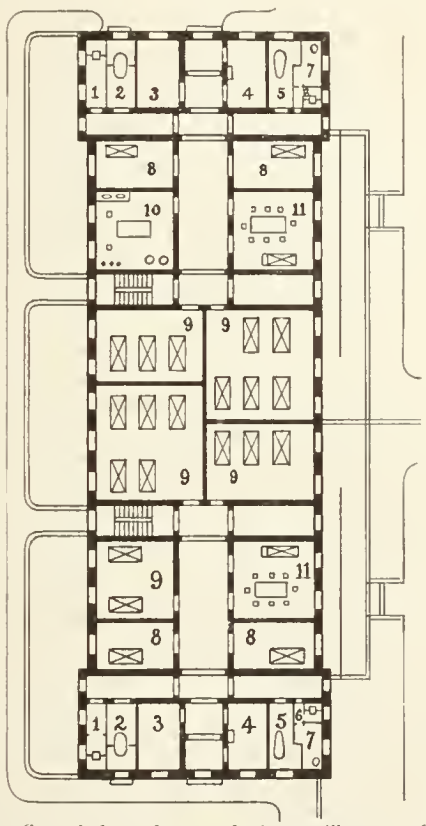

Fig. 10.—Ground-plan of one of the pavilions.—1. Closet for attendants; 2. Room for steam disinfection of clothing. 3. Nurses' room; 4. Kitchen; 5. Bathroom; 6. Patients' closet; 7. Fecal incinerator; 8. Private rooms for patients; 9. Wards; 10. Operating room; 11. Recreation room.

In the second story are found the division for the specially dangerous diseases, such as plague and cholera, and all precautions in reference to the floor, walls, and doors have been taken to prevent accidental spread of these diseases and escape of the animals inoculated in this division. Here also are located a large and well stocked library, a reading room, the Institute museum, and a large room for photography.

We shall now leave the main building in order to pay a visit to the stable house. This contains a separate room for small animals used for experimental purposes; the middle portion of the floor space is occupied by a large disinfecting apparatus for disinfecting animal cages. Another room is used for examination of the heads of dogs suspected of having suffered from hydrophobia. The two large side rooms contain cages for rabbits and

guinea pigs in the middle, while along the walls are arranged cages for apes, dogs, and hens, together with baskets and stalls for feeding (Fig. 9). The upper story contains an operating room with sterilizing apparatus, and the side rooms contain cages for animals, except such as are used for the study of hydrophobia. The horse stable contains two rooms where large belly straps and pulley weights are arranged so that the horses may be suspended in the air when needed. A large operating room occupies the middle of this stable. There are two compartments set apart for smaller animals—calves, donkeys, goats, sheep, dogs, and the larger fowl. Feeding rooms and feeding kitchens are placed in the middle of these compartments, as well as rooms for the utensils and living rooms for the attendants. All the animal houses have exercising yards, are lighted by electricity, are very easily cleaned, and have lately been provided with a separate hot-water heating apparatus. The whole structure, including the interior work, walls, fences, garden, and street changes, has cost in the neighborhood of 831,000 marks.

Of the six pavilions for infectious diseases in the Rudolph Virchow Hospital, one is given up to diphtheria patients, one to typhoid fever patients and the rarer diseases such as smallpox, cholera, plague, epidemic cerebrospinal meningitis; one-half of another pavilion serves for whooping-cough patients, the other half being devoted to women and children suffering from erysipelas; the male erysipelas patients are kept in one-half of another pavilion, while the other half of that pavilion is occupied by patients suffering from measles.

Fig. 10 shows the ground floor of each of four similar pavilions. The two remaining pavilions, the one serving for quarantine purposes, the other as a diphtheria station, contain many separate rooms, a large operating room, and a room for bacteriological examinations. The upper stories of all the pavilions contain living rooms for physicians and nurses, with bathrooms for the attendants. The model autopsy room is provided with special arrangements for preventing the spread of infectious disease; it occupies one end of the whole structure consisting of the pavilions for infectious diseases.

In conclusion we shall give a few data about the organization and the work of the Institute. The medical staff consists of a Director, four Chiefs of Divisions, two Superintendents of Divisions, nine Assistants, and three Sanitary Officers; in addition, there are two scientific assistants, several officials and their subordinates, eight men servants, and five women who do washing and cleaning. During the year 1907 the total expenses for running the institution, including the outlay for salaries, amounted to 250,000 marks. Six divisions, the scientific, the division for especially dangerous diseases, the serum division, the one devoted to tropical disease, the hydrophobia division, and the chemical division, examine all material suspected of being infectious, prepare sera, issue certificates of examinations for the government, and do work on various hygienic problems including that of dealing with sewage. New disinfecting substances are examined in regard to their composition and efficacy, and the chemical division gives special attention to the examination of milk. The scientific papers of the Institute are published for the most part in the *Zeitschrift für Hygiene und Infectionskrankheiten*. During the year a great number of courses of instruction are given and many volunteer workers receive thorough training in the work to which the Institute is devoted.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week ending November 7, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	443	147
Diphtheria	291	16
Measles	137	6
Scarlet Fever	143	6
Smallpox	—	—
Varicella	91	—
Typhoid Fever	53	12
Whooping Cough	9	3
Cerebrospinal Meningitis	5	2
Malarial Fever	—	—
Totals	1172	192

Orrhotherapy in Diphtheritic Lesions of the Kidneys.—Alfredo Villa advocates the use of renewed doses of antidiphtheritic serum when albuminuria appears in diphtheria. This is generally from the second to the eleventh day of the disease. The author considers it to be due to the activity of the diphtheritic poisons and believes that the best way to combat it is to increase the dosage of antitoxin. He gives an injection of from 1,000 to 2,000 units of antitoxin when the albumin is first detected, and repeats it the following day, if the condition of the kidneys has not improved. He gives four cases treated thus with the result that the albumin disappeared rapidly. The best effects are obtained in those cases in which albumin persists late in the disease. Since the immunizing effect of antitoxin lasts only three weeks he believes that the persistence of the albumin indicates that the poisons are still active and there is need of more antitoxin. There are found lesions of the epithelium of the convoluted tubules and the ascending branch of Henle's loop. That these tubes may regenerate their epithelium it is necessary that the effect of the toxins should be removed. This is done by the use of antitoxin. The albumin and casts soon disappear. The author gives six cases of this nature successfully treated by himself.—*Rivista di Clinica Pediatrica.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending November 6, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Berkeley	Oct. 3–10	1	..
San Francisco	Oct. 10–17	12	..
District of Columbia	Oct. 10–17	1	..
Illinois, Chicago	Oct. 17–24	1	..
Kansas, Wichita	Oct. 10–17	1	..
New York, New York	Oct. 10–17	1	..
Ohio, Cincinnati	Oct. 6–13	2	..
Washington, Spokane	Oct. 10–17	1	Imported
Wisconsin, La Crosse	Oct. 10–17	1	..

SMALLPOX—FOREIGN.

Ceylon, Colombo	Sept. 5–19	31	4
Denmark, Copenhagen	Sept. 19–26	2	..
France, Paris	Sept. 26–Oct. 3	3	..
India, Rangoon	Sept. 12–19	..	2
Indo-China, Saigon	Sept. 5–12	3	3
Italy, Palermo	Sept. 12–26	2	..
Mexico, Alvarado	Oct. 24	15	1
Tlaco talpan	Oct. 24	..	Present
Vera Cruz	Oct. 13	1	..
Peru, Callao	Sept. 26–Oct. 3	1	..
Lima	Sept. 26–Oct. 3	1	..
Russia, Moscow	Sept. 19–26	18	7
St. Petersburg	Sept. 5–26	10	1
Turkey, Constantinople	Sept. 28–Oct. 11	..	14

YELLOW FEVER.

Brazil, Manaos	Sept. 12–26	..	4
Para	Sept. 26–Oct. 10	4	4
France, St. Nazaire	To Oct. 20	11	6
Martinique, Fort de France	Sept. 26–Oct. 10	8	1

CHOLERA.

China, Hongkong	Sept. 5–19	6	6
India, Rangoon	Sept. 12–19	..	1
Japan, Kokura	Oct. 1	..	Present
Moji	Sept. 23–29	15	..
Russia, General	Sept. 26–Oct. 3	3,251	1,571
Straits Settlements, Singapore	Sept. 5–12	..	4

PLAGUE.

Chile, Iquique	Oct. 5	1	..
Egypt, General	Oct. 7–13	7	5
India, Rangoon	Sept. 12–19	..	5
Indo-China, Saigon	Sept. 5–12	20	17
Peru, General	Sept. 22–28	21	12
Callao	Sept. 22–28	3	..
Lima	Sept. 22–28	..	4

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Original Articles.

THE POSSIBILITY OF AVOIDING CONSPICUOUS SCAR FORMATION IN SOFTENED TUBERCULOSIS OF THE CERVICAL GLANDS.*

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EVERY surgeon when confronted with the necessity of operating for broken-down tuberculous glands of the neck has pondered the question as to how best to proceed in order to cause the least possible scar formation.

In boys and men the matter is not usually of very particular importance, and we rarely hesitate to advise radical operation, especially if the question of saving time is a consideration. It is different, however, with the opposite sex. Here the conscientious surgeon will welcome any means that may tend to improve the cosmetic result of his work.

It is true that if we make the skin incision—even if it be one several inches in length—within the normal folds of the neck, transversely, the result is far superior to that obtained from incisions made anteriorly or posteriorly, parallel with the borders of the sternocleidomastoid muscle. Still, there will be a more or less conspicuous mark for lifetime. Hence, a method that reduces such scar formation to a minimum, requiring the incisions to be made only one-fifth to one-tenth as long as before, should be greeted with enthusiasm. The greater amount of time and trouble such a procedure may in these cases call for from the surgeon and his attendants should not act as a deterrent, when the result is taken into consideration. The treatment alluded to is Bier's artificial hyperemia.

The personal material I am able to offer in this connection is rather small. The hospital with which I am principally associated is not yet in possession of a large children's ward. The few beds we have are designed for emergency rather than chronic cases. These patients, anyway, are dispensary rather than hospital cases; or better still, patients that should be treated in the surgical division of country sanatoria, no matter whether they be children or adults.

Three of my patients have been observed in dispensary and office practice. After some improvement at the end of a few weeks I lost sight of them, so that I cannot report final results. Two others are of too recent date to be considered. Still, in every one of these five patients I have observed the same satisfactory course as has been reported by others.

*Read before the Pediatric Section of the International Congress on Tuberculosis, Washington, 1908.

I made these patients wear the elastic neck band eleven out of every twelve hours for a longer or shorter period. The band made of the same material as the black elastic rubber bandage, with a button in one end and a number of buttonholes in the other, is a very comfortable appliance. The one made of the ordinary garter elastic, with a hook and a number of eyes, comes next. The compression of the deep jugular veins should not be sufficient to cause the patient annoyance; he must be able to talk, eat, drink, breathe, and sleep without discomfort. In fact, he must hardly be aware of the presence of the band. It is astonishing how quickly children, even babies, usually get used to the band. The appearance of fluctuation at the site of the trouble is carefully watched for. It may be hastened by the continuous application of a warm wet-gauze (Priessnitz) dressing. As soon as it appears a short cut is made in the course of the neckfold through which the pus is evacuated. If the muscles or some subcutaneous fat tissue have the tendency to overlap the incision, a drain of small size is introduced for 24 to 30 hours. Otherwise, the wound is simply left open and suction treatment started 4 to 6 hours later.

It is advisable to use the cup once daily for a period of 45 minutes, *i. e.* 6 x 5 minutes with 2 or 3 minutes intermission each time, soon after the bandage has been removed. Packing or injections of iodoform emulsion or bismuth paste are never used. It will be observed that glandular débris are aspirated with the pus. It is natural that the fistulous tract, as well as the entire diseased area, is placed under suction, thus combining the hyperemic depth effect on the tuberculous tissue with regular gentle evacuation of the abscess. If the treatment is properly carried out, a mixed infection will not occur. Soon the purulent secretion becomes serous. In favorable cases the opening closes rapidly. The remaining slight infiltration gradually becomes absorbed under the continued use of the elastic neck band.

It stands to reason that a patient in whom a sinus has already developed, when first seen, can be equally successfully treated by this method, but the elastic neck band should always assist the suction treatment.

Bier himself seems to be satisfied with suction treatment alone. From what I have seen, however, I believe it worth while to use the remaining 20 to 22 hours trying to influence the tuberculous tissue by hyperemia produced with the neck band.

Klapp, among others, has seen a most striking case of this kind.*

With the kind permission of a colleague who called me in consultation not long ago I would here relate the following case:

Boy, 5 years of age, the only one surviving child of a number of children, developed a package of tuberculous glands in front of the sternocleido

*A. Bier, On Hyperemia, page 219.

muscle, right behind the angle of the jaw, following some throat trouble. His parents, on account of the delicate condition of the boy, live in the country all the year around. They are as greatly adverse to placing him in a hospital as they are to radical extirpation, as they have only recently lost another child soon after an operation. The glands are softened; deep fluctuation can be made out. The parents want to know if there is no other means of help. The family physician is familiar with hyperemic treatment. He favors its use in this case and asks my advice. I could but consent to his proposition, as the case seemed especially adapted for this procedure. Consequently an elastic neck band and a set of cups were procured and a trained nurse was engaged. The band did not give the little fellow the slightest annoyance: he seemed to be perfectly at ease, riding his bicycle and playing around as ever, to his heart's content. Under ethyl chloride spray and local cocaine anesthesia the abscess was opened by a short transverse incision in the course of the neck-fold and suction treatment started. In this way, with the little patient in his former surroundings, all day long in the fresh air, with milk-feeding from their own cow, etc., the trouble took a most favorable course. The wound closed definitely four weeks after incision. All the glandular enlargement gradually disappeared. To-day, four months later, a minute scar, about three-quarters of an inch long, well hidden in the natural fold of the neck, is the only remaining sign of the previous existence of a tuberculous gland affection.

Just think, if this had occurred in one of our own children, or even in one of our own girls! Must we not hail with delight and enthusiasm a method that renders possible such an outcome? Must we not at least consider it worth a trial in suitable cases?

Of course, the method will not work in every case; artificial hyperemia is no panacea.

It need hardly be stated that proper hygienic conditions and thorough understanding of the treatment on the part of the attending physician and nurse, or mother, greatly facilitate the efficiency of the procedure. In the more serious cases, *e. g.* multiple softened glandular tuberculosis of the neck, general anti-tuberculous treatment with tuberculin injections may be advantageously added.

The lung-suction mask, too, may well be drawn into service in these cases. For it has been proven that it not only produces hyperemia of the lung tissue by suction, but constitutes one of our best means of improving the condition of the blood in all its components on a physical basis. It surely deserves a much wider use than it has been hitherto accorded. And should further experience show that the present device does not fully answer all the requirements, let something else, something better, be constructed by ingenious minds. The principle, certainly, is correct and should be made use of in our fight against pulmonary, as well as other tuberculous disease; in the latter cases on account of the concomitant anemia.

It is unfortunate that Kuhn's mask is protected by patents which render it costly of importation and difficult of repair.

In conclusion I would say that my personal results from the combined use of the elastic neck band and the suction cups have been most brilliant and surprisingly rapid also in cases of broken down cervical adenitis following tonsillitis, for instance of scarlet fever, or following suppurative periostitis of the jaw and other causes.

But, no matter what the etiology, I am convinced that the treatment above outlined merits the full and most careful attention of every physician and surgeon, and is of particular value in female patients.

The cases of the other type of glandular tuberculosis of the neck, forming the well-known chains of hard tumors in smaller or larger packages, are distinctly operative.

OBSTINATE VOMITING, OR THE PERSONALLY CONDUCTED BABY.*

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THE following experience occurred in the practice of Dr. Harlow Brooks. "The whole story is," said the doctor (and his style of utterance was "projectile"), "the baby vomits—everything. It takes three ounces and vomits four; simply can't keep a thing down."

Here was the position: A young mother with her first child, wishing to leave town for the summer, her breast full of good milk which she could not use, her mind full of dread of laboratory prescriptions and daily milk deliveries, and a long summer before her.

The baby had lived three months and had "bothered with its food" two of those months. At present it seemed well, looked well. The mother had huge breasts, "big as derby hats," the doctor said, "milk enough for three babies," well formed nipples, easy flow. In fact while the baby nursed from one nipple it was necessary to soak up the leakage from the other in a bath towel. The total fats by laboratory test had been 8 per cent., but by regulated diet and exercise had been reduced to 6 per cent. The child could take various foods from other sources, could even take its own mother's milk when given it in a bottle through a rubber nipple. It was always hungry. The whole trouble with the baby was that it persisted in vomiting the entire intake from its mother's breast.

The doctor had tried everything, exhausted all the familiar resources without success. The baby vomited all breast feedings. He had given the baby diluents by bottle before nursing, shortened the time of nursing, required rest before and after nursing, had varied the intervals, compelled the baby to nurse through rubber shields, had drawn the milk and fed it in bottles. The last two methods were at first successful, the baby retaining the milk in both instances. It seemed, then, the quality of milk was not alone at fault. The shields and the pumping so fretted the mother that it was necessary to discontinue them. The next expedient was putting the baby on laboratory feedings to stop the vomiting. Everything, in fact, succeeded in stopping the vomiting, until the baby was put back upon the breast. *Whenever it nursed naturally from its mother's breast it promptly vomited the whole intake.*

The original question again presented itself: Must the baby be weaned? Must it leave for the country depending for its summer supply of food upon cow's milk? It seemed really pusilanimous to stand up before these parents and tell them to wean the baby from a full breast of good milk. Once more we went over the history. The baby always vomited when it took the food the normal way, but retained anything taken from the bottle. We ex-

*Read before the Pediatric Section of the N. Y. Academy of Medicine, November 12, 1908.

amined the breasts, nipples, general condition of the mother. All conditions were favorable except that the mother was worried over the behavior of the baby. She looked every form of human appeal for help. It was quite plain that if we could induce the baby to retain her milk she would go to the country free of all anxiety concerning bottles, feedings, trains, hot weather, and nursemaids. The mother had done her part, now for the doctor's part! Here we stood, two grown-ups, before this forbearing, polite young mother (for she never told us what she thought of us) and looked puzzled.

"When in doubt, take history," Dr. Thomas W. McBride used to say. "If still in doubt, take more history," and so on he repeated again and again, "until the diagnosis is made." We asked the mother to nurse the baby before us. Just then something in the history occurred to our minds—"milk plenty" —"flow easy." Then we reflected that when a baby is very weak and exhausted we lay it on its back and have the mother lean over that gravity may assist to make nursing easy. It helps. Here was a case where the nursing for a vigorous child was too easy. Why not reverse the process and make it difficult?

The mother was asked to lie on her bed, turning so that the breast to be used would be the lower. The baby was then laid across the mother in such a way that its head would be lowest and it must *drink up-hill.* From the breast and nipple to the baby's stomach was all up-hill. The baby had to work for his food. The result was he took his food slower, took less of it, and stopped when he had enough.

During and after this novel proceeding, the household (the husband had arrived from his downtown office) stood around, realizing that, at least, one new resource had been suggested and they hoped. The baby was allowed to nurse ten minutes by the watch, when he seemed willing to rest. He was at once removed and laid on his back, head and shoulders elevated. He spat up a little before our departure, yet we hoped. It may be said that from the first this upside-down attitude really promised something. The sprawling baby, lying face and head downwards in a straight line from its mother's elevated left chest to the very lowest point, viz., the right nipple, necessarily bored its nose into the large, flabby breast and breathed with difficulty. It was hungry and worked hard for its food, alternately sucking and stopping to get its breath. In this manner it took and kept its first normal nursing.

Three days later the doctor reported that the baby had kept down every feeding. Besides, the mother had discovered a further improvement in technique. She now sits in a rocking-chair, slinging the baby over one shoulder and the baby crawls down head first to the opposite nipple. The upside-down position is a success and the much relieved mother is going to the country carrying in her breasts a summer's supply of properly modified baby-feedings. The doctor has ascertained the amount of time necessary to take in three ounces and the baby does not spit up a mouthful. Occasionally, he can take a feeding lying on his back. Whenever he vomits, the mother simply slings him over her shoulder so that he crawls down head foremost to his food. *The method succeeds.*

Conclusions.—1. A nursing baby may vomit because its food enters the stomach too rapidly and consequently in too great quantities.

2. The causes of this over-distention may be sought in the large quantity of breast milk, easy flow, large nipples, vigorous nursing.

3. The above conditions may be overcome by imposing mechanical obstructions, "drinking up-hill," being here suggested.

In the above case the successful position was, sprawling head-downwards and face-downwards over the mother's shoulder to the nipple, *like a squirrel coming down a tree.*

57 East Seventy-ninth Street.

ENDOTHELIOMA OF THE PLEURA.*

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New growths of the pleura are most frequently secondary to growths of the chest wall or lung. They may occur by metastasis. Endothelioma is the most common variety of primary new growth of the pleura, and was first described by Wagner, in 1876, under the name of endothelial cancer. Lord, in Osler's "Modern Medicine," gives carcinoma as the more appropriate name. While most writers on medicine pass this over as a very rare condition, yet if we look up the literature we will find many reported cases, and from my own experience I am led to believe that many cases are overlooked and diagnosed as pleurisy, tuberculous pleurisy, or maybe as a pneumonic condition.

Even so recent a work as Butler's "Dignostics" passes over the subject in these words: "Primary carcinoma of the pleura affords simply the evidence of chronic pleurisy, with or without effusion. Irregular, slight fever with occasional subnormal falls may be present; there is pain rather greater than with pleurisy; and cachexia may develop. The diagnosis is rarely made during life." It seems to us that this is hardly a fair statement of the case and that with care and diligence a diagnosis can frequently be made and a proper prognosis given. Primary sarcoma of the pleura also occurs and produces the same symptoms and physical signs as endothelioma.

Glockner up to 1897 collected about fifty cases sufficiently well reported to be included under the classification of endothelioma. To this may be added two reported by Lord (Osler's "Practical Medicine") and from Delafield (Medical Record, N. Y., Vol. 62, No. 20.)

The growth is usually diffuse and the whole pleura of one side is converted into a dense resisting tissue varying in thickness up to two centimeters or even more. In some cases it occurs in the form of a number of scattered nodules or as in the case reported by Butler (*New York Medical Journal*, 1898), as a single large tumor occupying the pleural cavity. Fluid may or may not be present—when present this fluid is usually blood stained.

Microscopically the tissue is found to consist of a fibrous stroma in which are enlarged lymph spaces containing polymorphous cells. Small areas of necrosis are sometimes present. The epithelium of the free surface of the pleura is usually absent over the whole or greater part of the sections, and in most cases has not apparently taken part in the new growth. The lymph vessels and spaces appear to be the principal site of the new growth, and many observers believe their epithelium the point of origin (Lord).

Metastases have been observed in the supraclavicular and axillary glands and along the needle punctures after aspiration. The chest may be contracted in its lateral and posterior regions. The

*Read before the Medical Club of Brooklyn.

lung may be compressed and contain secondary nodules.

The growth of these tumors is slow and the symptoms and physical signs are those of pleural effusion. Pain is quite a constant symptom, in some being acute and sudden as in an acute pleurisy, in others a constant dull ache over the affected side.

Fever is present in some and absent in other cases. Dyspnea is present according to the amount of encroachment of the growth or pressure of the accumulated fluid on the lung. The pulse is usually not markedly affected until late in the disease, when exhaustion is pronounced—at this period the pulse is likely to become very rapid and weak. When large quantities of fluid accumulate in the chest, the pulse may become very rapid and weak and the heart may be displaced as in a simple pleurisy with effusion. Cough is present in some and absent in others, apparently dependent on the effusion—or compression of the lung. In Butler's case, above referred to, cough was probably due to a coincident tuberculosis of the lung. The axillary and cervical glands are frequently enlarged and if removed and examined microscopically may show suggestive changes. Loss of flesh and strength is usually progressive and marked.

The physical signs are those of a marked pleuritic effusion. A very suggestive condition is the persistence of the physical signs after the removal of the fluid. The fluid after removal tends to recur rapidly, and in large amounts, as in Case I, here reported. The fluid may not be blood stained at first, but usually becomes so as the disease progresses. Respiration, according to Frankel, over the affected side is usually bronchial. When a tumor is formed there may be a decided bulging of the chest wall with marked signs of compression of the lung.

Leucocytosis is always present and, according to Cabot, may be so high as to suggest a suppurative condition. Cachexia develops as the disease progresses.

The diagnosis in the early stages is not easy and in the cases without effusion is exceedingly difficult. If there is no effusion, it must depend primarily upon the discovery in the chest of an area of flatness, which has an atypical shape and position, with diminished respiratory and vocal signs. Combined with this there must be some cachexia, with or without enlarged axillary or cervical glands (Whitney). One of these glands may be removed and microscopically show the presence of malignant disease.

In most cases the diagnosis is made after obtaining by puncture a hemorrhagic serum, which on examination may show microscopic elements suggestive of endothelial growth. The serum in these cases is usually of a deep red color, much more marked than in tuberculous pleurisy. It must be remembered that the fluid withdrawn in all cases of pleural cancer is not hemorrhagic. Benda (*Berliner klin. Woch.*, March 1, 1897) reports a case in which sixteen aspirations were made, three liters being withdrawn the first time, and the fluid remained clear throughout. Netter states that it is present in not more than two-thirds of the cases. The first fluid withdrawn may be a clear serum, while that drawn later may be decidedly bloody. This may be due to the withdrawal of the pressure from the surface of the growth and thus allowing hemorrhage to take place into the vacuum created, as the thickened pleura prevents expansion of the lung and the closure of the cavity produced by aspiration. This also may account for the rapid reaccumulation of the fluid. The failure of the lung to expand frequently produces severe pain after aspiration.

Free fat is frequently found in the fluid withdrawn and may be so abundant that the fluid is distinctly chyliform, as in Case V. This is said to be more chracteristic of cancer than of tuberculosis. In introducing the needle for the withdrawal of fluid when the growth is disseminated, a decided sensation is imparted to the operator of passing the needle through thick and resisting tissue and for a greater depth than the normal pleura. A. S. Warthin, after microscopic examination of the exudate from a large number of cases of pleural effusion, and having succeeded in making a diagnosis of primary sarcoma of the pleura in one case by this examination, concludes that if fixed cover-glass preparations of the fluid are made immediately after its withdrawal, in order to preserve the appearance of mitosis, the diagnosis may be usually made. In early simple pleurisy the exudate contains endothelial cells and no fibroblasts. In fibrous pleurisy, either tuberculous or septic, the sediment contains endothelial cells and numerous fibroblasts. In sarcoma the presence of a large number of round or spindle-cells, often in bunches, and the occurrence of frequent mitoses, will make the diagnosis positive. Mitosis is the most important evidence, as this rarely occurs in any other disease.

The prognosis is uniformly bad. These patients usually progressively fail and die within from four to six months. One of my patients lived a year.

General treatment directed to sustaining the patient and relieving symptoms is all that we can command. When fluid accumulates sufficient to produce pressure symptoms it should be aspirated under strict aseptic precautions. It has been recommended to draw off only enough fluid at a time to relieve the dyspnea and to do this as frequently as necessary. Resection of a rib should never be done when this condition is present, for the cavity is unable to contract, infection is likely to occur, and the patient may die of pyemia, as in Benda's case.

Five cases of this disease have come under my observation in the past five years, and as the histories are quite different I will present all five.

Case I.—Female, 38 years of age, wife of a physician. No family history of tuberculosis or tumors. Two children strong and well. Had been in good health until the latter part of February, 1902, when she began to suffer some pain in the chest and was troubled by a dry cough. This condition of pain in the chest with cough persisted and was accompanied by very decided loss of flesh and strength. During the following May dyspnea became very marked. The cough persisted but was accompanied by little expectoration. She was first seen by me early in June, when she was supposed to be suffering (because of the loss of flesh and strength) from pulmonary tuberculosis.

Examination showed a woman of average build but very anemic and emaciated. The slightest exertion produced marked dyspnea. Over the left chest all respiratory sounds were exaggerated; over the right side there were practically no respiratory sounds to be heard, and on percussion there was absolute flatness from the clavicle down. There was no evidence of pulmonary involvement, but it was quite evident that the right chest was full of fluid and that this was the cause of the dyspnea. Two days later by aspiration 32 oz. of clear serum was withdrawn. There was evidently more fluid present, but as the pulse had become very feeble and rapid and as dyspnea was markedly increased the needle was withdrawn. After withdrawing the needle the physical signs remained the same. As the needle was withdrawn, just as it left the cavity

there was a flow of bright fluid blood. The introduction of the needle was through denser tissue than one usually encounters and the needle had to be passed to a depth of a little over two inches before fluid was obtained. Five days later it was decided to try to empty the pleural cavity and on this occasion 44 oz. was obtained, but this was not clear serum as before; it was a brownish fluid. Two weeks later 64 oz. were withdrawn and a week later 56 oz.; and at intervals varying from one to two weeks, up to the middle of September, when the patient died, aspiration was done, from 30 to 40 oz. being obtained each time. During the progress of the case absence of fever was a very marked feature. On one or two occasions only did the temperature reach 99° or 99.5°, and then only when some outside condition seemed to be the cause. The pulse was very rapid from the first, varying from 120 to 160, and during the last month almost uncountable at times.

There was a progressive loss of flesh and of strength until the patient became confined to her bed about the middle of July. The nervous system became much affected; she was very irritable, lost all interest in her surroundings, and it was very difficult to get her to take any food. She died exhausted seven months from the onset of the disease.

No post-mortem could be obtained. Dr. Hermann Biggs saw the case in consultation and took some of the fluid for pathological examination. From this examination he reported the findings as suggestive of endothelioma.

Case II.—A lady of 65 years was taken ill in January with pains in the chest and prostration. For two months she was treated for intercostal neuralgia and muscular rheumatism without improvement. During the first week in April following a change of physicians was made and the new attendant diagnosed the case as one of pleurisy with effusion. I was requested to see the case in consultation and to aspirate. The lady who had always been very fleshy was much reduced in weight although still stout. Physical examination gave flatness over the entire chest. On introducing the needle we passed through resisting tissue and were compelled to introduce the needle to an unusual depth. About 36 oz. of clear fluid was withdrawn. After withdrawal of the fluid the physical signs were not perceptibly changed. Because of the resemblance to the previous case I ventured a diagnosis of endothelioma of the pleura. I did not personally attend the case again, but learned that all through the summer at intervals aspiration was done and large quantities of fluid were withdrawn, but never bloody. In October she was taken to one of the New York hospitals and operated upon for carcinoma of the uterus. She never rallied from the operation, dying the same day. She never showed any improvement in her condition after I saw her, continuing to lose both flesh and strength, and at the time she was taken from her home for operation, had to be carried out. There may be some room for doubt as to this being a primary endothelioma of the pleura, but it is certain it was not an ordinary pleurisy. The occurrence of carcinoma in the uterus would apparently confirm the diagnosis, and yet it may be said this condition was primary in the uterus. There were no symptoms of uterine disease at the time I examined the patient.

Case III.—Male, over 60 years of age. I was asked to operate upon this gentleman for empyema. On examination I found the entire left chest flat and no respiratory sounds to be heard. The man had had no fever to warrant a belief in pus being present and symptoms had been present for some weeks. On aspiration I withdrew about 50 ounces of clear fluid without relief of symptoms. The needle was introduced to an unusual depth before fluid was withdrawn. Here, again, because of the similar physical conditions and history, I ventured a diagnosis of pleural cancer. The old gentleman lived a little over a week and died from exhaustion.

Case IV.—Lady, 49 years of age, patient of Dr. Charles B. Story. Patient began to complain of pains in her side in April, 1904, and was treated for a few times until August 1 of that year, when the physical signs of pleurisy with effusion were present. She was aspirated September 1 and 36 oz. of serum removed; at this time the temperature was 99°, pulse 86, respiration 26; marked dyspnea was present. She was again aspirated on October 6, 72 oz. of serum being withdrawn; at this time the temperature was 98.5°, pulse 108, respiration 24. She was again aspirated on October 23, and one quart of serum was removed. I first saw her about November 10, at which time she was suffering great distress from the embarrassment of respiration, was unable to lie down; temperature 99°, pulse 96, respiration 24. Physical examination of the right chest gave on percussion flatness over the entire chest, front and back. There was marked loss of flesh and strength, dyspnea was extreme. Aspiration at that time removed two quarts of a pink-colored serum. The emptying of the chest was followed by much pain, which persisted for about 24 hours. The patient's condition continued about the same except for the continuous loss of flesh and strength up to the time of her death, on June 25, 1905.

During the period of her illness she was aspirated seven times, the largest quantity of fluid obtained at one time was on February 23, when three quarts of a dark fluid were withdrawn; the last aspiration was on June 23, the second day before her death. On June 25, with no apparent change in her general condition, a sudden cyanosis appeared and the patient died rather unexpectedly. Before death, at the site of the aspiration punctures, indurated nodules developed and showed a marked tendency to enlarge; contraction of the affected side took place late in the disease. No post-mortem was permitted.

This patient lived about fourteen months from the onset of the symptoms. The fluid withdrawn was twice examined at the Lederle Laboratories; the first specimen gave no positive findings; the second specimen, examined February 24, 1905, was reported as follows: The fresh centrifuged specimen shows no shreds of tissue, but the sediment packs down into a coherent mass which, upon microscopic examination, is seen to consist almost wholly of pus, with a small admixture of red blood cells and an occasional endothelial cell. The stained specimen shows the pus cells to be very largely of the polymorphonuclear neutrophile variety, eosinophiles and lymphocytes in much smaller proportion. There are a moderate number of bacteria and many examples of bacilli enclosed in pus cells, showing phagocytic action. The endothelial cells are few in number, and none were found undergoing mitosis. As compared with a previous specimen examined from this case, there is a diminution in the red blood cells and a decided increase in the white cells, amounting to a distinct purulent condition. The endothelial elements appear to be diminished and the bacteria much less numerous. The fluid has all the features of an inflammatory exudate. This may or may not be associated with a new growth, as the presence of endothelial cell mitosis is the only reliable factor, except the finding of actual fragments of cancer tissue; and, on the

other hand, the absence of both findings does not necessarily preclude the existence of such a condition. The occurrence of secondary nodules at the puncture points is very significant in the history of this case.

Case V.—For the privilege of presenting this case we are indebted to Dr. Jos. Merzbach, in whose service the patient was treated at the Jewish Hospital from May 9 to June 29, 1907. Male, age 40, baker. Family history—Parents died from causes unknown. Of brothers and sisters eight are living and well. Children, three, living and well. No history of tuberculosis or carcinoma. Appetite has been good up to the present illness. Bowels have moved twice daily. Drinks whiskey to excess, three or four glasses daily. Had gonorrhea 20 to 22 years ago and was cured. Denies syphilis. At 13 years he had typhoid fever with no sepuelæ. Otherwise the previous history was negative. The present trouble began eight months ago with symptoms of muscular rheumatism: there was pain with cramps in the muscles. Then he had an attack of bronchitis, and steadily became worse, with shortness of breath. Had to get up two or three times a night to pass water. He then developed orthopnea. He still complains of his cramps. Bowels regular, appetite poor. Has lost about 60 pounds in weight. He coughs and feels feverish. No hemoptysis. The man is pale, anemic, and emaciated. Pupils normal, react to light and accommodation. Tongue is broad, moist, and coated. Postcervical lymph glands are much enlarged. Patient breathes rapidly, respiraory movements are labored. Less motion on left side. Urine shows the changes of a chronic nephritis. Tactile fremitus is diminished over the left chest posteriorly and the right chest posteriorly; anteriorly negative. There is dullness on percussion over the same area. Râles of all kinds are heard over both chests. Posteriorly the voice sounds are very much diminished or absent. The outlines of the heart cannot be made out by percussion on account of the dullness in the chest. Heart sounds muffled; the apex beat is regular and of fair force in the sixth space outside the nipple line.

The upper border of the liver cannot be made out; the lower border is at the free border of the ribs. The abdomen is distended. Dullness is present in the flanks. A fluid wave is present. No masses can be detected and there is no rigidity. Some tenderness is present.

May 11. The left chest was aspirated, withdrawing a pinkish tinted fluid, 2,000 c.c. This was repeated on May 14, of a creamy fluid, 1,800 c.c. being withdrawn, and again on May 16, when 2,500 c.c. of the same creamy fluid was removed. A cervical gland was excised for examination.

May 19. Left chest aspirated and about 1,000 c.c. of creamy fluid slightly darker than on previous occasions evacuated. This fluid shows the presence of methylene blue which was given on the day previous in capsules. Right chest aspirated and about 800 c.c. of a serosanguineous fluid obtained free from methylene blue (to naked eye). A very marked pericardial friction murmur was heard over the pericardium near the apex.

May 22. Abdomen aspirated suprapubically and 2,000 c.c. of a milky fluid obtained, of same microscopic appearance as the pleural fluid.

May 25. Left chest aspirated and 700 c.c. serosanguinolent fluid obtained, not chylous as on previous aspirations.

May 26. Much abdominal distention. Cardiac dullness obliterated by gastric tympany. Heart sounds weak and heard best over the fourth interspace (left) near the border of the sternum. The abdomen was aspirated and 2,000 c.c. of chylous fluid withdrawn.

May 30. Abdomen aspirated, 3,200 c.c. of chylous fluid being withdrawn.

During June aspiration was repeated a number of times. Fever was never present at any time.

During treatment the right pleural cavity was aspirated once and 800 c.c. of a bloody fluid withdrawn. From the left pleural cavity repeated aspirations give 8,000 c.c. This was usually chylous in character but occasionally bloody. From the abdomen in all 30,000 c.c. of chylous fluid was withdrawn.

The patient died June 29, much emaciated. No post-mortem could be obtained.

Pathological reports of gland removed, Endothelioma. Fluid from right chest contained many endothelial cells and numerous red blood cells; fluid from the left chest showed the same findings plus some fat. The fluid from the abdominal cavity was sterile and contained fat.

Whether or not to include this case as one of primary carcinoma of the pleura is a question. The abdominal ascites can be accounted for by the old kidney condition. The character of the fluid withdrawn from the abdomen can be explained by obstruction to the thoracic duct by pressure of the growth within the chest. The presence of chylous fluid in the chest is said to be indicative of endothelioma.

The microscopical examination of this fluid showed endothelial cells present, and the gland removed was reported as an endothelioma. It would seem fair to consider this a case of primary new growth of the pleura complicating a case of chronic Bright's disease.

In conclusion we would draw attention to this condition because, although rare, it is of sufficiently frequent occurrence to be considered in all cases of pleural effusion or subacute pleuritic affections with signs of thickening of the pleura. It is exceedingly important to diagnose this condition correctly when it comes to giving a prognosis. And lastly, in this disease we must not be led into the error of opening the chest for drainage.

LOCOMOTOR ATAXIA: A NEW THEORY AND TREATMENT WITH CASES.*

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NEW YORK.

As long ago as the time of Hippocrates writers described a condition associated with spermatorrhea and sexual excess which they attributed to wasting of the spinal cord. It is possible that this was the tabes of the present time if we do not accept the general opinion of to-day regarding its purely specific origin.

Medicine and surgery during the whole of the middle ages was in such a chaotic stage that it is not possible to form any opinion as to whether or not tabes occurred before the appearance of syphilis in the fifteenth century. Numerous writers commencing with Ollivier in 1824, described what was undoubtedly tabes, but Todd (1847) was the first to differentiate paralysis and incoordination, and to attribute the latter to disease of the posterior columns of the spinal cord. Romberg (1840 to 1857) in his "Lehrbuch der Nerven-Krankheiten" was the first to give an extended account of tabes.

*Paper read at a meeting of the New York Academy of Medicine, October 1, 1908.

He described the characteristic gait and the exaggeration of the ataxia upon closing the eyes, the lightning pains, the anesthesia and paresthesia, the urinary troubles and the occular disturbances, and for the prognosis said: "To none affected by this malady is there any hope of recovery; über alle ist der Stab gebrochen." He gives as the post-mortem appearances, atrophy of the posterior roots of the spinal nerves—the anterior remaining normal—with destruction of the lower lumbar cord and the nerve substance in the cauda equina at times leaving only neurilemma-sheaths. The roots of the higher nerves are also frequently affected. The next most notable addition to the knowledge of tabes was the publication by Duchenne in 1858 of his researches under the title "Ataxie locomotor progressive." He differentiated it from muscular paresis, gave an exhaustive description of its symptoms, and was under the impression that he had discovered a new disease. He considered it due to disease of the cerebellum. It was that masterly clinician, Trousseau, who first considered the changes in the cord as secondary; in his words they were probably only the secondary results of the functional disturbances created by "Some obscure general condition." Isnard, a pupil of Trousseau, regarded it as a neurosis of the muscular sense. Before this, however, many observers in France and England were satisfied that the symptoms of tabes and degeneration of the posterior columns were coincident. The first microscopical investigations were made by Virchow, 1855, and Rokitansky, 1857, and it is of interest to note that these fathers of pathology recognized its true character as a non-inflammatory destruction of the nerve elements proper. Bourdon and Luys, 1861, described the change as chronic inflammatory; Charcot, Vulpian, Gull, and many others agreed with them. V. Leyden, 1863, took the original views of Rokitansky that it was a simple atrophy of the sensory tracts of the cord generally progressing from below upward, and further that such inflammation as showed in the membranes and blood-vessels were secondary. Although he recognized the character of the change, he did not, however, causally connect the degeneration of the posterior columns with the process in the sensory roots; as to the degeneration being caused by extension of inflammation from the pia mater, he says: "But the view that the atrophy of the posterior roots caused by inflammation of the pia mater leads to a similar degeneration of the posterior columns, is very unlikely. Moreover, the disease of the posterior columns progresses more from the posterior or periphery and middle line, rather than follows the distribution of the roots." Pierret eight years later, 1871, localized the degeneration process "in two symmetrical islets of small extent, situated in a special region of the posterior columns" and not invading the columns as a whole. Thus tabes was looked upon as a system disease. Without going into the details of all his speculations and arguments, which the scope of this paper would not permit, we may state that Vulpian in 1879 proposed the formula "sclerosis of the posterior roots" instead of "sclerosis of the posterior columns," thus being the first to inaugurate the root theory which is held by most neuropathologists to-day.

Many theories have been advanced as to the cause of the progressive dystrophy of the posterior roots and their intermedullary terminations—among them the alteration of the cells of the spinal ganglion, the trophic centers of the fibers in question. The strongest argument against this is that the peripheral process as it emerges from the distal pole of the ganglion practically shows no abnormality; while the central process, the posterior root, may be degenerated into the ganglion itself. V. Leyden and Goldscheider look upon the peripheral nerve endings which often show dystrophic changes, as more probably the starting point of the process. Against this, however, is the fact that degeneration of the peripheral nerves does not always precede the changes in the cord, neither is it always associated with tabes. At present it is not considered a satisfactory answer to the question. Nageotte, Redlich, and Obersteiner are of the opinion that the origin of the tabetic process is an inflammatory condition of the meninges affecting the posterior roots. As against this is the fact that meningitis is not constantly present, in fact is more often absent, and when it is present is more often of the character of a secondary thickening than an inflammatory process.

Again in the early stages of tabes it is found that the intramedullary degeneration is often well marked when the posterior roots exhibit no appreciable change and no indication of a local neuritis. Another fatal objection is that the neuritis Nageotte finds in the anterior radicle is evanescent, while that of the posterior is so profoundly destructive. Redlich and Obersteiner hold that where the posterior roots penetrate into the pia mater there is a constriction, and that during meningeal inflammation they become strangled. The weak point in this theory is that meningitis is not always present, and when it is, rarely causes degeneration of the posterior roots.

The degenerations of tabes occurring as they do in widely separated situations throughout the cranium and sympathetic system as well, would seem to be sufficient argument against these theories. That there is a point where the posterior root fibers are specially prone to degeneration at what is known as "Obersteiner's ring," due to the loss of their neurilemma sheath and the thinning of the myelin sheath is well known, and that the absence of the neurilemma cells is the cause of the greater proclivity to degeneration of the intermedullary terminals than of the other branches of the sensory protoneurones in the tabetic dystrophy. Ferrier says "some conditions probably exist favoring the incidence of noxious influences in this portion of the protoneurone. Marie and Guillain attribute the tabetic degeneration to a syphilitic affection of the posterior lymphatics and derive the lymphocytosis of cerebrospinal fluid from the elements of this system. Antisyphilitic treatment has not given results in support of these views. There is in tabes a marked lymphocytosis, but it is also present in a number of other conditions. An argument that this condition is not primarily due to syphilis is the fact that it does not yield to antisyphilitic treatment. Ferrier says "I am inclined to adopt the hypothesis of Thomas and Hauser that the essential lesion of tabes is a dystrophy similar to that induced by certain toxic agents, affecting the protoneurone as a whole and manifesting itself in degeneration of the peripheral and central terminations, of which the intermedullary are the more vulnerable and are usually the earliest to exhibit anatomical changes. The process, however, is not confined to the spinal protoneurone, but may affect among others the optic, the sympathetic, and certain other motor neurones." Ford Robertson has found in living tabetics a bacillus which he has named paralyticans, but he has not as yet produced sufficient evidence to prove that its toxins are an etiological factor in the production of the disease. The prevailing ten-

dency at present is to search after a toxin that will account for all the various degenerations in tabes, and it is acknowledged that no remedy, chemical or physical, has as yet been discovered, which materially influences the morbid process.

This being the present status as to both the etiology and treatment of tabes, I would venture to present a new theory believing that it answers better than others the etiological and pathological questions and has the merit so far as treatment is concerned, of meeting the requirements in relieving many of its most distressing symptoms in the greater number of cases, and in many apparently restoring them to ordinary health.

In the light of my clinical experience during the past four years, I am firmly of the opinion that the dystrophic changes that occur in the neurones of the posterior roots and their connections in tabes are the result of continuous sensory impulses conveyed from some peripheral point to the sensory roots in the cord.

That such continuous impulses, kept up perhaps for years, exhaust the central nerve substance, which, having no rest or intermission from such impulses, and having no time or opportunity for recuperation, finally succumbs from exhaustion and takes on dystrophic degeneration. In other words, not a toxin, specific poison, strangulation, or bacillus, but a purely physical cause. The best of batteries by constant use without replenishing becomes useless; then why not that most wonderful battery in existence, the cerebrospinal system?

The changes found in situations other than the cerebrospinal, such as the sympathetic and peripheral nerves, are probably due to the force of the sensory impulse passing on through their spinal connections, and expending their force at the points of least resistance; as for example, their terminations in the skin and muscles, and in the ganglia of the sympathetic.

I think this theory of damage done at the most vulnerable point well illustrated while the impulse is still in the direct line, in first destroying the neurone where it has lost its neuroglia in the posterior roots—at the "ring of Obersteiner."

This would account for the "tabetic degeneration being selective in character, unlike the Wallerian which affects all tissues indiscriminately, attacking in succession fibers and tracts of perhaps different function significance."

Since formulating this theory four years ago I have learned that Prof. Mathews, formerly of University of Chicago, at present of the Leland-Stanford, has made observations that may explain the manner in which the dystrophy takes place, and it certainly accords with the present theory. It is known that the conducting nerve substance or neurone is a very simple tissue, almost protoplasmic, being little more than highly phosphorized fats in a weak saline solution. In other words, this portion of the nerves consists of colloid particles in suspension. Prof. Mathews found that when a nerve is stimulated electrically the colloid particles of these fats are precipitated, and that coagulation to a certain extent takes place.

It has also been proven (Howell's Physiology) that the effect of fatigue (either natural or artificial through electrical stimulation) is shown by histological changes, characterized by shrinkage of the nerve cell. In the resting condition these cells are turgid with large round nuclei, whereas fatigued cells are vacuolated and shrunken, with corresponding changes in the nuclei. It has been found that the amount of shrinkage increases in geometrical ratio to the length of time during which the stimulus has been allowed to act. This would seem additional evidence that nerve impulses can, as the result of incessant irritation, produce the change I claim takes place.

A new point of view for the origin of nervous diseases was brought out by Cornelius (*Aerztliche Sachverständigenzeitung* No. 20, 1906), who assumes the existence of an independent circulation in the nervous system analogous to the circulation of the blood. The causes of nervous disease are referred to (1) the pathological irritability of the nervous system due either to heredity, or to increased stimuli affecting the body (overexertion, exposure, disease); (2) some obstruction of the free nerve current, all stimuli which affect the body being received and transmitted in such a way that there is no rest for the center.

According to the views advanced by Edinger (*Med. Klinik*, No. 28, 1908) the fatigue or exhaustion induced by overwork of a healthy nerve, or simple use of a poisoned or degenerating nerve, may never be recovered from, so that the outcome is paralysis and atrophy.

Syphilis is no doubt a prime factor in tabes, but only so far, probably, as it is responsible for a tissue condition necessary to render such tissue more susceptible to the continuous sensory explosions or impulses. Whether all cases of tabes have a prior syphilitic history is a question beyond the scope of the present paper to discuss; it is certain that other causes that have been supposed to be direct factors in the etiology of tabes, such as exposure to cold, overexertion, alcoholism, are only, in so far as they lower the resisting power of the system in general, and the nervous centers in particular. Sexual excesses, I think, have a direct bearing where the irritation is in the genital tract, by aggravating and perpetuating the points of irritation.

In the present paper we will only recite cases where such irritation was found in the male urethra and bladder, although it is known that other points in the body may be the seat of the initial irritation; notably the urethra, bladder, and uterus and appendices in the female, and the rectum in both sexes. Eyestrain and intestinal putrefaction have been thought of as possible factors in aggravating the condition when peripheral irritation already exists.

Since reading the announcement of my theory before this academy last year, I have reason to expect that it may explain the etiology of other nervous diseases of unknown origin, and possibly general paralysis and taboparalysis which Fournier, Mott, and many other neuropathologists of the present day believe have an essential pathological identity with tabes. In Ferrier's* opinion "these are merely different aspects of the same polymorphic disease, and that the morbid process underlying both is identical."

The physiological pathology of tabes whereby we would attempt to refer each symptom of the disease with its organic base, is so vast a subject that only a word is possible at this time, in so far as it attacks the cord.

"From these posterior roots are given off the variously named tracts that constitute one continuous system of descending commissural fibers receiving and giving off fibers at different levels of the gray matter, and connecting together the various segments, as well as the upper and lower spinal centers with each other. The change that takes

*I wish here to express to Dr. Ferrier my thanks and obligations to him for the liberal use I have made of his Lumleian Lectures.

place in the roots, according to most recent research, is a progressive dystrophy or demyelization and ultimate destruction of the nerve fibers. The myelin sheath breaks up, becomes granular, and finally disappears; a proliferation of the neuroglia network occurs only in proportion to the atrophy of the nerve tissue proper. These changes are, as a rule, most pronounced in the lumbar and lower dorsal regions which contain the long fibers from the lumbosacral regions in their course up to the nuclei gracilis of the medulla oblongata."

In the following cases the peripheral irritation was found to be situated in the urethra and bladder, and the lesions found varied from slight local to general irritability, with erosions, with and without contractions and from simple irritation of the bladder to a chronic cystitis with or without incontinence of urine and faces or both. In each case as far as possible all the resources of surgery were brought to bear changing it from time to time in each case as seemed best to suit individual requirements. No hard-and-fast rules can be laid down nor are they necessary to the skilled surgeon. A careful and definite diagnosis must be made of the condition of the urinary tract, and an equally careful aseptic course of treatment carried out until it is put into as nearly a normal condition as possible. A word of warning may be permitted when the deep urethra and bladder are to be invaded even for examination, not only on account of the well known danger of infection and shock, but from the knowledge the writer has that cases of tabes have a special sensibility to the slightest access of irritation, at this point. I would state that the line between relieving and producing still more irritation is a narrow one, and that careless manipulation would probably be followed by an aggravation of symptoms, probable precipitation of crises in cases where they have occurred before, and the possibility of an even more embarrassing situation, rather than cause for mutual congratulation. This special sensibility of these patients to the slightest access of irritation, leads me to incline more strongly if possible to the belief that this method of treating tabes is correct in those cases where the source of irritation is found to be in the male bladder and urethra. The importance of urinary analysis before commencing treatment to determine more particularly whether renal disease or diabetes is present, will be appreciated. The lesions most generally found are erosions which have probably existed for years, and which by producing continuous irritation, keep up such a constant succession of sensory nerve impulses as to cause the dystrophy found in the posterior roots of the cord. It is thought that these erosions are a peculiarly offending factor; they are best treated locally per urethroscope.

During 1905-6, some ten cases were treated successfully. They all had characteristic symptoms of tabes. The gait was affected, from a slight ataxia and staggering to utter helplessness and inability to stand. In nearly all the cases there was incontinence of urine besides pain; all had loss of knee reflex and Argyll-Robertson pupils. All recovered from the incontinence, and their pains were relieved; two helpless ones were able to walk again with the aid of a cane, while others practically recovered a fairly normal gait. The helpless had only been so for less than three months.

Although three and four years have now elapsed since these patients have received any treatment, there have been but two instances where there has been any relapse, and this only in the gait; not in general condition or any other symptom although incontinence of urine existed. Both these patients had but a short course of treatment followed by neglect on their part.

As in those cases the diagnoses had not been verified authoritatively at the time, and as it has been doubted whether the cases in which I have had success were tabes, I prefer to give only the histories of the following, they having come to me with an authoritative diagnosis.

Case I.—H. B. Feb. 27, 1907. Male, age 47. Duration of disease seven years, syphilis sixteen years ago. Weight 102 pounds; general condition very low. Gait fully 50 per cent. off normal; Romberg and Westphal symptoms present, also Argyll-Robertson pupils; frequent gastric crises. Has severe pains, also girdle sign. Has analgesia and anesthesia, and incontinence of urine day and night. Examination revealed erosions in middle third of urethra. These were treated per urethroscope during seven months when all symptoms disappeared, patient walking normally and weighing 138 pounds. A gain of 36 pounds. Can walk in dark. He has not had treatment for over a year and a half, has gained in every way, and is about to resume his work as an actor. He came to me from the Incurable Hospital at Fordham, earlier was in the New York Hospital, suffering from gastric crises. I saw him first at his rooms, he being too weak to go out.

Case II.—L. S. April 19, 1907. Male, age 40. Duration of disease six years; no history of syphilis. Weight 145. General condition poor, unable to walk alone; Romberg, Westphal, and A.-R. symptoms present. Severe pains daily and nightly. Analgesia and anesthesia. Examination revealed erosions in middle and lower third of urethra. Treated with urethroscope three months. When he could walk alone and pains had ceased, this patient went away and has neglected treatment for a year and a half but has not relapsed.

Case III.—J. M. Nov. 25, 1907. Male, age 49. Duration five years; no history of syphilis. Weight 148. General condition poor; gait 50 per cent. off. Stumbles and has fallen. Romberg, Westphal, and A.-R. present; girdle pain; frequent and severe pains in legs and heels; severe, intestinal pain constant. Hyperesthesia intense over body; unable to bathe. Examination revealed middle third urethra erosions and sensitiveness. Treatment local for three months, when gait became nearly normal. All pain gone; incontinence of urine stopped, gained ten pounds in weight, bathes with comfort. Since March there has been continued general improvement; can walk in dark. Although he has not had any treatment for eight months he has been travelling alone extensively, and is at present carrying on a high pressure campaign.

Case IV.—P. K. Nov. 25, 1907. Male, age 45. Duration one year; syphilis sixteen years ago. Weight 158. General condition very bad; unable to walk alone. Romberg, Westphal, and A.-R. present; severe pains almost daily; but little sleep at night. Micturates every hour with great pain; has been told he could live but a short time. Examination—Middle third of urethra sensitive, slightly contracted, and erosions. Treated locally during four months and contraction dilated. Incontinence and frequent micturition stopped; no more pain; gait almost normal; can walk in dark. Weighs 180 pounds, gained 22 pounds and works hard all day. No treatment since April; no relapse.

Case V.—J. G. Dec. 23, 1907. Male, age 43. Duration of disease one and one-half year; no history of syphilis. Weight 165. General condition

good. Gait is off normal fully one-half. Romberg, Westphal, and Argyll-Robertson signs present. Pain moderate at night; tires easily when walking. Examination—Erosions at three one-half inches, otherwise normal. Treated by urethroscope until Aug. 1; gait improved. Sept. 28 returned after two months' vacation with marked improvement in gait, no pain, and able to walk during ordinary occupations without fatigue.

Case VI.—H. P. Dec. 26, 1907. Male, age 50. Duration six years. General condition poor; gait about 50 per cent. off; uses cane. Romberg, Westphal, and A.-R. Severe pain every two or three days; girdle and chest constriction. General anesthesia and analgesia. Micturition very difficult. Unable to walk without cane. Examination—Lower third of urethra erosions. Treatment local during four months. All pains stopped; can walk without cane; general condition good; micturition free. No relapse during five months.

Case VII.—W. L. Jan. 9, 1908. Male, age 51. Duration ten months. Syphilis twenty-five years ago. Weight 136. General condition very poor; Westphal, A.-R. pupil right eye, left injured. Absolutely helpless, carried in to me; cannot move hand nor foot. Intense hyperesthesia and pain in head and face, also some general pains. Incontinence of urine and constipation. On March 23, 1907, this patient was struck by a street car, after which all his present symptoms developed rapidly. Prior to this he was apparently well. This was a case where possibly all the factors were present for the development of tabes, but the cord was able to resist until a great shock put it below par; a similar case was treated in 1905 when rapid development of tabetic symptoms followed within six months after the patient was knocked down by an omnibus, and he as quickly recovered upon removal of the irritation. On examination erosions found in middle third of urethra, with slight contraction of anterior portion. For erosions local treatment per urethroscope carried out for four months; contraction cut. Very early in treatment all pain, and hyperesthesia of head and face, and incontinence of urine stopped. He was able in a month to sit at table with his family, and while lying down or in sitting position to move all his limbs and take all kinds of exercises. Bowels regular. He has had no treatment now for three months; during that time has steadily gained in strength, general health, agility, and weight—148, 12 pounds gain. One thing he cannot do, that is, stand alone or walk. It has been noticed in another case of rapid development—when the patient like this one has remained in bed or in a chair for three months, the ability to walk was not recovered. Whereas in two cases when helplessness had existed less than two months, the gait was recovered. What is lost by this short time of disuse we do not know, when in a case of ten years' duration, five of which had been spent in bed in a helpless condition, the ability to walk, with the aid of an assistant, was recovered in two months.

Case VIII.—F. T. Feb. 8, 1908. Male, age 49. Duration ten years. Syphilis fifteen years ago. Weight 117. General condition poor, practically carried in between two attendants, and helpless since October 30, 1907. Westphal and A.-R. present. Incontinence of urine for six years, incontinence of feces when bowels loose. Anesthesia and analgesia. Examination—Middle third of urethra was found contracted, also erosions. Treatment of erosions local for about three months, with dilation of contraction. Patient could soon walk, with aid of an attendant's arm, a half mile daily. Incontinence of urine and feces stopped. Patient is still doing well. Weight 124; gain of 7 pounds.

Case IX.—J. L. Feb. 21, 1908. Male, age 41. Duration eight or nine years. Syphilitic history not obtainable. Weight 140. General condition wretched; weak and unable to walk over a block without great fatigue. Romberg and Westphal present. Pupils slow. Principal complaint severe pain in abdomen; hyperesthesia abdomen and back. Has been operated on three times for gallstones and appendicitis; no lesions found at either time. Examination—Anterior two-thirds of urethra contraction and erosions. Treatment for erosions, contractions cut and dilated to normal, local only, during four months with great improvement in general health and relief of abdominal pains. Can walk without fatigue whenever he is obliged to in pursuit of his work. No relapse in last three months.

Through the courtesy of Dr. Starr, the following eight cases were sent me from the Vanderbilt Clinic, College of Physicians and Surgeons. Dr. Cunningham made the diagnosis when sent, and Drs. Starr and Cunningham verified the results as given here on September 23, 1908.

Case X.—C. F. A. June 17, 1908. Age 39. Duration ten months; no history of syphilis obtainable. Weight 164. General condition fair. Can only walk with assistance. Pain intense and frequent, lasting from one to three days; Romberg, Westphal, and A.-R. present. Both legs anesthetic and analgesic; incontinence of urine and feces. Examination—Upper and lower third urethra contracted and erosions. Treated locally during three months, upper contraction cut, lower one dilated. Patient could soon walk alone with ease. Pains ceased; return of sensation to legs; incontinence of urine and feces stopped. General health much improved.

Case XI.—W. S. June 26, 1908. Age 44. Duration two years. No history of syphilis obtainable. Gait ataxic; pain almost daily. Romberg, Westphal, and A.-R. present. Incontinence of feces and diarrhea; has eight or ten movements a day. Examination showed lower half of urethra contracted and erosions. Treated locally for three months; contraction dilated. Almost immediately after treatment commenced, the incontinence of feces stopped and the bowels moved with normal formation morning and night. Gait nearly normal, and he resumed his occupation of cook on a steamboat. Pain ceased.

Case XII.—E. M. July 15, 1908. Age 38. Duration two years; syphilitic history. Weight 125. General condition fair. Can just manage to get about with aid of two canes; no pain since last winter except girdle. Romberg, Westphal, and A.-R. present. Incontinence of urine for a year and a half; constipation. Examination—Middle third contracted and erosions. Treatment same for two and a half months past. Incontinence of urine stopped; bowels regular. Gait so much improved that with the aid of one cane he gets about for from six to eight hours a day canvassing.

Case XIII.—J. L. June 17, 1908. Age 46. Duration four years. Weight 150. Syphilitic history. Gait ataxic and stumbles; pain very severe almost daily; Romberg, Westphal, and A.-R. pupil present. General hyperesthesia over trunk; unable to go into water for ten years. Examination—Slight erosion middle third urethra. Treated locally three months. Gait practically normal, can walk in dark. Pains ceased; sensation over trunk normal; has been swimming during summer.

Case XIV.—G. A. June 17, 1908. Age 42. Duration six years. Weight 131. No history of syphilis obtainable. Gait ataxic; cannot attend to his work as waiter; pains very severe two or three times a week. Romberg, Westphal, and A.-R. present; incontinence of urine. Examination—Whole urethra sensitive: first third contracted and lower third erosions. Treated locally during three months and contraction cut. Pains relieved. For past two months has been able to resume his occupation as waiter. Incontinence of urine stopped; gait nearly normal. This patient did not report for examination by Dr. Starr.

Case XV.—T. O'R. Aug. 2, 1908. Age 44. Duration of disease seven years. Weight 144. General condition fair. Gait ataxic; Romberg, Westphal, and A.-R. present. Pain severe two or three times a week. Incontinence of urine and feces and constant diarrhea. Examination—Lower half of urethra sensitive and erosions. Treated locally. Early in treatment incontinence of urine and feces stopped; stools became normal, moving once or twice a day, and pain is relieved. Gait much improved.

Case XVI.—H. F. Aug. 2. 1908. Age 42. Duration of disease nine years. No syphilitic history obtainable. Weight 124. General condition poor. Using cane for six months; much difficulty in walking. Pain very severe, sometimes lasting two weeks; Romberg, Westphal, and A.-R. present. Incontinence of urine, also feces after taking cathartics. Examination—Contraction anterior urethra, also in lower half with erosions. Treated locally for two months; anterior contractions cut, lower dilated; incontinence of urine and feces stopped; pain relieved and gait improved.

Case XVII.—C. A. Aug. 10, 1908. Age 37. Duration three years. Gait good but staggers in dark. Romberg slight, Westphal and A.-R. present, with right ptosis and paralysis of internal rectus. For three years has had gastric crises twice a month, lasting from three to seven days. Examination—Slight erosion and contraction in middle third of urethra. Treated locally and dilated for six weeks. Ptosis relieved, internal rectus acts, and no gastric crises has occurred since commencing treatment. Can now walk in the dark.

From present experience it is thought that the following conclusions may be safely advanced.

(1) That peripheral irritation can produce pathological change in the central nervous system by creating continuous nerve impulses which exhaust the substance of its nerve centers.

(2) That the peripheral nerve degenerations of tabes are probably due to the same impulses carried on past the central system expending its force upon the points of greatest vulnerability or least resistance.

(3) That symptoms occur in certain cases of tabes with a severity out of all proportion to the actual pathological change that has taken place in the nerve centers, and that such symptoms are caused by the initial change creating a zone or aura of irritability beyond such change which extends to the cerebrum, cerebellum, and sympathetic, and at times appears to cover almost the entire nervous system including that of nutrition.

(4) That removal of this causal irritation resulting in recovery from such grave symptoms, as loss of balance, ataxia, incontinence of urine and feces, anesthesia and hyperesthesia, etc., etc., would appear to indicate the existence of such zone of functional irritability beyond the actual pathological change.

The physiological pathology further than that merely touched upon here had of necessity to be reserved for a fuller paper which I trust to present at some future time. My opinion as to prognosis in the different stages of the disease in its relation to individual cases would also lead too far and be of more value with added experience.

My object will have been accomplished for the present if I have this evening said enough to attract the serious attention of the medical profession.

15 East Forty-eighth Street.

PANCREATITIS; WITH ILLUSTRATION OF CRYSTALS OF PANCREATIC REACTION, ACCORDING TO CAMMIDGE'S TEST.

By MILTON R. BARKER, M.S., M.D.,

CHICAGO.

The physiological anatomy of the pancreas is essentially the same as that of the salivary glands. It is made up of lobes, which are formed of lobules, which in turn are made up of alveoli. It has two excretory ducts, Wirsung and of Santorini, the most important of which is the former, which performs by far the largest part of the function of pancreatic excretion. The duct of Santorini usually joins the duct of Wirsung soon after their exit from the pancreas. The duct of Wirsung usually joins the common duct at the ampulla of Vater, where the bile and pancreatic secretions unite and flow together through the papilla into the duodenum.

The pancreas is liberally supplied with blood by branches of the splenic and pancreaticoduodenalis arteries, and its nerve supply is from the solar plexus. The head of the pancreas lies in the curve formed by the three divisions of the duodenum and is situated in the median line, an inch and a half above the umbilicus. The body extends to the left and is in relation with the first and second lumbar vertebræ; it terminates in the tail which is in relation with the hilum of the spleen.

The pancreas is not enveloped by a capsule, but is surrounded by loose areolar tissue, which dips between the lobules connecting them together.

The average weight of the pancreas is three and one-half ounces, the extreme weights being two and a half and six ounces.

It has been demonstrated by Mayo Robson of London and others that the ductus communis choledochus in 62 per cent. of cases traverses the head of the pancreas. It is an important discovery by reason of which we are able to classify and place in proper categories disease symptoms that were before misunderstood and erroneously interpreted.

The pancreas normally secretes from thirty-five to thirty-seven grams for each kilogram of body weight every twenty-four hours (Bidder and Ochnidt), or approximately one and one-fourth ounces for every two and one-fifth pounds of the body weight daily. In other words, the pancreas secretes seventy-three ounces for every one-hundred and sixty pounds of body weight daily, or an amount not varying greatly in quantity from the amount of bile secreted by the liver during the same time.

The pancreatic secretion and bile, aided by the various intestinal secretions, are sufficiently potent to perform all digestive functions, the secretions from the stomach and salivary glands being eliminated. The reverse of this, however, is not true; but with the addition of the bile the stomach secretions and saliva are much enhanced in digestive

power, and the system could be maintained in a fairly healthful condition for a long period of time with the pancreatic secretion eliminated from the digestive process, provided the system could be safeguarded from the pernicious effects of this secre-

Fig. 1.

tion, when diverted from its natural channels and function.

In all cases of chronic pancreatitis the head of the organ is first involved, and in a large proportion of these cases the inflammation does not extend beyond this, hence the secreting power of the larger portion of the gland is not disturbed. It is probable the diseased portion also secretes in a measure, but the secretion is not that of the normal gland, hence is itself abnormal.

In all types of pancreatic inflammation two conditions universally prevail, the gland, or that portion of it involved, becomes swollen and its excretory ducts become in a measure occluded, and in 62 per cent. of all cases, according to the discovery of Mayo Robson and others, the ductus communis choledochus is also more or less occluded.

When pancreatitis prevails the disturbances wrought in the digestive process are more or less grave, according to the degree of occlusion of these ducts.

If such large quantities of bile and pancreatic secretion are necessary to maintain a perfect digestive process, any marked reduction of them must interfere with that process, and in a like degree bring disaster to the general system. Pancreatitis, therefore, may, by pressure upon the bile and pancreatic ducts, cause any degree of digestive troubles, and corresponding degrees of trouble to the general system. If the occlusion of these ducts is total, the destruction of the general system must be rapidly inevitable from digestive disturbances alone. But the digestive disturbances caused by the occlusion of these ducts in pancreatitis is not the only, and probably not the most grave, condition that is produced by this misfortune. According to the degree of occlusion of the common duct, in 62 per cent. of all cases the bile is dammed back into the liver and taken up by the lymphatics and emptied into the blood stream, and in all cases, according to the degree of occlusion, the pancreatic secretion, which is always more or less diseased, is dammed back into the pancreas and is taken up by the lymphatics and also poured into the blood.

Just what effect upon the blood this invasion of it by these combined foreign substances has we do not know, but we do know that the general system suffers more and more as these secretions are increasingly withheld from their digestive function and poured into the blood, and that in cases where complete occlusion occurs and the blood receives the total bile and pancreatic secretions, the patient soon succumbs to the profound conditions thus produced. Thus the general system suffers, when chronic pancreatitis prevails, both from digestive disturbances and from conditions due to blood contamination.

We believe that it is not frequent in chronic pancreatitis that total occlusion of the common duct takes place, even in the 62 per cent. of cases in which this duct traverses the head of the pancreas, neither do we believe that total occlusion of the duct of Wirsung occurs frequently in this condition. We seldom meet in chronic pancreatitis such profound conditions as follow the total occlusion of both of these ducts at the same time. It is also true that this unfortunate condition does occur, and is liable to occur in any case.

In the 38 per cent. of cases in which the common duct does not traverse the head of the pancreas, bile may or may not be dammed back into the liver. This depends upon whether or not the bile ducts are the source of the infection. If they are not, and if the infection has invaded the pancreas from some other focus, the common duct not being involved, bile will flow normally into the duodenum. In such cases the location of the common duct is most fortunate, but in cases where the pancreas has become secondarily involved from the common duct, which is true in a large majority of cases, there is always some degree of occlusion of the common duct, either produced by gall-stones, or narrowing of the lumen of the duct by a chronic cholangitis or the partial closing of the papilla by disease of the duodenum. The degree of occlusion in these cases may vary as much as in those cases in which the occlusion is due to pressure by the enlarged head of the pancreas. In such cases the system profits little by the more fortunate location of the common duct.

From a surgical standpoint, the joining of the common and pancreatic ducts is an unfortunate ar-

Fig. 2.

rangement. In the acute or fulminating form of pancreatitis the whole gland is involved from the first. The whole organ becomes enlarged and is infiltrated with the round cells and other products of inflammation. In this condition all of the pancre-

atic secretion is abnormal, being produced, as it is, by a totally diseased gland. We don't know how restricted or free the secretion may be in these cases, but, be it little or much, it is totally diseased. In this form of pancreatitis the secretion is not taken up

Fig. 3.

by the lymphatics of the pancreas (at least not all of it) and carried into the blood, probably because of the involvement of these organs in the diseased process. That the glands of the pancreas functionate, and that their products are not carried off by its lymphatics, is proved by the presence of pancreatis secretion, found free, in the retroperitoneal tissues, in operative cases, in contact with the adipose of this tissue as well as that of the omentum and mesentery. We know the pancreas is not enveloped by a capsule, but surrounded by loose areolar tissue. In acute pancreatitis its secretion is poured out, but cannot escape by the natural channel, neither can it be carried off by its own lymphatics, hence it escapes into the areolar tissue between the lobules, and from thence into the retroperitoneal spaces where it comes in contact with the adipose tissue of this part.

Fat necrosis is the most peculiar phenomenon accompanying acute pancreatitis. As above stated, a diseased gland produces a diseased secretion. In these cases the diseased secretion from the diseased pancreas coming in contact with the adipose tissue produces fat necrosis. What peculiar element may be present in this diseased secretion that produces its peculiar action on adipose, but is harmless to other tissues, we do not know, but we believe the fat necrosis prevalent in this disease is rationally accounted for in this manner.

Acute pancreatitis is characterized by a sudden onset, excrutiating pain, and marked prostration. The bowels are usually constipated, and symptoms of intestinal stoppage prevail, though, as a rule, flatus is expelled per rectum, and is the best evidence, in the case, that we are not dealing with an ileus.

Chronic pancreatitis frequently during its course exhibits acute exacerbations which markedly simulate in symptomatology the acute disease, though frequently its manifestations are less pronounced. The manifestations of chronic pancreatitis, including its acute exacerbations, often closely simulate partial occlusion of the colon due to malignant disease. In two cases that have come under my personal observation the similarity to malignancy of the colon has been enhanced by bloody stools, and my diagnosis in these cases was held in abeyance until proctoscopic examinations were made of the rectum and sigmoid, though Cammidge's test was positive.

The prognosis of the acute form of the disease is grave, death frequently occurring in a few hours, especially if the hemorrhagic form develops. The tendency of the chronic form is never towards recovery, but constantly towards a worse condition.

We believe the dire effects of chronic pancreatitis upon the general system and its peculiar symptomatology are due only to a limited extent to the intrinsic condition of the gland itself, but to the more or less profound conditions produced upon the digestive system by depriving it of its essential fluids, and the grave conditions, simultaneously produced, by the emptying of these fluids into the blood stream. But in the acute or fulminating form of the disease, especially in hemorrhagic or suppurative cases, the intrinsic condition plays the major role in the destructive process.

The etiology of all forms of pancreatitis is infection, which in most cases is acquired from infected gallducts, and which is superinduced, in a large proportion of cases, by gallstones, though in some cases, rarely, I believe, the infection of the common duct may be acquired from a diseased duodenum.

The differential diagnosis of either the acute or chronic form of the disease is difficult without the aid of laboratory procedures. A certain group of symptoms, to which we have alluded, should, however, arouse our suspicions, and a sample of urine, of a pint or more, should be sent to a laboratory and Cammidge's test made for the crystals of pancreatic reaction. We do not mean by this any laboratory will do, we mean a laboratory adequately equipped, in which persons skilled in making chamical analyses will do the work. I have long since ceased to trust myself, or internes in a hospital, with complex chemical analyses, upon which I must base in a large degree an important diagnosis. Such analyses should be made by those who have all needed appliances, and who have extraordinary skill by reason of constant experience. In such a labora-

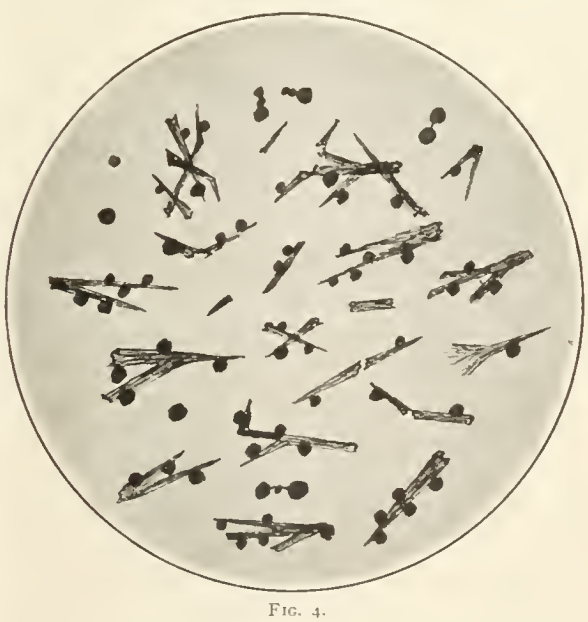

Fig. 4.

tory Cammidge's test may be made, and the result relied upon. If the crystals of pancreatic reaction are found, a positive diagnosis of pancreatitis may be made; if not, such diagnosis must be rejected. In my experience Cammidge's test is one of the most

valuable diagnostic measures ever promulgated. We must, however, recognize the fact that this test does not differentiate between the different forms of inflammation that may invade the pancreas. In other words, the crystals of pancreatic reaction are present in malignant disease as well as in infections. Hence from this test alone we cannot differentiate cancer from the common infections, or acute from chronic conditions.

We have attempted in the accompanying illustrations to illustrate the crystals of pancreatic reaction according to Cammidge's test. The crystals are bright yellow in color, sheaf-like in form, and covered more or less thickly with small bright red spheres which vary in size. The crystals are fragile, and when carried in a bottle or otherwise, unless with great care, break in small fragments. These drawings are made from different fields of a twelfth power lens, and are about one-half larger than they appear under the lens. Figs. 1, 2 and 3 represent fairly well the perfect crystals. Fig. 4 represents a large number of microscopic fields, and shows fragments of crystals.

The aim of treatment in all cases of pancreatitis is to undo that which disease has done, by restoring as far as possible the pancreatic and biliary secretions to their normal functions as digestive fluids, and preventing as far as possible the drainage of the pancreas and liver into the blood. Whenever systemic and local conditions are such as to make us suspicious of pancreatitis, and Cammidge's test is positive, we should not hesitate to advise operative measures as the best procedure in the case.

Our object should be to increase as far as possible the excretion of bile and pancreatic secretion through their natural channels. This is best accomplished by removing all gallstones and débris from the gall-bladder and gallducts and by dilating the common duct and papilla by the passing of proper instruments through them into the duodenum. A complemental drainage should also be established, by doing a cholecystoduodenostomy. This is the plan recommended by Mayo Robson. By this maneuver drainage for both bile and pancreatic secretions is afforded through the cystic duct and gall-bladder into the duodenum. Thus the bile is at once restored to its proper function, and at once the blood is relieved from its vicious effects. The operation also affords a better drainage for the diseased pancreas, by enlarging and clearing its natural outlet, and giving it two avenues for drainage instead of one. If for any reason the above cannot be done, external drainage of the biliary and pancreatic ducts through the gall-bladder should be maintained for a considerable time. Chronic pancreatitis entails a long and painful invalidism, but seldom of itself terminates life. It, however, so enfeebles the system that it becomes an easy prey for acute conditions of every nature, and life is usually terminated by some of these.

Case I. Mrs. H., aged 50 years. I saw this case first in the fall of '07. Clinical history covers ten years. At first it was that of gallstones. The first year she had three well defined attacks of hepatic colic without jaundice. During the next five years these attacks were more frequent, varied in severity, and were sometimes followed by slight jaundice. During the last four years she has been an invalid, though at times able to perform some of her duties, both household and social. A slight jaundice has prevailed most of the time, and marked constipation has been the rule. Her invalidism has been characterized by marked exacerbations, during which pains of a severe colicky nature, at first appearing in different parts of the abdomen, but later centering in the umbilical region. At these times a stubborn constipation prevailed for several days, in spite of every effort to produce evacuations; gas, however, escaped per rectum frequently. She had during these attacks typical "subjective intestinal stiffening," described by Willy Meyer of New York as a characteristic symptom of cancer of the colon. During the subsidence of these attacks the stools were, as a rule, more or less bloody. The proctoscope did not reveal a diseased condition of the rectum or sigmoid, and a tumor could not be palpated. Emaciation was slight. Nausea usually prevailed during the exacerbations, but seldom vomiting. The loss of strength and energy were marked at all times, and insomnia was the rule. Cammidge's test was positive. A diagnosis was made of chronic pancreatitis due to infection from the gallducts, superinduced by gallstones. Operation was advised and accepted. Several gallstones were removed from the gall-bladder. The cystic common duct and papilla were dilated, and cholecystoduodenostomy was performed. The systemic condition due to contamination of the blood at once improved, and the digestive troubles rapidly disappeared. The patient is now, May 1, 1908, symptomatically well. A second Cammidge's test has not been made.

Case II. Mr. P., aged 57 years. The clinical history in this case extends over three years. The primary attack was typical of gallstones. The patient, however, did not fully recover his normal condition after this attack, and never had another attack like it. Six months later he developed an irregularly intermitting type of fever which continued for two months. During this fever he was jaundiced several times. He also became markedly emaciated. Recovery from this was tedious, but resulted in a fairly satisfactorily degree of health. This continued for only a short time, when he developed colicky pains throughout the abdomen, followed by marked jaundice. He was sometimes constipated, and at other times the stools were loose and pasty and accompanied with much flatus. Exacerbations were frequent, sometimes occurring once a week, but usually at longer intervals. At these times constipation was persistent, though flatus frequently was expelled. The pain during these exacerbations was always excruciating and centralized in the umbilical region a little to the left and below the umbilicus. Nausea and vomiting were never prominent in the case. Cammidge's test was positive. Operation was advised and accepted. Gallstones were not present. The gall-bladder was adherent to everything in the neighborhood. The head of the pancreas was enlarged, hard, and nodular. I believed we were dealing with a malignant condition. The common duct and papilla were searched and dilated. Cholecystoduodenostomy was done. Improvement was marked from the first, and at the end of six months complete recovery symptomatically was attained. This case teaches, among other things, that it is wise to give the patient the benefit of the doubt, when we believe we are dealing with cancer of the pancreas.

Case III. Mr. B., aged 78 years. Clinical history of ten years, the first five or six years of which are typical of gallstones, the patient recovering from each attack and remaining well until the next attack. Jaundice was never present during this gallstone period. Following this period the patient developed a typical cholecystitis, from which he never fully recovered. The primary attack lasted for three months, after which he slowly recovered a comfortable degree of health. Still at intervals he continued

to have attacks of chills and fever of an irregular type. I did not see the patient during this period, or for about eight years of his clinical history. When I was called into the case the patient was suffering with colicky pains, which were present most of the time, but had no special location except at the times of his spells, as he termed them. These spells were acute exacerbations of the disease and recurred about once a month, lasting two or three days at a time. At these times the pains centralized in the umbilical region to the left and a little below the umbilicus, and were excruciating. The bowels never moved during these attacks, regardless of any measures used; flatus passed freely. In the intervals the bowels were constipated, never loose nor pasty. Jaundice was never marked. The patient was seldom nauseated, and never vomited. Cammidge's test was positive. Because of the age and enfeebled condition of the patient operative measures were not advised. Salicylate of sodium in combination with other agents seemed most beneficial, and undoubtedly did produce a certain degree of well-being. The patient contracted a bronchial pneumonia, and because of his feeble condition succumbed to the disease.

Case IV. Mr. G., aged 70 years. The clinical history covers a period of twenty years, for the first fifteen years of which it was that of gallstones, cholecystitis, and chronic cholangitis. Five years ago pains of a colicky nature began in the abdomen without definite location; they were accompanied by the expulsion of large quantities of gas. The bowels were always constipated. Jaundice was never marked. The exacerbations were frequent, and the pains so excruciating that morphine was resorted to as a rule to give relief. A peculiarity of this case is the large quantity of gas that collects in the stomach during each exacerbation, and as quickly as relief from this accumulation is obtained the pains cease and the attack is at an end. The pain during these attacks always centralizes in the umbilical region and radiates towards the chest. These attacks last for several days. Nothing but gas passes the bowels during an attack. Food never distresses the patient. He is never nauseated, and has never been markedly jaundiced. The patient is greatly emaciated and quite feeble. He has come under my care within the last six weeks. Cammidge's test is positive. The enlarged head of the pancreas can be distinctly palpated in the median line an inch and a half above the umbilicus. The patient is too feeble for operative interference, and probably cannot be brought into such condition as to justify it.

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THREE VERY UNUSUAL CASES OF APPENDICITIS.*

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At the repeated suggestions of professional colleagues, and believing the cases sufficiently interesting and instructive to justify their being put on record, I am moved to report three very peculiar cases of appendicitis. These cases were characterized by abnormality of location and strange behavior on the part of that anatomical abortion, that physiological enigma, that ubiquitous pathological pest of humanity—the appendix vermiformis.

Case I.—R. D. L., a healthy looking man of about forty-six years of age, gave an intelligent history of frequently recurring attacks of "partial obstruction of the bowels," as he called it; the fecal accumulation at times, so he stated, causing marked distention and tumefaction, especially on the right side of the abdomen. This condition was relieved only by repeated doses of some saline, pushed until watery evacuations were produced. Indeed the bowels never moved without recourse to salines. Marked dullness over the area of the appendix and ileum was present, with dull pain on deep pressure; but tension of the recti abdominis or tympanites was not appreciable. A diagnosis was made of chronic appendicitis.

In the operation, which was resorted to without delay, I was assisted by Dr. Cary H. Wilkinson of Galveston, and the then house staff of St. Mary's Infirmary. On opening the abdominal cavity a condition of things most difficult to trace out and accurately determine, presented itself. Through an opening, apparently a separation of the tissues in an imperfectly developed iliac mesentery, the unusually long appendix had, snake-like so to speak, crept behind the ileum, from right to left; then passing in front of the intestine, from left to right, its distal extremity was found firmly adherent to the parietal peritoneum in front of the right kidney. The condition of things present was evidently of long standing. The appendix and its mesentery had formed adhesions to everything within reach. These adhesions too were so highly organized that numerous ligatures (sterilized catgut) had to be applied to control hemorrhage. The separation of the adhesions and the disengagement of the coil of appendix from around the ligated and seriously occluded ileum close to its junction with the cecum, without rupture of the gut, proved tedious and difficult. The constriction and the adhesions, between the folds of mucous membrane on the inside and between the folds of serous membrane on the outside of the intestine, caused by the coil of appendix, were broken up and the lumen of the intestine restored with difficulty, and only by persistent external manipulations of the parts; the raw surfaces at the points where the adhesions to adjacent viscera were broken up were covered as well as possible with omentum. There being no pus formation present the abdomen was closed, the layer method being used. Healing by first intention was secured.

During the several weeks after the patient left the hospital and remained under observation, I was kept in continual apprehension on account of obstinate constipation and recurring pain and tenderness in the region of the operation, fearing lest postoperative ileus was developing. Some months later, however, I learned by letter that Mr. L. had made a fairly good recovery. It would, I take it, be difficult indeed even to conjecture what train or coincidence of forces and processes, pathological or otherwise, may have come into play to bring about such an anomalous state of things.

Case II.—In the person of Mrs. J. McY., a large, well nourished woman of fifty-eight years of age, weighing nearly two hundred pounds, by reason of an unusual development of adipose tissue in the abdominal wall, a positive diagnosis was possible only after an exploratory incision. Some jaundice and an enormous distention of the gall bladder being present, obstruction to the outflow of bile by an impacted gallstone was assumed, so I cut down upon the gallduct at once.

In the operation I was assisted by Dr. George H. Lee of Galveston, and the then resident staff of St. Mary's Infirmary. The first thing encountered on

*Read and discussed before the Galveston County Society and the Texas State Medical Association.

opening the abdominal cavity was the appendix. Passing across the ductus communis, to which it was matted down by adhesions, its distal extremity was firmly adherent to the under surface of the left lobe of a large liver, about two inches to the left of the mesial line.

Some ten or twelve ounces of normal bile having been removed from the gall-bladder by aspiration, careful palpation revealed the absence of calculus in duct or bladder, the obstruction of the duct being due entirely to the pressure of the matted down appendix. The adhesion of the appendix where it crossed the gallduct, and that to the under surface of the left lobe of the liver were carefully separated, and the abdominal incision extended downwards sufficiently to reach and deal with the appendix dix at its junction with the cecum. The appendix in this patient was estimated to measure ten to eleven inches; was unusually large, and from the point of adhesion to the gallduct to its union with the cecum, was perfectly normal and unusually large and patulous. The extensive abdominal incision was closed with chromicised catgut, continuous sutures, the layer method being used, and silkworm gut for closing the integumental incision. Convalescence was speedy and uneventful.

Now the question arises, how came the appendix to become adherent to the under surface of the left hepatic lobe? Probably the most plausible explanation is this: at that certain period of intrauterine development of the fetal alimentary canal, the intestines, so embryologists teach, shift over from the left to the right side in the abdominal cavity, and it must have been when this change of position was in progress that the adhensions between the appendix and liver occurred.

Case III.—In a married woman, D. N., of twenty-two years, a cystic ovary and large pus tube on the right side were diagnosed. A most striking symptom in this woman's case had existed for many months. While the first part of urination was free from pain, the latter part of the act was attended with most agonizing, sharp, lancinating, dragging pain on the right side, extending from above downwards and inwards and subsiding only when the involuntary tenesmic contractions of the bladder and bearing down ceased.

Assisted by Dr. Joseph Jones, of Galveston, and the other members of the then house staff of St. Mary's Infirmary, I made a free incision in the median line. The first thing encountered and anterior to everything else was the appendix; the distal extremity firmly adherent and matted down to the fundus of the urinary bladder, well to the front. The peculiar symptom alluded to was now unmistakably accounted for. The appendix was carefully separated from the bladder and abscised in the usual way. The very large pus tube and cystic ovary, the size of a large orange, on the right side were tied off and removed without escape of any of the contained pus. Now, a large encysted hematocele came into view and was dissected out; behind this, in Douglas' cul-de-sac, a collection of several ounces of bad-smelling pus was evacuated, the abscess mopped out with peroxide of hydrogen, etc., and free drainage through the vagina secured; the abdominal wound was packed with 5 per cent iodoform gauze and treated by the open method. The patient made an uneventful and complete recovery. Three-fourths of the left ovary was cut away on account of numerous small cysts; and nevertheless this woman menstruated normally and for many months while remaining under my observation following the operation.

An overdistended bladder pushed upwards, and pressed by a gravid uterus into contact with a displaced appendix, would account for the adhesions between the two viscera. The woman had been pregnant three years previously.

CLINICAL OBSERVATIONS ON MALARIA ON THE ISTHMUS OF PANAMA.

(PRELIMINARY NOTE.)

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Three and possibly four distinct types of malarial parasites are found on the Isthmus, although the quartan type is not endemic there. These types differ microscopically, in the development or not of crescents, in their life history, in their perniciousness, and in the course of the fever which they cause. One type apparently migrates into and out of the red blood corpuscles without causing their destruction. Most of the malaria is visceral in character and yields readily to the administration of quinine by mouth. Sometimes, however, the organism seems to localize, or, at any rate, to cause localization symptoms, particularly in the cerebral tissues. Some of the following cerebral symptoms have been observed: Sighing respiration, neuralgias (recurring and localizing), vertigo, mania, aphasia, hemiplegia, coma, etc. In some of the cerebral cases very few constitutional symptoms may be present.

The ordinary types usually yield readily to the administration of quinine by mouth in doses of from thirty to forty-five grains daily. In the cerebral types, however, quinine must be administered hypodermically. In these cases we give twenty grains every two hours until a total of sixty or eighty grains has been taken. The preparation is the hydrochlorate of quinine and urea for hypodermic purposes. If the circulation is extremely poor or great anemia is present abscesses will certainly follow, no matter how much care is used in its administration. When such large doses are indicated it is best to give either strychnine or whisky to mitigate the depressing action of the quinine.

The most common and important complication of malaria is the post febrile toxemia which occurs often in comparatively mild cases. During a malarial attack probably forty per cent. of the cases develop a more or less severe albuminuria. Usually this subsides with the fever and the patient enters on a speedy convalescence. Sometimes, however, it proves rapidly fatal, death occurring in from three to eight days. Postmortem, these cases show microscopically diffuse degenerative nephritis, parenchymatous degeneration of all viscera, sometimes ecchymotic hemorrhages into the serous membranes, and occasionally terminal bronchopneumonia. If death does not occur, the acute nephritic condition passes gradually into a form of chronic interstitial nephritis with all its clinical manifestations. The development of this acute toxemia may usually be detected clinically not only by the nephritic symptoms, but also by the presence of a pulse of extremely low tension. The acute nephritis is not accompanied by edema. Anorexia and intense weakness also usually characterize the toxemic conditions, and occasionally a severe enterocolitis is the terminal manifestation. Malarial toxemia seems to be much more common in the colored than in the white patients. Malarial organisms have not been found in the blood when a leucocytosis of fifteen thousand or over has been present.

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PROFESSIONAL INTOLERANCE.

One of the most frequent accusations brought against the medical profession to-day is that it is illiberal, opposed to progress, and intolerant of any doctrine that is not in harmony with the prevailing fashion of medical thought. In view of the revolutionary changes that have taken place in the last thirty years, of the entire recasting, indeed, of medical and surgical practice following upon the discovery of the microbic origin of infectious diseases, such a charge seems ill-founded enough, yet there is truth in it. The profession is often intolerant of novelty, even cruelly so, and men have died of broken hearts in consequence of the ridicule and abuse heaped upon them by their fellows for their advocacy of theories which are now taught as axioms in every medical school in the world. Semmelweiss was killed by the revilings of his colleagues because he dared to make the outrageous assertion that puerperal fever was a filth disease. Oliver Wendell Holmes was held up to the scorn of the profession by the leading obstetricians of the country for advancing the same heretical idea. He did not die under the abuse, for his sense of humor saved him, and he lived to see the general acceptance of the truth he had preached. But he was potentially a victim as much as Semmelweiss to professional conservatism; both were martyrs to the truth because they were before their time. Their professional brethren were not to blame, they acted only as men of strong convictions would inevitably act in opposition to the subversive doctrines of daring innovators.

The mind of the profession must of necessity be conservative and illiberal, and it is well that it is so. However much injustice it may work in individual cases, the science of medicine profits in the end through this opposition to innovations. In the long run truth prevails, but it must prove first that it is truth. At the beginning truth and error look alike, and the natural presumption is that anything which is opposed to the general consensus of medical opinion is erroneous. As Dr. Morris said in a recent letter in these columns, "Most new ideas are batted down, and they belong down." If they are true they may stay down for a time, but not for all time.

Accepted medical opinion has an authority which cannot be overthrown at will by the individual. If this individual believes that the existing opinion is erroneous he can oppose it, but he must be prepared for opposition and must sustain his thesis in the field of debate. He must be prepared, too, for martyrdom. We may apply to medicine what Mrs. Wilfrid Ward, in her interesting novel "Out of Due Time," says of Modernism in its relation to the existing theology. "I don't think," says one of her characters, "only that there would be danger of tyranny . . . if the many always adopted the guidance of the intellectual men of the moment, but I think it is actually in the interests of thought in the long run that they should act as a drag upon progress. . . . I think this difference in pace is in the nature of things, because the men of action have a true instinct that mankind to decide truly must decide slowly, and I believe that those men of thought who are before their time must of necessity suffer, and suffer very much."

Were it not for this natural ballast, this opposition to novelty, inherent in the medical profession as well as in the Church, all would be chaos, there would be no stability and no tradition, and we should be tossed about by every wind of doctrine, the dupes of every silver-tongued charlatan. As it is, all alike are distrusted—the adventurer and the true investigator. If a man with a new idea is given the opportunity to lay this idea before the profession it is all that he can ask. He will have a united profession against him and it may overwhelm him for a time; it will prove his theory and will prove him, and if either rings false it will be cast aside; if both are true one at least will in the end prevail; the man may go down, but the truth which he proclaimed will live and will become an integral part of medical science. If the truth lives, what matters it to science that its discoverer perishes? Science is impersonal and cares naught for individuals.

DECOMPRESSION IN UREMIA.

The clinical phenomena of uremia are usually explained by the supposition that some harmful products of metabolism are retained in the body because of the failing function of the kidneys or that abnormal poisons are formed, either condition leading to the appearance of a toxemia. The fact, however, that mere suppression of urine does not lead to the appearance of any uremic symptoms militates somewhat against the above view and the older hypothesis of Traube, who assumed the cause of uremic phenomena to be edema of the brain, receives a great deal of support from this observation. Edema of the brain, moreover, is a condition that can be fairly successfully combated by such modern therapeutic measures as lumbar puncture or a decompression operation, the results of which have proved to be quite favorable in other intracranial conditions, such as tumor, accompanied by an abnormal accumulation of fluid about and within the brain. Such an operation for the relief of uremic symptoms is described by Drs. Cushing and Bordley in the *American Journal of the Medical Sciences* for October, 1908. Their patient suffered from the usual symptoms of uremia occurring in the course of a chronic nephritis, the existence of increased intracranial pressure being evidenced by the condition of the eyes. A decompression operation performed by Dr. Cushing led to a steady improvement in both the condition of the eye grounds and the general health of the patient, although the renal condition

was of course unaffected by the operation. The patient was improved sufficiently to leave the hospital a few weeks after the operation; she returned, however, two weeks later, this time in a comatose condition which could not be relieved by lumbar puncture or any other measures; the autopsy which followed her death in this attack disclosed the fact that a cerebral hemorrhage had occurred.

Cushing's experience in this case is supported by the results of an operation mentioned by Byrom Bramwell which was performed on a patient in whom cerebral abscess or tumor was suspected; an uninterrupted recovery followed the evacuation of a good deal of fluid from the cranial cavity, although no abscess or tumor was discovered. On the strength of these two cases Dr. Cushing is quite justified in suggesting the propriety of similar operations in uremic patients threatened by blindness and suffering from marked cerebral symptoms that medical treatment has failed to relieve. Aside from this practical issue, the experience recited by Cushing is of interest in that it calls attention once again to the mechanical factors that may be responsible for uremic phenomena; toxic causes for these manifestations have received almost exclusive attention in the recent experimental and clinical studies of chronic nephritis.

INTERNATIONAL ENGLISH.

The members of the Second International Congress of Surgery, which took place in Brussels from September 21 to 25, received in advance abstracts of most of the papers that were to be read before the Congress. These résumés were printed in English, French, and German. The idea of thus acquainting the participants of the Congress with the subject-matter of the deliberations was certainly a good one. The reading of the paper beforehand detracts but little from the pleasure of hearing it delivered by the author, who is an authority in the special question discussed, if the author possesses the necessary attributes of a public speaker, that is, a good voice, a clear enunciation, and a moderately rapid delivery. Moreover, many members are but superficially acquainted with one or the other tongue that has the right of citizenship at the Congress and the previous reading of an abstract of the paper will help them very much in following the discussions. But however good may be this idea, its success depends very much upon the care with which it has been put into practice, and it is in the short résumés that accompany each paper and that were supposed to acquaint the members with the topics for discussion that we see the shortcomings of the plan. No provision was made to insure competent translation of the theses from the original tongue into the two remaining languages used at the Congress, and the result ranged from slight, sometimes amusing, mistakes to expressions that could not be recognized as at all belonging to the language in which they were supposed to be written.

Thus a Parisian surgeon read a paper on the Treatment of Cancer of the Female Generative Organs. The following are some of the expressions from the English abstract of his paper: "Cancer of the laver third part of vaginum want to be treated in the same way as cancer of the vulva. . . . Hunting for remoted ganglia has more inconvenience as advantages. . . . I have nothing to say on the treatment of cancer in external genitalia, uterus and dependances on which we all agree." The following are from a paper on General Anesthesia: "The association of morphine with chloroform or ether diminishes the dangers of impregnating the organism." Another surgeon is made to speak thus of the Bassini operation for the cure of inguinal hernia: "This last is exposed in details with indications of the chief modifications following the various forms of hernia, especially the abolition of the inguinal course, the ebbing of the twist, its transposition in the diverse plans of the wall, the plastic processes for special cases, etc." Still another surgeon is libeled when it is asserted that he says, in treating of Cancer of the Urinary Organs: ". . . When the tumor is located in the kidney, testicle, or verge, and especially in these two last organs, cancer is not so grave and surgery counts a great number of cures." An authority on gallstones is made to say: "Patients suffering from severe and continuous colics should be operated upon when they are entraved in their career or when the pain empoisones their life."

It is clear that the writers of these abstracts had to depend upon the dictionary meanings of single words in translating into English and the results are anything but edifying. "It is to laugh," indeed, yet it is also painful and rather disappointing to those optimistic souls who think English is becoming an international tongue. Rather than this the dead and gone Volapük, or even Ido or some other of the several forms into which Esperanto now threatens to disintegrate.

Icterus Gravis of the Newborn.

Slight jaundice is such a common event in the newborn that it attracts but little attention from the parents and usually requires no treatment; the whole interest of this condition to the physician lies in its obscure pathology which has not been cleared up even by the most recent studies of the diseases of the newborn. Intense jaundice is a rare condition usually accompanying general infection of the infant's organism and the hemolysis produced by such infection goes far to explain the appearance of pigment in the skin and the mucous surfaces. Writing in the *Münchener medizinische Wochenschrift* for October 27, 1908, Pfannenstiel discusses still another form of icterus of the newborn, apparently so rare that he can name but five authors who have published similar cases. The interest of the disease observed by him lies in the fact that it is habitual in character attacking in succession several childen in one family. Thus Beneke has observed three such cases in a family of five children, all three ending fatally; Bushfield has reported nine instances of the condition in another family, six children dying of the disease; Pfannenstiel himself reports three successive labors followed by grave icterus of the newborn that proved more or less rapidly fatal in all three cases. Two autopsies that were performed in these cases showed a tendency to exudation in the large serous cavities, punctate hemorrhages in the internal organs, increase in the size of the spleen and of the liver, and, of course, generalized icteric discoloration of the skin and internal organs, as well as of portions of the brain. All the children attacked in this way were born of

healthy parents and appeared quite normal in the first few days of their life; no infection could be discovered, syphilis being especially carefully excluded. Pfannenstiel thinks that this form of jaundice in the newborn has nothing to do with the well known icterus accompanying Buhl's disease, characterized by parenchymatous changes in the large glandular organs ending with fatty degeneration, nor with Winckel's disease with the marked cyanosis, hemoglobinemia, and multiple hemorrhages of that condition. Both these affections are probably of infectious nature as evidenced by their great rarity since the introduction of aseptic technique in midwifery; such infection could not be supposed to have taken place in the cases described by Pfannenstiel and by the authors quoted in his paper. The author concludes that habitual icterus gravis is nothing but an intense form of the usual jaundice of the newborn; its pathogenesis, of course, cannot be explained at present because the nature of the usual form of jaundice is so little understood. It is quite probable, however, that fatal icterus of the form described by Pfannenstiel is of much more frequent occurrence in the newborn that the literature of the subject would lead one to believe. As such cases are quite frequently followed by autopsies it would pay to publish complete clinical and pathological findings so that not only this form of jaundice may become better known but light may be thrown upon the peculiar tendency of the newborn to icteric discoloration.

The Functions of the Placenta.

Formerly looked upon as merely a filtering organ for the foodstuffs that reach the fetus from the maternal blood, the placenta has gradually proved to be a much more important and active organ in the metabolism of both the mother and the fetus. So far as the mother is concerned there is a growing disposition to look for the causes of many diseases of pregnancy in the disturbed function of the placenta; the source of the toxins responsible for eclampsia, for instance, is almost certainly placed in the placenta by the most recent investigations of this condition. On the other hand the importance of the rôle played by this organ in the metabolism of the fetus is shown by almost every recent discovery in the subject. In a review of such findings in the *Münchener medizinische Wochenschrift* for October 27, 1908, Bergell and Falk mention the work of Zweifel, who had demonstrated the passage of oxygen through the organ; of Bunge, who proved the importance of the placenta for the resorption of iron; of Bergell, Liepmann, Ascoli, and numerous others who showed the presence of various ferments in the extracts of the organ. The mere presence of ferments in such extracts, however, could be interpreted to show that the placenta acts as a gland furnishing digestive secretions, and not as an active organ of metabolism. Bergell and Falk have, therefore, attempted to clear this point by trying to wash out the ferments from placental tissue and have discovered that this is impossible, if the cells of the organ have not been damaged in the procedure. The conclusion seems, therefore, to be warranted that the placental ferments are intracellular, that is, that the placenta acts not merely as the source of ferments for the metabolism of the fetus but actively metabolizes within its substances the food material intended for the fetus. The amount of ferment, too, proved to be quite considerable; enough proteolytic ferment remained after the washing out process to digest at least 0.75 gm. of tyrosin which would be equivalent to the digestion of 15 gm. of a substance like casein. The authors, accordingly, compare the work of the placenta not with such digestive organs as the pancreas or the stomach but with a great organ of metabolism like the liver. They see still closer analogy between the functions of the placenta during the intrauterine life of the fetus and the functions of the mammary glands after the birth of the child; the latter do not merely transmit the food material obtained from the blood, but metabolize it so that it becomes both in form and in composition most suitable to the needs of the young animal.

Marmorek's Serum.

The extensive literature called forth by every new remedy in the treatment of tuberculosis makes it extremely difficult for the busy practitioner to estimate its average success in the hands of the numerous observers. The profession is, accordingly, under great obligation to such workers as summarize the results obtained in a general review of the subject, a service which has been performed with reference to Marmorek's serum by Dr. Frey of Davos (*Zeitschrift für Tuberculose*, Volume XIII, No. 2). The seventy papers that have appeared in the five years since the introduction of the remedy detail the results obtained in the treatment of 938 tuberculous patients; of these, cure or improvement is reported in 67 per cent., while 33 per cent. of the patients either died or remained unimproved. Surgical tuberculosis shows slightly more favorable results than the disease involving the lungs or the larynx, while the best figures are given for tuberculosis of the eyes. Complete findings of the authors quoted in regard to the best methods of using the serum, the indications and contraindications for its employment, and the phenomena following the injections are given by Frey so that anyone using the remedy may get all possible information from his valuable paper. In his opinion the results justify the modest claims put forth by Marmorek at the time of the introduction of the remedy; certainly, no such vociferous claims were heard at the time as have attended the discovery of some other quasi-specific remedies for tuberculosis. The figures detailed by Frey should encourage further use of Marmorek's serum in suitable cases of tuberculosis.

News of the Week.

The New York State Board of Medical Examiners.—Dr. William Warren Potter of Buffalo has been elected president of the State Board of Medical Examiners and Dr. William S. Searle of Brooklyn, vice-president. The board at its meeting on November 16 placed itself on record in favor of the six year combined baccalaureate and medical course. Arrangements were made for the preparation of a medical syllabus in keeping with the suggestions of prominent medical educators, and the committee of which Dr. Lee H. Smith of Buffalo is chairman was continued in power. The assignments to the various subheads of medicine were voted as follows: Physiology, Dr. R. H. Williams of Rochester; Anatomy, Dr. William S. Ely of Rochester; Hygiene and Sanitation, Dr. Eugene Beach of Gloversville; Chemistry, Dr. F. S. Farnsworth of Plattsburg; Surgery, Dr. F. S. Crandall of New York; Obstetrics and Gynecology, Dr. W. W. Potter of Buffalo; Bacteriology, Dr. Adriance of Elmira; Pathology, Dr. Lee H. Smith of Buffalo;

Diagnosis, Dr. William S. Searle of Brooklyn. The following were elected members of the question committee: Drs. Smith, Potter, Adriance, and Williams.

Third Harvey Society Lecture.—Prof. Graham Lusk of the University and Bellevue Medical College will deliver the third lecture of the present Harvey Society course on Saturday, November 21, at 8.30 P.M., at the New York Academy of Medicine, 17 West Forty-third street. Dr. Lusk will take for his subject Metabolism in Diabetes.

The New York Pathological Society.—At the regular meeting of the society, held on November 11, Dr. F. C. Wood presented specimens from a case of adenomyoma of the round ligament; Dr. H. L. Celler described a case of gastrointestinal pseudoleukemia; and Dr. W. T. Longcope of Philadelphia, the guest of the society, gave the results of a study of cases of Hodgkin's disease and lymphosarcoma which he had begun at the Pennsylvania Hospital some time before, and was now carrying on with material sent to him by various other physicians. The paper was illustrated with lantern slides. Later the paper was discussed by Dr. F. C. Wood, Dr. James Ewing, Dr. Richard M. Pearce, and Dr. E. Libman.

Death Rate in New York.—The weekly percentage of deaths in New York continues to be less than that of last year. For the week ending November 7, there were 1,140 deaths, a percentage of 13.45. For the same week of 1907, there were 1,248 deaths, a percentage of 15.19.

Colony for Epileptics in Illinois.—At the meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, held November 10 and 11, at Indianapolis, a memorial was drawn up to be presented to the representatives of the people of Illinois, petitioning the forty-sixth General Assembly to complete the good work planned by the forty-first General Assembly by appropriating sufficient funds to build, equip and maintain, until the next Legislature, a State Colony for Epileptics. The memorial was presented to the convention by Dr. Everett Flood of Massachusetts, and was unanimously adopted.

Foot-and-Mouth Disease in Pennsylvania.—An outbreak of foot-and-mouth disease has occurred among the cattle of Montour and Northumberland Counties, Pa., and the situation is so grave as to have resulted in conferences between the State Live-Stock Board and the U. S. Department of Agriculture. A number of farms have been placed under quarantine. It is believed that the disease was brought from South America. It is feared that it will spread, in spite of careful quarantine, to cattle on other farms and to human beings. Symptoms of the disease have already been observed in a number of children in one city. It is thought that pigeons flying from one farm to another carry the disease, and that human beings may be infected through the milk of suffering animals. It is hoped that the epidemic will be checked by destruction of all infected animals and disinfection of the premises occupied by them. The State and the Federal Government have joined in the expense of this undertaking.

Pure Food Law and Advertising.—Dr. Harvey Wiley, chief of the Bureau of Chemistry of the Department of Agriculture, spoke before the Sphinx Club, an association of advertising men, at a dinner on November 10, and assured them that if they published misleading statements about foods and drugs, even though the advertised article was labelled according to the law, they would sooner or later be prosecuted under the provisions of the pure food and drug law. The Court of Appeals of the District of Columbia has already decided that no trademark can demand protection if the owner of the trademark has sent out false information regarding the nature of his product. "How long do you suppose 'brain foods' will continue to be sold under that title?" Dr. Wiley asked. "You can't get a brain food that nourishes the brain any more than it does the big toe and just at the same time that it nourishes the big toe. Those 'brain foods' are going, and there will soon be no more of them."

New Surgeon-General.—Col. George H. Torney, now in charge of the hospital at the Presidio of San Francisco, was on November 13 appointed Surgeon-General of the Army, to succeed Surgeon-General Robert M. O'Reilly who will retire on January 14. Col. Torney is a native of Maryland, and is tenth on the list of colonels of the medical department. He was born in 1850, and was graduated from the University of Virginia in 1870. He entered the army as an assistant surgeon in 1875.

Dr. Thomas F. McParlan of New York has received from Pope Pius X the title of Knight of St. Gregory, in recognition of his services as visiting physician to St. Francis' Hospital and other institutions conducted by Sisters of the Roman Catholic Church. Dr. T. A. Emmet is the only other physician in New York who has been so honored. The title of Knight of St. Gregory entitles the holder to a place in the Pope's household.

Dr. John Gordon Wilson has been made professor of otology and head of the department in the Northwestern University Medical School, Chicago, having resigned as assistant professor of anatomy in the University of Chicago, which position he formerly held.

Dr. Smith Ely Jelliffe, formerly editor of the *Medical News* and later coeditor of the *New York Medical Journal*, has retired from the latter position, Dr. Frank P. Foster remaining, as before, editor-in-chief.

The Emmanuel Movement.—In response to invitations from New York clergymen, Dr. Worcester and Dr. McComb of Boston have arranged to give two courses of lectures in New York on the Emmanuel movement, one in the evening at Mendelssohn Hall, beginning November 19, and the other in the mornings at St. George's Church, beginning November 20. Dr. Isador H. Coriat will assist in the course and will lecture on Subconsciousness as a Normal and as an Abnormal Phenomenon, and on the Psychological Mechanism of Psychotherapeutics. The subjects of the other lectures range from a description of the movement to Methods of Psychotherapy, Functional Disorders of the Nervous System, Alcoholism, Its Causes and Its Cure, and Habit and Sleep.

Model Tenements.—It is announced that the enterprise of building and maintaining model tenements is shortly to be extended into Brooklyn. Mr. Henry Phipps, who has made this one of his many practical philanthropies, has purchased an entire block in that city, and improvement of the greater part will be begun at once. Two groups of Phipps model tenements have already been built in New York, one in East Thirty-first street, and the other in what is known as the San Juan Hill district, at Sixty-second street and Amsterdam avenue.

St. Agnes Hospital, Philadelphia.—Dr. E. Franklin Stahl, for many years one of the visiting physicians, has been appointed Medical Director of St. Agnes Hospital. Recently the entire staff of resident physicians was dismissed for insubordination.

Wills Eye Hospital, Philadelphia, is to be enlarged by the extension forward 20 feet of the main or clinic building.

New Tuberculosis Hospital.—The Thomas Hospital at Minneapolis, Minn., the first in the Northwest for the exclusive use of patients with tuberculosis, was dedicated on November 1. The hospital was built as a memorial at a cost of about $60,000.

The Home for the Aged, conducted by the Little Sisters of the Poor in the Bronx, New York, was dedicated, on November 14, by Archbishop Farley. The building will accommodate about 150, and is a fireproof structure.

Boston City Hospital.—Dr. George H. M. Rowe, for nearly thirty years superintendent of the Boston City Hospital, has been compelled to resign his office because of ill health. Dr. John H. McCollum, who has served as acting superintendent during Dr. Rowe's leave of absence, has been promoted to the vacancy. Dr. Rowe was graduated from the Harvard Medical School in 1869, and has spent the greater part of his professional life in the service of the city of Boston, having been assistant superintendent of the Boston Insane Hospital for some years before his appointment to the City Hospital. His successor, Dr. McCollum, is also a Harvard graduate of the same year. For a number of years he was physician to the Boston Board of Health, and in 1895 was appointed by the trustees of the City Hospital superintendent of the wards of the contagious department.

Hospital for the Ruptured and Crippled.—The annual report of the Board of Managers of the New York Society for the Relief of the Ruptured and Crippled shows that 40,272 patients had been treated at the hospital, at a total expense of $111,492.93. There was a considerable increase in the number of cases of infantile paralysis treated, the total for the year being 1,036. As a result there was a heavy drain on the brace shop and sewing room where appliances for the crippled are made, and the cost of running the out-patient department was larger than usual. The educational feature of the hospital is regarded as very important for the children. During the year a class in sewing and embroidery was added, and a class in gardening was conducted at the country home in Tarrytown. A deficit for the year of $29,711 is reported.

New Tuberculosis Dispensary.—The Montreal League for the Prevention and Treatment of Tuberculosis has been presented with a building which is situated in the center of the city to be used as a dispensary. The donor has also given the sum of $10,000 to the League as an endowment, on condition that a like sum is raised by it.

Charitable Gifts.—The North Adams (Mass.) Hospital receives, under the wills of the late Mr. and Mrs. Martin C. Jewett of that city, the income of a fund of $1,000 to be used in support of a children's ward, and several parcels of real estate together with some money to be used in the general work of the hospital.

Tuberculosis Exhibition.—The date of the opening of the tuberculosis exhibition at the American Museum of Natural History, New York, has been changed from November 20 to November 30. This has been done in order that the show may be more thoroughly advertized among all classes than was possible by the date first set. It is expected that Mayor McClellan will speak on the opening night and that Governor Hughes will address a later meeting.

Western Reserve University.—The H. K. Cushing Laboratory of Experimental Medicine at Western Reserve University, Cleveland, is to be dedicated on November 20. Dr. William H. Welch of Johns Hopkins University will deliver the address of the day.

The Tenth Congressional District (Georgia) Medical Society, at its annual meeting on November 5, elected the following officers for the coming year: *President*, Dr. R. L. Miller of Tennille; *Vice-president*, Dr. G. R. Maner of Warrenton. A resolution was passed designating Augusta as the permanent meeting place of the Society.

The Western District (Illinois) Medical Society met in Jacksonville on October 31. The following officers were elected for the ensuing year: *President*, Dr. J. W. Adams, Carrollton; *Vice-Presidents*, Dr. Rice, Quincy; Dr. David W. Reid, Jacksonville; *Secretary-Treasurer*, Dr. W. P. Duncan, Jacksonville; *Censors*, Drs. Christie and Nickerson, Quincy, and Dr. F. P. Norbury, Jacksonville.

In Memory of Dr. Carroll.—The late Dr. James Carroll was honored, on November 11, when a bronze tablet to his memory was unveiled in the main building of the University of Maryland. The address was delivered by Dr. William H. Welch of Johns Hopkins University.

Obituary Notes.—Dr. Davies Coxe of New York died in Dresden on November 7, aged 46 years. He had been in ill health for some time, but the immediate cause of death was an acute attack of pleurisy. Dr. Coxe was graduated from the University of Virginia in 1884, and later studied at the College of Physicians in New York. He served as interne at the Woman's Hospital in this city, and afterward practised here for fifteen years, making a specialty of gynecology.

Dr. Azel Ames of Wakefield, Mass., died November 14, at Danvers. He was born in Chelsea in 1845 and was graduated from the Harvard Medical School in the class of 1871. He was a noted sanitary engineer, and served with distinction in the Spanish-American war, and later in the Philippines. He was director of vaccination in Porto Rico in 1899 and United States Commissioner for the Department of Labor in the same island in the following year. He was sent from Porto Rico to Washington as Commissioner from the island in 1901.

Dr. Daniel Wixans Smith, for over fifty years a practitioner of Newark, N. J., died at his home in that city on November 10, after an illness of several months. Dr. Smith was born in 1833, and was graduated from the medical department of the University of New York in 1856. He was a member of the American Medical Association, the Essex County Medical Association, and the New Jersey State Medical Society.

Dr. Philip H. Sellew of Westfield, Conn., died at his home after a short illness, on November 7, aged 46 years. Dr. Sellew was a graduate of the Jefferson Medical College of Philadelphia in 1890. He had practised in Connecticut up to last spring, and was a member of the Connecticut State Medical Society and the Litchfield County Medical Society.

Dr. Henry Augustus Weymouth of Andover, N. H., probably the oldest practising physician in

that State, died at his home, on October 22, after a short illness. Dr. Weymouth was born in 1820, and was graduated from the Vermont Medical College, Woodstock, in 1843. He had practised in Andover continuously since his graduation.

Dr. John F. Burns of San José, Cal., died at his home on October 26, after a long illness, aged 50 years. He was graduated from Cooper Medical College, San Francisco, in 1883, and for several years was president of the Medical Society of Fresno County. He was also a member of the Medical Society of Santa Clara County, and was recently appointed Health Officer of San José.

Dr. William M. Strickler of Colorado Springs, Col., died at his brother's home in Denver on October 26, from the effects of an accidental overdose of morphine. Dr. Strickler was born in 1838, and was graduated from the Medical College of Virginia, Richmond, in 1869. Shortly after graduation he settled in Colorado Springs, where he served three terms as Mayor, and for two years as chairman of the finance committee of the city council. He was at one time president of the Colorado State Medical Society.

Dr. Alonzo Pettit of Elizabeth, N. J., died after a short illness, on November 14, aged 66 years. Dr. Pettit was graduated from the Buffalo Medical College in 1867, and had since practised in Elizabeth. He was one of the organizers of the Elizabeth General Hospital and a member of the visiting staff. He belonged to the American Medical Association and the New Jersey State Medical Society.

Dr. David K. Bechtel of Kulpsville, Pa., died at Philadelphia, on November 12, at the age of 63 years, as the result of burns accidentally received. He was graduated from the medical department of Howard University in the class of 1879.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

BRITISH PHARMACOPŒIA—HARVEIAN SOCIETY—SECRETION OF URINE IN THE FETUS—HEREDITY AND PIEBALDS—NOTIFICATION IN IRELAND—THE PLEBISCITE OF THE ROYAL COLLEGE OF SURGEONS.

London, October 30, 1908.

The scope and object of the British Pharmacopœia was the subject of a paper in the Therapeutical Section, R. M. S., by Dr. Nestor Tirard, who pointed out that some criticisms were beside the mark, as they paid no regard to the limitations imposed by the Act of 1858, although these had been to some degree extended by the changes in medical practice. In 1898 modifications were made which were on the whole approved, and since then the addenda has been of service in India and the Colonies on account, chiefly, of climatic conditions. Dr. Tirard said further changes were necessary to promote uniformity between different countries and made reference to the international agreement entered into with this object. Already great progress had been made on points involving long researches. The pharmaceutical societies of Great Britain and of Ireland had been invited to confer with the committee of the General Council on the matter, and researches had been made by experts. Questions of additions, omissions, and standardization were referred to. The difficulties relating to the introduction of sera might involve State laboratories, which could give an official guarantee. Dr. Tirard hoped the new edition, when it appeared, would show that much had been done in spite of the impossibility of acting on all suggestions.

Dr. C. O. Hawthorne remarked that it was not for the Pharmacopœia to recommend particular drugs or combinations. Its sole duty was to determine standards of purity. That a drug was in use was its title to admission. Nor should the work be regarded as a text-book. It was as unnecessary as impossible for a student to commit its contents to memory.

Mr. H. W. Gadd referred to difficulties that had lately occurred in the law courts. It had been held that certain drugs were to be dispensed in pharmacopœial strength.

The Harveian Society on the 15th inst. resolved to admit to the membership those on the Dental Register holding a British dental diploma. A number of clinical cases were then shown—one by the president, Mr. D'Arcy Power, of recovery after a ruptured spleen caused by injury had been removed. Dr. Willcox showed a case of hemophilia in a man of 26 who had been under treatment for five years. Unless calcium and magnesium salts were administered from time to time, the coagulability of the blood fell below normal and bleeding came on. He also showed a case of hemoptysis in a boy whose brother had hemophilia, but this was considered to be tuberculous, of which there were some indications. A third case by Dr. Willcox was of adherent pericardium with double mitral disease. The patient had, a fortnight before being shown, a sudden attack of right hemiplegia with euphasia, but no unconsciousness. It was thought the symptoms were due to cerebral embolism.

As to the secretion of urine in the fetus, there was some discussion in the obstetrical section apropos of a case of malformation of the urethra causing dystocia, brought forward by Dr. J. Evan Spicer, illustrated by drawings and photos. This fetus had enormous dilatation and hypertrophy of the bladder with imperforate urethra. After summarizing the dissection and some remarks on other cases recorded, Dr. Spicer said the atresia does not affect the growth *in utero* nor render the life of the new-born infant impossible. It is dangerous only when there is large secretion by the fetal kidney, and that he held to be pathological. The kidney was not an excretory organ *in utero* unless a breakdown occurred in the mechanism by which the urethra discharges its functions through the circulation as provided for by the placenta. There might be some interruption during labor or just before, so that children are often born with some urine in the bladder. But in normal conditions the kidney remained inactive, as do other major organs, during fetal life.

The president, Dr. Herbert Spencer, was not inclined, without further consideration, to give up the older view that the fetus normally excreted urine into the liquor amnii. He had seen some half dozen cases of stillborn children with stenosis of the urethra, the urine causing distention above the obstruction and in one dystocia. When the kidneys were absent the liquor amnii was scanty. Other secretions did not all remain in abeyance. He had seen the uterus greatly distended when the outflow of mucus was obstructed.

Mr. Alban Doran referred to a recently reported case in which both kidneys were absent, the bladder empty, and very little liquor amnii. The suprarenals were hypertrophied. It was thought to support the theory that the liquor amnii was chiefly supplied by the fetus, but probably the evidence of a single case would not satisfy Dr. Spencer or other obstetricians.

Dr. W. S. A. Griffith said imperforate urethra was not necessarily followed by distention of the bladder, and he agreed with Dr. Spicer that interference with the secretion through the placenta was the cause of renal activity before birth. That the fetus could empty its bladder into the closed amniotic sac had never been proved and was very unlikely, although where great hypertrophy of the bladder existed it might be possible.

Mr. Bishop Harman related at the Ophthalmological Society a striking story of heredity—six generations of "piebalds." Seven members of the family were shown. The features were a white forelock, a white patch of skin spreading from this down the center of the forehead, and in some cases patches of white skin on the trunk and legs. The white forelocks were exactly in the median line. The ordinary hair was brown, ranging from light to very deep shades. The connections of the family had been ascertained for six generations and four are living. They comprise thirty-four childships and 138 individuals. Of the former nine showed the inheritance in direct descent. The anomaly, it was suggested, was of the nature of partial albinoism.

Compulsory notification of tuberculosis in Ireland is not passing through the House of Commons so easily as its advocates expected. On Wednesday, in the standing committee, Lord Balcarres agreed that the notification should be within seven days instead of forthwith, as first proposed in the bill. Sir William Collins urged the necessity of caution in applying a new law to a whole country and suggested that notification should only be required in cases likely to infect other people and not in mere trifling cases. This

being accepted by the Government, Lord Balcarres protested that no case could be trifling and that Sir W. Collins's amendment had knocked the scientific bottom out of the bill. Mr. Mooney quoted reports of the Registrar General to show that consumption is on the decrease in Ireland but on the increase in Scotland. Mr. Russell expressed surprise at such a statement and declared the facts were all the other way. A proposal that when a man is registered as tuberculous his family may have parish relief without any disqualification of his citizenship thereby was ruled out of order.

The ways of corporations are strange. When the Council of the College of Surgeons determined to take a plebiscite as to the admission of women, some optimistic reformers were jubilant. My advice, as the result of long experience of this body, was to wait. The plebiscite was taken, the vote was against the proposal by a large majority. The Council thereupon, as I have already told you, has resolved to admit women. Now people want to know what was the object of the plebiscite.

Yesterday a party of French medical men (of the Études Medicales Internationales) staying in London visited the Royal College of Surgeons and were shown over the several departments. A pamphlet giving them an account of the museum in their own language was presented to them. No one explained to them the recent plebiscite and it is currently reported that no one can state the motive of the Council in taking it.

TWENTY-FIRST FRENCH CONGRESS OF SURGERY.

(From Our Paris Correspondent.)

PARIS, October 15, 1908.

THE first session of the twenty-first French Congress of Surgery was held on October 1 under the presidency of Professor Forgue of Montpellier, who chose for his opening address "The Responsibility of the Surgeon." Professor Forgue believes that in view of the unjust attacks that have been made upon surgeons it is necessary to maintain professional dignity and to defend the honor of our profession against motiveless accusations. It is certain that in spite of all the guarantees of asepsis, all the safety of technique, all post-operative attention and care, there are still, from time to time, disasters which cannot be prevented or foreseen; the responsibility of the surgeon should, then, be limited. The fine discourse of the president, which was greeted with applause, was terminated by the exhortation not to mistake the duties and cares of the surgeon; he believed that the surgeon should know how to measure the value of his services, and his social importance, and that he should not pretend to assume more than his just and necessary responsibilities. The president then paid a tribute to the members of the French Association of Surgery who have passed away during the year—Hoffa of Berlin, Reboul of Nimes, Harrison of London, Filet of Lille, Auguste Reverdin of Geneva, and finally Ferrier of Paris, in whom French surgery lost one of the greatest minds and one of the most precise technicians by whom she had been honored. The president then declared open the twenty-first session of the French Association of Surgery.

The first question of the day was "The Surgery of the Ductus Choledochus and the Hepatic Duct." The two members who presented papers on this subject were Delagènière of Mans and Gosset of Paris. Delagènière considered all the normal surgery of the ductus choledochus and hepatic duct from the hilum of the liver to the duodenum; after having recalled the methods of access to the biliary ducts, the author considered operative technique, and spoke of the different operations for wound and rupture of the choledochus and the hepatic ducts, choledochotomy, hepaticotomy, and the supplementary maneuvers of these two operations (cholecystotomy, drainage of the biliary passages in the wound, peritonization, and epiploplasty of the subhepatic region); finally he described the consecutive care and the post-operative accidents. Delagènière has done twenty-one operations for calculus of the principal biliary passages, with twenty-one cures and six deaths; these deaths were in subjects attacked by angiocholitis. Of the twenty-one cured cases Delagènière has never observed the expulsion of forgotten calculi after the operation, nor later biliary fistulæ; he attributes this fact to the employment of his method of section of the biliary passages in severe cases, which are precisely those which are most exposed to the leaving of a calculus in the deformed canals.

Gosset of Paris divided his subject into four chapters, thus: (1) Operations for calculus of the duodenal portion of the choledochus. (2) Operations on the hepatic canal and the ductus choledochus for congenital or acquired strictures. (3) Operations on the hepatic duct and the ductus choledochus for tumors. (4) Immediate and remote results of operations on the principal biliary passages in cases of biliary lithiasis. In the first chapter Gosset said that the idea of infection of the biliary passages should hold a first position to-day in the treatment of lithiasis. The surgeon should propose for himself a double object; to remove the calculi and to combat the infection by appropriate drainage; thus has grown up hepatic drainage. He believes that every choledochotomy should terminate by hepatic drainage; in this case it is better not to suture the hepatic duct, but to place in contact with it a drain and then tampon the wound. The most frequent causes of death after operations on the ductus choledochus and the hepatic duct are these: Hemorrhage, generally due to a defective ligature of the cystic artery; infection; the persistence of infectious accidents, and cardiac and pulmonary complications. As post-operative complications are to be noted intestinal fistulæ, biliary fistulæ, and eventrations. As remote results it is interesting to know that there may be recurrences of lithiasis and calculi of new formation; by analyzing with care the results of the operation we may arrive at the knowledge that there are two operations after which there are found the most recurrences; these are cholecystostomy and choledochotomy with suture. After choledochotomy there are probably forgotten calculi that could not be evacuated secondarily; the conclusion to be drawn is that, whenever the circumstances permit, it is better to do cholecystectomy with drainage of the principal biliary passages.

After the reading of these papers interesting discussions arose, among which should be noticed that of Fontan of Toulon, who contends that we must preserve the gall-bladder when it is healthy, but must remove it at once when we are obliged to open it.

The second question in the order of the day was "The Surgical Treatment of Osseous Cavities of Pathological Origin." The authors on this question were Auguste Broca of Paris and Nove-Jusseraud of Lyons.

Broca in his paper remarked that he wished to study only osseous cavities of pathological origin, eliminating all the lesions of natural cavities in the osseous wall, that is to say sinuses of the surface of the bones. First he considered the physiological process of repair, then the surgical operations employed to cause pathological osseous cavities to disappear. He distinguished three great methods: (1) Suppression of one of the walls and direct cicatrization of the osseous surface preserved, which may be obtained either by tamponment or by cutaneous flaps. (2) The mobilization of one ossifiable osseous wall, which may be obtained in two different ways—by direct osteoplasty, applying against the bleeding osseous surface a flap of bony substance, or by indirect osteoplasty, applying a flap susceptible of ossification on its lower surface. (3) The filling of the cavity with a substance of foreign nature, either living or inert. For this obturation different substances are used, which may be classified in the following way: (a) fragments of living bone, which act as grafts, that is to say which we attempt to cause to live in their place; (b) inert, but absorbable substances, exciting by their presence the power to ossify in the ossifying tissue around them, and serving at the same time as a temporary support to the tissues, first the connective tissue, later the osseous tissue, which infiltrates them little by little by substitution and penetrates their pores. These foreign bodies are fragments of sponge, decalcified bone, plaster, naphthaline, gelatin, paraffin, mastic, etc. (c) Inert substances not absorbable obturate the cavity as a filling obturates the cavity of dental caries, and are destined to become encysted. Here, by its irritating action, the foreign body has the effect of increasing the activity of osteogenesis. Among these substances are amalgams of copper and lead, gutta percha, mastic, metallic alloys, etc. But foreign bodies have not been well tolerated except when they were aseptic; a foreign substance is eliminated if suppuration takes place; for this reason the last-named method is exceptionally employed.

Nove-Jusseraud divided the question into three parts—osteomyelitic cavities, tuberculous cavities, and neoplastic cavities. (1) Osteomyelitic cavities. Under this

name he classifies all the losses of substance having for their cause an acute infection of the bone; they are almost always the result of some operative interference. As the lesion has a natural tendency to repair, it is necessary above all to protect this process from interference. We must practise disinfection of the bone, and then occupy ourselves with the obliteration of the cavity, whether by the osteoplastic method or by filling it with a substance having the object of obturation of the osseous cavity by a foreign body, or finally, by cutaneous osteoplasty, which endeavors to cover up the cavity with an epidermic flap. (2) Tuberculous cavities, resulting from tuberculous lesions which do not form after the manner of osteomyelitic lesions; in fact, osseous tuberculosis is essentially destructive in such a way that repair of a tuberculous cavity is slow and difficult; two indications are to be fulfilled here: disinfection of the cavity and obliteration. Tuberculous cavities, by their small dimensions and the relative facility of their disinfection, lend themselves especially to the method of filling. (3) Neoplastic cavities in the great number of cases result from tumors of the bone of malignant nature, and necessitating operation; the history of these cavities is very short. The treatment of surgical cavities of pathological nature has been considerably facilitated of late; we must be satisfied if we are able to render the cure of these osseous cavities more rapid and sure, and thus increase the field of conservative surgery.

The third question in the order of the day was "The Surgical Treatment of Facial Neuralgia." The papers were read by Jaboulay of Lyons and Morestin of Paris.

Jaboulay said that we must first establish the precise diagnosis of the cause of the facial neuralgia, so as to make the treatment appropriate to the causal affection. We should not do the same operation for every case on account of the different maladies that neuralgia produce. The surgical treatment of facial neuralgia is not single, but multiple, and varies with the case; for true alterations of a peripheral neuron direct operations are applicable; *i.e.*, different forms of resection of the fifth pair of nerves for facial neuroses; for cases which are due to lesions of the central neurons operations are to be done that directly modify the nervous centers.

Morestin believes that a careful, precise, and complete examination will enable us to diagnosticate the causes of local neuralgias purely symptomatic, or to recognize pains that result from tabes, syphilis, and hysteria, and to vary our therapeutics in consequence, no intervention directed against the neuralgia being justifiable until it has acquired its autonomy, and cannot be modified by suppression of a local cause, or by medical means. Operations on the peripheral branches should be preceded by exploration by the aid of cocaine at different distances along the course of the nerve, to try to localize the seat of painful excitations. We should not make multiple sections. Extended resections, the tearing away minutely of terminal ramifications, the entire removal of the central portion as far back as possible, reinforce considerably the action of this method and give it a true curative value. Injections of alcohol constitute a palliative treatment, offering such advantages that it will often render unnecessary any other more serious operation. The more or less extended resection of the great cervical sympathetic has proved very efficacious, and constitutes a good resource against facial neuralgia. Operations on the sympathetic may be associated with procedures that involve the trigeminus. The extirpation of the Gasserian ganglion is now easily accomplished and may be done habitually: the gravity of the operation is lessened; its efficiency is certain, and we may say that total ablation corresponds to absolute cure; but the destruction of the large root of the trigeminus and the isolation of the ganglion is an operation of much efficiency, easier, less serious, and in consequence to be preferred.

HE PLASTERED HIS RIBS INTERNALLY.

To the Editor of the Medical Record:

Sir:—I enclose the following extract from the Sherbrooke (Eastern Townships, Canada) *Daily News*, dated September 29, 1908. This is certainly one of the most surprising violations of a physician's instructions that I have ever yet seen recorded:

"An old man named Trepannier, over 80 years of age, who had been suffering for some time from the effects of a fractured rib, died yesterday afternoon under peculiar circumstances. The physician attending him had given him a plaster to apply on his side to relieve the pain, and when he called early in the day yesterday could find no sign of it. Inquiries developed the suspicion that the patient, mistaking the use for which the plaster was intended, had swallowed portions of it, and the death of the patient ensued a few hours later."

Cookshire, Que. R. H. Phillimore, M.D.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 5, 1908.

Total Extirpation of the Lower Pharynx for Epithelioma, with Permanent Esophagostomy; Remarks Upon the Surgical Treatment of Cancer.—The patient of M. H. Richardson was a woman of forty-seven years seen in 1902. Throat spasms prevented the swallowing of solid food. The larynx was free, but there was a sloughing tumor in the posterior pharyngeal wall. A fragment was examined and pronounced epithelioma. The area of implantation was so large that extirpation was impossible without complete destruction of the power of swallowing. The following operation was performed: An incision of six inches was made from the angle of the jaw downward along the anterior border of the sterno-mastoid muscle. At this time the patient began to breathe so badly that a tube was put into the trachea. The dissection was then carried down to the pharyngeal wall. This was difficult to get at because the enlarged thyroid gland extended almost entirely around the esophagus and up onto the pharyngeal wall. The pharynx was then opened. The tumor occupied the entire posterior wall and extended well around onto both sides. It also extended down into the upper part of the esophagus. The whole tumor was cut away, with a margin of from ¼ to ½ inch. This left but a very narrow strip of mucous membrane on the left side of the pharynx, about ¼ inch wide. Such a large area of mucous membrane was removed that there was nothing to be done but to bring the edge of the esophagus out and suture it into the wound. The bleeding points were tied with catgut and the denuded area of the pharyngeal wall was packed with gauze. Before the esophagus was sutured to the skin a chain of enlarged and hardened glands running into the mediastinum were dissected out. The lower and upper parts of the wound were closed with silkworm gut sutures. The patient was fed through a rubber tube left in the esophagus and made a good convalescence, and six years later was in good health and able to take an active part in domestic life. The author is disposed to take a hopeful view of the cancer situation, but adds that much as he would welcome an era when cancer would no longer be regarded as a surgical disease he feels that the time has not yet come when we can relax in the least our vigilance, nor has the time come when we can trust cancer in its operable stages to any method of attempted cure other than surgical excision. He has seen so many operable and favorable cases drift, under *x*-ray, toxins and other loudly-heralded cures, into inoperability and death that he is sure we must confine new methods, like the use of trypsin and amylopsin, to the inoperable cases. For the few authentic *x*-ray cures of cancer in its simple and superficial forms, like epitheliomata of the face, he has seen hundreds of patients who, under the dread of the knife and the encouragement of the *x*-ray, have drifted into hopeless inoperability.

New York Medical Journal, November 7, 1908.

Reflex Neuroses Arising from Ocular and Nasal Abnormalities.—S. L. Ziegler reviews the general development of this phase of clinical medicine. He notes four ocular factors as exciting causes of reflex neuroses: (1) ciliary spasm, or strain from unconnected ametropia; (2) accommodative effort; (3) muscular unbalance, and (4) painful ciliary scar or shrunken eyeball. Nasal factors are (1) pressive contact; (2) hyperesthesia, and (3) nasal obstruction. The various individual manifestations of reflex neuroses may be headache, migraine, localized muscular spasms, chorea, minor epilepsy, gastric disturbances and neurasthenia. Illustrative cases are given under each of these headings. The author says that in searching out the causes of trouble in any given case we should always bear in mind the following points: (1) The eye and the nose are undoubtedly most important factors in the etiology of reflex neuroses and should, therefore, be carefully examined and positively excluded before beginning a search for other causes; (2) ocular and nasal reflexes possess many manifestations in common, which should be carefully differentiated at the earliest possible moment; (3) eyestrain, whether from ametropia, subnormal accomodation, or muscular imbalance, should be carefully corrected in order to eliminate the eye as a causative factor; (4) an

atrophied eyeball, with contracting ciliary scar, should be enucleated; (5) pressure contact in the nose will always excite some reflex disturbance when any hyperesthetic area is impinged upon, and should, therefore, be eliminated; (6) every obstruction to free breathing should be removed; (7) recurrence of any reflex neurosis demands reexamination and renewed search for the original exciting cause.

The School Child.—J. W. Van Derslice mentions some of the causes which conspire against the proper development of the modern child, such as lack of harmony between parent and school, distracting social influences, poorly lighted school rooms and poorly printed books, unsanitary school houses, etc. The burden of the criticism of the public school is the over-crowding of the curriculum. Moreover, the present system groups all races, strata of society, conditions and customs of living, all varieties of taste, talent and capacities, and for this heterogeneous mass of material the educator is called on to formulate a system suited to the individual. This overcrowding of the curriculum is due to three causes: (1) every child must take care of all the work regardless of personal or individual creed; (2) whatever the last generation had must go into the curriculum of the present one; (3) domination by the colleges. In the public schools of the large cities there are from seventy to eighty per cent. of the pupils that are foreign born or the children of foreign-born parents. In quite a considerable proportion of these pupils the only real culture that they are apt to receive will be from the public schools, and as it is in the psychological period, that period in the development when there is an unfolding, that these studies are given, it is the period for the imbedding of real culture. Take the domestic science course, the immediate benefits of such a course in the poorer districts will be that there will be a demand for the better foodstuffs in the families coming under such influence. There can be no greater benefit accrue to the congested districts of the large cities than that the girls shall have a knowledge of foods, their values, modes of preparation, and the art of making tasty the commoner foods. The crying need of these districts is for better cooks, and if these girls of necessity must go from the school to the factory, to wifehood, where can they get a working knowledge of the duties of the housewife? So with the other culture studies as music, drawing, and literature, it would be a step backward to take away the taste of literature that these children receive. There should be a decided effort to inculcate in these children a taste for good literature; it is not that they do not read, but that their reading is ill advised, and a little painstaking effort might lead them along the better way.

Obstetrical Paralysis.—K. Osterhouse discusses the mechanics of the production of brachial birth palsy and presents a preliminary report on two cases. The paralysis may affect the upper arm alone, lower arm alone, or both. The main point of interest in the paper relates to the author's method of treatment, which is the familiar "bridging" process in nerve-gap cases. The details of the method can be best understood by giving the summary of one case. Patient was a girl of sixteen years, with left upper arm paralysis of moderate degree. There were contractures at the elbow joint, resulting in a mild degree of flexion, and the pectoralis major was markedly contracted. The arm could not be voluntarily abducted except to a very slight extent, and outward rotation and supination were almost entirely absent. Examination showed involvement of the fifth and sixth cervicals, but no induration or thickening could be made out on palpation, owing to fat. Marked atrophy of arm and shoulder, left arm being two inches shorter than right. Under ether anesthesia the plexus was exposed by the usual incision above the clavicle. The deep cervical fascia was found to be thickened and somewhat adherent to the plexus. Palpation showed several small indurated masses at the junction of the fifth and sixth cervical nerves, one mass extending a little distance into the fifth nerve above the junction. The deep cervical fascia was cleared away freely so as to expose the nerves, and the nerve sheaths were incised longitudinally from well above the junction to below it. The nerve junction and roots were then lifted clear of the sheaths on small padded grooved directors, and the fibres were freely dissociated, the dissociation being carried into the nerves well above and below. The suprascapular nerve was treated in the same manner. The nerves were then loosely wrapped in Cargile membrane, the wound closed in layers, and a plaster cast applied to approximate the head and shoulder. There was very little loss of blood, and the patient reacted well. The skin wound healed by first intention, and one month after operation the cast was removed and a strict course of electricity, massage, baking, and passive movements was instituted. The patient was instructed to use her arm as much as possible and attempt to exercise the paralyzed muscles. Some slight improvement in function was noted about four months after operation, and this steadily progressed. At the present time the patient can abduct the arm nearly to a right angle to the body, and flexion, outward rotation, and supination are markedly better. The atrophy and dwarfing of the extremity, which were considerable, appear about the same.

Journal of the American Medical Association, November 7, 1908.

Abdominal Hysterectomy.—A. E. Hertzler deprecates the tendency to quick operating in order to prevent shock. He says it is a great fallacy to believe that time is the only or even the chief element in the production of shock. A rough operation done in a short time may be much more productive of shock than a much slower one performed gently, with full attention to details. The use of mass ligatures and crushing forceps may be shock-producing long after the surgeon has ceased his work. He describes a method of abdominal hysterectomy which has developed in his hands in the course of years, and which aims at anatomic exactness rather than speed, and in which he tries to treat the pelvic stumps with the same consideration that is given to the stump of an amputated limb. For the details the reader is referred to the original article, which is fully illustrated, but the points specially observed are, as in the amputated limb, to remove that which is diseased, tie that which bleeds and nothing more, to preserve the best possible function, and to restore the natural covering of the parts as much as possible. Among the special points of the operation may be mentioned the tying of the veins, which is not shown in many of the cuts in standard textbooks, peritoneal closure with independent drainage below, the absence of clamps in the operation, and the suture of the peritoneum without causing pressure, by the use of delicate coaptation sutures. The disadvantages of the operation are that it is time consuming. In his hands it requires from forty-five minutes to an hour and a quarter (with twenty-five minutes as a minimum), but he has not seen shock worthy of note follow in any instance. With proper application and suitable material the isolated ligatures on the vessels are not likely to slip. The operation is not suitable, he admits, in acute infective processes and in suppurating fibroids. An accurate knowledge of anatomy on the part of the operator is essential, however, in all cases.

Nitrous Oxide Anesthesia.—W. D. Haggard describes nitrous ovide anesthesia and enumerates its advantages of quickness of action, comfort to the subject, almost immediate recovery, absence of lung complications, and improbability of later kidney, liver, and heart complications. It is especially to be preferred in patients suffering from disease of these organs and in those who have had uncomfortable experiences with other anesthetics. It should not be employed, however, for patients with dilated hearts or extremely bad hearts, whether from valvular or myocardial disease. It is not suitable for plethoric or alcoholic patients. Its zone of anesthesia is rather limited, though it can be employed for operations lasting half an hour or more. It is not always possible to secure the requisite skill for its administration nor to command the apparatus and the amount of gas required for a lengthy operation. Its cost, also, is considerable. Young children do not always take it well, and it should not be used in case of narrow or abnormal air passages, enlarged lymph nodes, goiters, or enlarged tonsils and adenoids. No fatalities are reported from the combined use of nitrous oxide and oxygen.

Local Anesthesia.—J. P. Mitchell holds that local anesthesia has a definite field of usefulness which can be increased by familiarity with modern methods and their use. Its dangers are always less than those of general narcosis. While some of the newer anesthetics may have the advantage in individual hands, eucain and cocain are the ones found most generally useful, and the danger of poisoning has been practically eliminated by the use of weak solutions in combination with adrenalin. Tablets for this purpose are in the market. Each of the several methods for application, viz., (1) surface application, (2) infiltration, (3) nerve blocking through endoneural and perineural injections, has its special applications, or they may be used in combination or combined with general anesthesia. Correct anatomical knowledge of nerve distribution and experience on the part of the operator are essential for the best results.

Blood Changes in Anesthesia.—W. W. Hamburger and F. E. Ewing reach the following conclusions: 1. In an analysis of the blood changes incident to nitrous oxide anesthesia, clinically and experimentally studied, they find that (*a*) The hemaglobin is not permanently reduced or anemia produced. (*b*) Hemolysis is not increased. (*c*) The changes in the readings of the hemoglobin and ery-

throcytes are transient and of no surgical significance. They are probably explained by capilliary stasis. The reduction of hemoglobin is not due to the anesthetic, but to the accompanying asphyxia. (*d*) The changes in coagulation time are not constant, but there is generally an increase of time required for clotting, most marked about the third day. 2. A series of experimental observations on ether anesthesia showed that. (*a*) The hemoglobin is slightly reduced, causing a slight anemia. (*b*) Hemolysis is not materially increased. (*c*) The changes in hemoglobin and erythrocytes are explainable on the basis of blood inspissation. (*d*) It causes a marked decrease in the coagulation time, most marked from the seventh to the tenth days. 3. In an analysis of the blood changes from chloroform anesthesia in animals, they find that: (*a*) The hemoglobin is reduced and anemia caused. (*b*) Hemolysis is increased. (*c*) There is a slight decrease in coagulation time, most marked in the seventh to the tenth days. 4. Comparing the three anesthetics from the standpoint of the blood changes, they conclude that nitrous oxide causes no permanent effects of any significance; that ether causes more harmful changes (slight anemia and marked decrease in coagulation time); that chloroform causes the most harmful results (hemolysis and production of distinct anemia).

Atrophy of the Iris.—Casey A. Wood reports a case of progressive and rather irregular disappearance of the iris tissues of the right eye in a healthy man, without other symptoms except increased tension in that eye. At present fully five-sixths of the iris tissue has disappeared, and the pupil has assumed the shape of an irregular triangle whose angles reach almost to the root of the iris, in which situations all the iridic layers have become absorbed. The absorbtion seems to have begun on the anterior surface and proceeded irregularly there, and the pigment layer has been absorbed chiefly, or only, at the pupillary edge. The patient had an injury to the superior maxillary bone sixteen years before. This was followed by antral disease, which is attributed, however, to an attack of influenza. There was no direct injury to the eyeball itself. Wood does not offer any explanation of the case, except that if it began early enough, septic absorption from purulent collections in the antrum and frontal sinus might be expected to exercise a toxic influence on the iris as a part of the uveal tract. The glaucomatous tension seems inadequate as a cause.

The Ear in Cardiovascular Disease.—The possibility of tinnitus aurium being a local symptom of general circulatory disturbances is suggested by L. F. Bishop, who gives his reasons for believing this to be the case. It is, in his opinion, the peripheral vasomotor regulation that is largely at fault in the production of this symptom, and he has been able in some instances to observe the tinnitus disappear with the improvement of the circulatory condition. While he has seen this in both high and low tension conditions, the most striking have been the low tension ones. He finds the literature on the subject very scanty, which he attributes to the fact that the critical study of the circulation as contrasted with the study of the heart alone has been too much neglected. The question of low arterial tension has been most slighted. Murmurs are produced not by a constriction as such, but by a relative constriction, and this can be brought about by dilatation causing the normal part of the vessel to act as a constriction. From this, he says, it is easy to understand why relaxed vessels produce a great deal of noise. He believes that: "1. There are certain cases of tinnitus aurium which are a local manifestation to general circulatory disorder. 2. This may have its foundation in arteriosclerosis, but the blood vessel disorder is often in a large measure functional. 3. It is found in connection with high blood pressure and also with low blood pressure, and while in both instances the symptom is relieved, the measures which regulate the circulation, the most striking results of treatment are to be obtained at the present time in instances of low arterial tension. 4. Observations of blood pressure to detect the gross departure from normal should be made by otologists; they can be made in a very few seconds by the author's simplified method."

The Lancet, October 31, 1908.

Rupture of the Left Auricle of the Heart.—A. W. Greig's patient was a Burman convict, male, 28 years of age, who, after a railroad journey and a walk of a mile, suddenly fell dead, having had no preliminary symptoms of any kind. Autopsy showed the pericardial sac full of blood. On the anterior superior aspect of the left auricular appendix there was discovered a rent, of triradiate shape, through which the tip of the little finger could be readily passed into the cavity of the left auricle, the wall of which was slightly puckered in the neighborhood, as if there had been a preexistent bulging during life. The heart was removed and the left auricle slit open at a distance from the tear, but although no undue force was used to effect this the rent was extended, the surrounding tissues being very friable. To the inner aspect of the auricular wall around the rent some recent blood-clot was adherent, but on removing this it was found that the deeper layers were partly decolorized and of firmer texture, showing that deposition of fibrin had occurred some time previous to death about the spot which eventually gave way. The deepest layers of the clot were either intimately adherent to, or had entirely replaced, the endothelial coat of the auricular wall, for on gently removing the former the muscular tissue was revealed. The rest of the left auricle, the remaining chambers of the heart, and the valves were, so far as could be seen, normal; the orifices of the coronary arteries were fully patent; there was no atheromatous change visible in the roots of the great vessels; nor was there hypertrophy or dilatation of the heart itself except in the immediate vicinity of the rupture. No gummatous deposit was found in the myocardium nor was there naked-eye evidence of subjacent fatty change. Nothing of significance was noted in the other organs, and the author is at a loss to account for the auricular lesion.

Scurvy Rickets Occurring in a Breast-fed Child.—T. H. Kellock reports the case of a female child 11 months old, who did well at the breast for nine months, but was then weaned and fed on diluted cow's milk and infant foods. In two months she had become listless and anemic, with diffuse tender swellings on the forearms and legs. There was nothing in the previous history suggesting syphilis, and no teeth had appeared. Some of the long bones were tender on manipulation. A diagnosis of scurvy rickets was made, and under the usual treatment for this affection the child appeared quite well. Sixteen months later the child's mother appeared with a younger child, aged ten weeks. The former appeared ill, anemic, and apparently suffering from want of food. She stated that while she was pregnant with this child her husband had been out of work and they had been very badly off, with the result that she had been short of food. She had, however, had plenty of milk in the breasts and the child had had nothing whatever but this. When nine weeks old a swelling appeared about the upper end of the right tibia, which was tender and painful, and the leg became, in the mother's words, "quite paralyzed." The child was sent to the author, as on its first visit to the hospital sarcoma of the tibia had been suspected. When seen the child seemed to be in fairly good conditon, and the only part affected was the upper end of the right tibia; here a doughy tender swelling of some size completely surrounded the bone and the child would make no effort to use the limb. The mother was directed to continue nursing the child, but to give her as well a little orange juice twice a day, at the same time she herself was ordered a mixture containing iron and sulphate of magnesium. At this time, too, it must be mentioned that her circumstances had somewhat improved and that she was getting at any rate sufficient food. The result of this treatment was immediate and rapid, as far as the child was concerned; the swelling on the tibia first became much less tender and in three weeks had almost completely disappeared.

Some Unusual Sequelæ of Convulsive Seizures in Childhood.—Histories of nine cases are given by F. J. Poynton. In Case 1 convulsions commenced in the ninth week. The child was marasmic, with an enlarged liver, and became idiotic by the eighteenth week. It was an hereditary syphilitic. In Case 2 there was an eclampsia suggesting idiopathic epilepsy, then improvement, and in two years an acute hepatic illness with meningeal symptoms. This case was also syphilitic. Case 3 was practically a duplicate of Case 2. Case 4 began in much the same way, but is still living. In Cases 5 and 6 there was a syphilitic history, but the symptoms were more of a paralytic character, and in Case 6 there were no convulsions. In Case 7 there was unconsciousness when the child was first seen. The left arm and leg were somewhat rigid, but the features of the case were slow rhythmical movements of the left arm and leg. In the upper extremity there were flexion and extension at the elbow and pronation and supination of the forearm. The left knee joint was slightly flexed, and there were on the slightest disturbance continual movements of flexion and extension involving the whole limb. The rhythmic movements gradually disappeared and the child recovered. Syphilitic history was wanting. Case 8 was similar in a general way to Case 7. So also Case 9. The two latter cases are on a fair way to recovery. The three latter cases suggested meningitis, but lumbar puncture was negative in two of them. Recognition of the rhythmical movements, which appear when consciousness is being regained, and particularly when the children begin to resent move-

ment, will make one at once cautious in diagnosing meningitis, and the occurrence of ocular palsies will also add to this caution. These cases again did not lose flesh in the same way that children do as a rule in meningitis.

British Medical Journal, October 31, 1908.

Home Treatment of Scarlet Fever.—R. Milne's paper is a plea for the use of a carbolized oil of ten per cent. strength, or eucalyptus oil, rubbed into the skin. He tells the nurses and parents, "rub the patient most carefully from the crown of the head to the soles of the feet," including the armpits and the roots of the hair. The rubbings are to be made morning and evening for the first four days, then once daily till the tenth day. The throat is to be swabbed with the carbolized oil every two hours for the first twenty-four hours. With this plan of treatment the author has never seen any nose, ear, or kidney disease. The severity of the attack is greatly modified. He claims that the treatment dispenses with the need of elaborate disinfection afterward, for the source of infection is destroyed (?). No carbolized sheets are hung in the doors of the sick room. Diet is restricted to soda water or equal parts of hot milk and water. Light diet is allowed in a few days and ordinary meals on the tenth day. As between carbolized and eucalyptus oils, the author has come to prefer the latter. He supports his proposition by the histories and courses of various institution and village outbreaks of the disease.

The Limitations of a Purin-free Diet.—A. Bryce presents the following conclusions: (1) Personal idiosyncrasy has much to do with the diverse results reported, and in my opinion this is ultimately bound up with the metabolic activity of the cells, and especially the ability of the cells of the mucous membrane to withstand the onslaught of irritants such as purin compounds. (2) Small quantities of purin are almost invariably well borne, and only in isolated cases are larger doses not tolerated. (3) The ability to tolerate purins is markedly influenced by disease—for example, neurasthenia, so called, and kidney ailments, where the integrity of the cells of the convoluted tubules is doubtful, yet a man in perfect health with a so-called gouty tendency may tolerate them badly because they act as irritants to the mucous membrane of the hepatic ducts, and produce hepatic insufficiency. According to the author, a purin-free diet in epilepsy offers the best chance of a cure. In some instances a little purin may be allowed. In headaches due to uric-acidemia tea and coffee should be cut off entirely at first, but may be used later if well diluted. Small quantities of caffeine are diuretic, and there results an increased elimination of nitrogenous elements, especially urea and the fatigue products generally. In asthma the general conditions are the same as with epilepsy. Relapses may succeed an initial improvement. The author's general experience is that while a purin-free diet is an admirable method of treatment in chronic disease, it is not suited as a dietary for ordinary purposes of nutrition in everyday life. The cases admirably illustrate the old adage that "every man is a law unto himself," and demonstrate the fact that most of them were extremely susceptible to the action of excess of purins in the diet, that when these were cut off completely freedom was obtained from their particular malady, but that when malnutrition arose their troubles returned with the old force. When they cautiously adopted a diet containing their old proteid forms of food, with a minimum of purins, then they regained their health and strength, and because they were capable of dealing with all the purins they ingested, kept free or comparatively free from their malady. It is not necessary to suggest that this was due to an excess of uric acid in the blood or tissues, but simply that for some reason or other, probably toxic, they were unable to deal with these particular foods.

Bee Stings and Rheumatism.—E. T. Burton has had a personal experience with the remedy named. His account of his experience is so graphic that it is reproduced verbatim: "I was attacked very suddenly on June 24 last with acute arthritis of my right hip, as suddenly succeeded by sciatica of the same side. A fortnight in bed was followed by a fortnight at Droitwich, with a daily bath at 104° for twenty minutes. A small measure of relief was obtained. My treatment consisted of a return to Droitwich, a daily douche of hot water to the offending hip, return to my lodgings, and reclining in more or less—chiefly more—pain for the rest of the time. I could not walk a quarter of a mile without two or three stops to relieve my agony, and Droitwich, always helpful before, did me very little good. Having been promised a supply of bees, I commenced, on October 17, the 'bee-sting cure.' I had seven or eight applied in the course of the sciatic nerve and round the hip-joint. When I awoke in the morning I was able not only to turn in bed, but to get out without hauling myself up in agony by the bedpost, and I walked across the floor without limp or pain for the first time in all but three months. I returned to bed at once, and had another half-dozen bees applied, subsequently dressing at 12:30 P. M. for dinner. The same night I had five or six more bees applied, and on October 19 the final installment of the same number. I walked well that day, and even ran about fifty yards without pain, and am now, on the evening of October 21, absolutely free from the slightest twinge. I may add that if I live for three months I shall be sixty-seven, and have been a rheumatic subject for twenty-five years. I intend, if during their hibernation I can procure them, to continue the application of the bees till I cease to react to the stings."

Berliner klinische Wochenschrift, October 26, 1908.

Serum Diagnosis of Syphilis.—Halberstaedter, Müller and Reiche have investigated the behavior of scarlet fever patients in reference to the appearance of a reaction similar to the supposedly specific reaction of Wassermann in syphilitics. Of ten patients examined five gave a distinct reaction expressed in inhibition of hemolysis, though seldom of such a marked nature as in the luetic cases. Syphilis was excluded in all the cases examined. Nine cases of measles, five of varicella and fourteen of whooping cough gave negative results. The authors tested seventy-eight other children, ten of whom were not suffering from syphilis or any other infection; all ten gave negative reactions. The remaining sixty-eight patients came with the clinical diagnosis of syphilis, and of these thirty gave a positive reaction and thirty-eight a negative one. Of the manifestly syphilitic cases 92 per cent. gave a positive reaction with the test. The reaction is, accordingly, valuable in corroborating clinical diagnosis and justifying the beginning of specific treatment.

Blood-pressure in Chronic Nephritis.—Engel says that the estimation of blood pressure by means of the finger is very untrustworthy; yet the importance of knowing the exact blood pressure is such that a sphygmomanometer ought to be possessed by every practising physician. Even the figures obtained with the instrument may be completely misleading if such factors as nervousness, excitement, etc., are not discounted. Thus an anxious patient showed a pressure of 170 mm., which, however, dropped to 130 after a reassuring prognosis. Of especial value is such an estimation in chronic nephritis, for high systolic blood pressure is a most frequent symptom of interstitial disease, while uncomplicated parenchymatous nephritis is usually accompanied by a normal blood pressure. The examination of the heart or of the urine may not always give a clue to the nature of the kidney lesion, and the sphygmomanometric data serve as a very important factor in the diagnosis and prognosis of renal disease. The gradual change of a purely parenchymatous disease into a mixed form is best evidenced by the behavior of the pressure curve if regular readings are taken for long periods of time. Diseases affecting the glomeruli in a marked manner are also accompanied by a raised blood pressure, and its estimation may be of value, therefore, in the course of scarlet fever, in cases of poisoning, etc. Uremic attacks are often preceded by sudden and marked increase of pressure. Both prognosis and treatment may accordingly be greatly simplified by the use of the sphygmomanometer in the course of chronic nephritis of any nature.

Insufficiency of the Spine and Scoliosis.—Schanz says that insufficiency of the vertebræ is a common condition characterized by tenderness of the vertebral spines and bodies; radiating pains are often complained of in this connection, and they may falsely lead to the diagnosis of gastric, thoracic, or pelvic disease. The condition is caused by the disproportion between the strength of the spine and the weight it supports, and often appears in mechanical disturbances of the spine. Thus scoliosis is very often accompanied by the symptoms of such insufficiency with marked manifestations of pain, contrary to the general opinion which considers that pain in scoliosis is infrequent. The disappearance of such pain in scoliosis shows that the compensatory changes in the skeletal and muscular system have made up for the deformity of the spine; progressive increase in pain is good evidence that the deformity is growing in degree. The presence of pain is of still further significance in the therapy of scoliosis; it serves as a contraindication to the usual amount of gymnastic treatment of the deformity, for further straining of the weak spine can only make things worse. The exercises should be much less strenuous than in cases not accompanied by pain.

Münchener medizinische Wochenschrift, Oct. 20 *and* 27, 1908.

Marmorek's Serum.—Strauss says that whenever tuberculosis is a local process and can be attacked by oper-

ative methods without interfering too seriously with the function of the parts affected, surgical treatment offers most chances of curing the patient. In other cases every measure that promises relief or cure should be tried, and Marmorek's serum has been successful enough to deserve further trial. Strauss has used it in thirty-eight cases, administering the remedy by the rectum or subcutaneously. It has proved to be completely harmless in every instance, and in a number of patients exercised a very favorable influence upon the course of the disease. The local phenomena were lessened in severity and the general condition of most patients likewise improved. Strauss concludes that the serum in question is a valuable aid in the treatment of surgical tuberculosis; in cases of general infection the influence of the serum does not seem to be very marked.

Eczema in Infants.—Mendelsson says that, according to Finkelstein, the eczema of infants is due to disturbed assimilation of the salts in milk; its treatment therefore is not local, but must consist of dietetic measures. The best diet is poor in salt but rich in proteid and fat, and is prepared by removing the salts of milk by washing the casein in water and then mixing it with diluted whey. Mendelsson obtained very good results with Finkelstein's diet, the eczematous conditions disappearing much more quickly and surely than with the older local treatment. The loss of weight noted on this diet should not stop its use, as it is caused by the rapid loss of water with the removal of salts in the tissues. The diet, however, should be tried only in such children who can bear fat well; such infants are usually large for their age, have a pasty skin and are prone to manifest not only eczema but other phenomena of "exudative diathesis." They stand the withdrawal of salt very well if it is not continued too long after the curative effect upon the eczema has been noted.

Treatment of Carbuncle.—Grasmann says the quickest and surest treatment of carbuncle consists in extirpation of the diseased area by a circular incision with smaller incisions radiating from it. Such incisions should in no case be carried through the actively inflamed portion of the lesion, but should be placed in the infiltrated skin surrounding it. The whole carbuncle should then be separated from the underlying fascia and the large wound packed with dry gauze. In other cases cross incisions through the carbuncle may be used, the four flaps thus made being lifted from the underlying tissue and supported by gauze packing; necrotic masses are to be removed with the knife or the scissors. After a few days, when the granulation tissue has well developed, the flaps are brought together by a couple of stitches, thus diminishing the size of the wound. The latter is completely closed within four to six weeks.

Functional Heart Disease.—Strubell says that the measuring of the blood-pressure is the first step in the diagnosis of functional heart disease. Increased blood-pressure may be labile in character, due to vasomotor phenomena, or constant, caused by arteriosclerotic changes. Even in the latter case, however, sudden rise in blood-pressure may be produced by sudden contraction of the sclerosed vessels. The warm bath is a good diagnostic procedure in these cases, for little fall of pressure is noted in angiosclerotic patients when placed in such a bath, while high pressure caused by vasomotor contraction falls considerably. The procedure may also be used therapeutically, long-continued warm baths with the consequent fall of blood-pressure proving very beneficial in cases of high pressure. Electrical stimulation during the bath serves for further diagnosis of the condition of the heart: normal individuals react with rise of general pressure and fall of pressure in the auricles; those with diseased hearts show fall of general blood pressure and rise in auricular pressure. The muscular system may also be used to relieve the splanchnic system and diminish the general blood-pressure; this effect is reached by light, passive exercise and not by active exercise, which should never be prescribed to patients with any heart trouble before the functional capacity of the heart has been thoroughly tested.

Treatment of Pelvic Abscesses.—Tillmanns says that pelvic abscesses may originate in the pelvis or gravitate in that direction; they may be diffuse or circumscribed, intraperitoneal or extraperitoneal. They may break into an organ or reach the surface and perforate the skin or the mucosa; most frequently they break into the rectum, after which spontaneous cure may take place. The primary abscesses may be caused by the injury or inflamamtion of any pelvic organ, pelvic bones, or joints, or the overlying soft parts; secondary abscesses are caused very often by appendicitis or by suppuration of the lymph nodes about the cecal region. In women the diseases of pregnancy and labor and especially gonorrhea are frequently responsible for the formation of abscesses; foreign bodies of various nature may also cause pelvic suppuration. The treatment consists in incision and drainage; the latter may be effectively done by way of vagina. Abscesses involving pelvic lymph nodes require large incisions and the removal of all nodes affected, after which drainage is usually necessary. Whenever possible pelvic abscesses ought to be opened extraperitoneally. If the abscess comunicates with a hollow organ it is sometimes best to sew the wall of the abscess to the external wound and by slow draining allow the communication to close up; later the external opening is allowed to be filled up by granulations. In tuberculosis of the public symphysis conservative treatment is not to be attempted, while if the sacroiliac joints are affected conservative treatment should be tried early in the case. Under no circumstances should minor operations such as curetting and injections of iodoform be tried, as they usually are completely unsuccessful.

Fulguration Treatment of Malignant Tumors.—Schultze considers in detail the apparatus required for the fulguration of tumors according to the method of Keating-Hart. He warns against the use of ether in anesthetizing the patient, for a single spark falling upon the ether mask may set in it flames; local anethesia is not sufficient, and chloroform is the only anesthetic to be considered. Schultze has tried the new treatment upon inoperable tumors only; before the fulguration, however, all macroscopically visible part of tumor was removed by the knife, so that the sparks were used in situations which the knife could not enter. No nervous shock and no bleeding was witnessed; indeed, fulguration acted as a powerful styptic. Experiments with animals showed that it was impossible to damage even exposed blood-vessels with the strongest sparks, and therefore such vessels were not considered a counterindication to the use of the sparks; no injury was caused in any case. Histologically, fulguration appeared to cause death of a thin superficial layer of tissue, carcinomatous as well as healthy cells being equally affected. Clinically, the secretion of the wounds was much increased and fine granulations quickly appeared; pain in the wounds was not very marked; the general condition was favorably influenced. However, the further course in all cases showed that no effect was exercised upon the malignity of the tumors treated; though the subjective symptoms were much improved in many instances, the disease continued to fatal termination as usual. The new method of treatment, therefore, is in no wise a "cure" for cancer; it is, however, a palliative against pain and against bleeding and offensive changes in the tumor tissue; in these respects, however, fulguration does not seem to be any more valuable than radium or even the use of caustics. The technique of using it is certainly much more complex than with these latter methods.

Dangers of the Ophthalmoreaction.—Schrumpf reports two personal cases in which the instillation of tuberculin for diagnostic purposes was followed by severe inflammatory symptoms with involvement of the cornea and the iris, as well as with unfavorable effects upon the general condition of the tuberculous patients. He names twenty-three other authors who have observed unpleasant or dangerous consequences of this reaction. He considers it improper to speak of the reaction in question as a completely harmless one, as is done by Calmette and his enthusiastic followers. The best mode of procedure is to inform the patient of the possibility of untoward symptoms, just as is done by the surgeons in the case of anesthetics. Another unpleasant feature of the reaction is the tendency of the local inflammation to reappear if tuberculin is used later for therapeutic purposes. Often, too, the reaction occurs in persons that show no symptoms or signs of tuberculosis; as its occurrence does not escape the patient's observation, it may have a very bad effect upon sensitive individuals.

Rosacea.—Shoemaker recommends the following ointment:

℞ Ol. eucalypt.
Creosoti (beechwood) .....āā ♏v.
Chloral hydrat.
Camphoræ .....āā gr. v.
Ungt. zinci oxidi
Ungt. aq. rosæ.....āā ʒss.
M. ft. ungt.
S.: Apply locally twice daily.
—*New Orleans Medical and Surgical Journal.*

Book Reviews.

Traitement Chirurgical Actuel des Kystes Hydatiques du Foie et de Leurs Complications. Par le Dr. Albert Cauchoix, Ancien Interne Lauréat des Hôpitaux de Paris (Médaille d'Argent 1907); Prosecteur à la Faculté de Médecine. Paris: G. Steinheil, Editeur, 1908.

This book is a monograph devoted to the criticism of the prevailing methods of treating hydatid cysts of the liver and to the advocacy of an improved procedure. The author condemns "marsupialisation," enucleation, and total extirpation of cysts except in a few selected cases. He thinks that the reduction of the cavity of the cyst after evacuation of its contents and disinfection is the method best adapted for the majority of cases. A number of illustrative cases and a bibliography accompany the text.

Die Verletzung der Arteria Meningea Media. Von Dr. Custodis. Stabs- und Abteilungsarzt im I. Westpreussischen Feld-Artillerie, Regiment No. 35. Mit 2 Textfiguren. Berlin: Verlag von August Hirschwald, 1908.

This little book is devoted to one special problem of the surgery of the head, namely, to the injuries of the middle meningeal artery. The author considers very fully the pathology and the symptomatology of this accident and then describes the surgical treatment of it. An appendix gives a number of histories from the cases of the author and from the literature, the cases being classified according to the treatment adopted and the outcome. The book forms a useful monograph on the important injury it considers.

Lehrbuch der Muskel und Gelenkmechanik. Von Dr. H. Strasser, ö. o. Professor der Anatomie und Director des anatomischen Institut der Universität Bern. I. Band: Allgemeiner Teil. Mit 100 Textfiguren. Berlin: Verlag von Julius Springer, 1908.

Dr. Strasser thinks that the physician will possess a clearer understanding of the anatomy and physiology of the human body if he has studied the mechanical principles involved in the body considered as a machine. He therefore acquaints the reader with the elementary principles of mechanics and then considers the skeleton, the muscles and the joints as offering problems involving these principles. We do not share the author's opinion that the mechanics of the body as presented by him should become one of the subjects of study of a medical course, for the modern student of medicine is already overburdened with work. Dr. Strasser's book, however, ought to be of interest to anatomists and to physicians with love for mechanics; the latter, especially, will find enough material in the volume to indulge his love for mechanical problems and yet not take him away from the subject of his chosen profession.

Pulsating Exophthalmos. Its Etiology, Symptomatology, Pathogenesis, and Treatment. Being an Essay Based Upon an Analysis of Sixty-nine Case Histories of This Affection. By George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania, and Thomas B. Holloway, M.D., Instructor in Ophthalmology in the University of Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1908.

This interesting subject is admirably treated in the volume before us. The object of the essay, which is one of 124 pages, is, in the language of the authors: "(1) To analyze those cases—69 in number—not previously recorded in the tabular statements already referred to; (2) to elaborate and compare the therapeutic measures, surgical and otherwise, which have been employed in their treatment; and (3) to endeavor to determine from these analyses those surgical procedures which seem likely to prove of the greatest advantage in the control of the symptoms of this disease." Sixty-seven pages of the text are devoted to an analysis of the cases considered. The remaining part of the volume is occupied by a tabulated report of 80 cases of pulsating exophthalmos. The essay should be read not only by all ophthalmologists, but by those who are interested in general surgery as well.

The Natural History of Cancer. With Special Reference to Its Causation and Prevention. By W. Roger Williams, Fellow of the Royal College of Surgeons. New York: William Wood & Co., 1908.

It was Dr. Williams' purpose in writing this book to apply the synthetic method to the study of cancer by leaving the many details of the subject and paying attention to the broad principles involved in the problem of malignant disease. After defining the terms "tumor" and "cancer," the author considers the geographical distribution and incidence of malignant disease; the increase of cancer in recent times; tumors of animal and vegetable worlds; the experimental study of cancer; the relation of the growth of malignant tumors to growth in general; the microbic theory of cancer; extrinsic etiological factors, such as inflammation, irritation, etc.; the influence of sex, of age, of heredity; the morphology and the clinical behavior of malignant tumors; cachexia; and finally, the various degenerative, inflammatory and retrogressive changes that may take place in tumors. He aims to show that no reliable indications are present now for elucidating the cure of cancer; its incidence, however, is clearly related to the alimentation of the human race, as shown by the distribution of the disease among the civilized nations and in the overfed classes of the population. The prevention of cancer or at least the diminution of its ravages lies, according to Dr. Williams, in the modification of the nutrition of the human race aimed at the diminution of the nourishment habitually taken. These findings are presented with such a wealth of illustrative examples, and such insight into the shortcomings of the laboratory study of malignant disease that the book becomes a storehouse of information on the subject considered, as well as an introduction to the study of the question from the novel standpoint developed by the author. It is a work *sui generis*, for there exists no similar study in any language, and its perusal is heartily recommended not only to physicians, but also to intelligent laymen interested in the cancer problem. The future alone can decide how correct are the views held by the author; at present, however, his work gives evidence of such erudition in the subject and such critical judgment as to command a respectful hearing from those even who are least apt to agree with his findings.

Estimation of the Renal Function in Urinary Surgery. By J. W. Thomson Walker, M.B., C.M. (Edin.), F.R.C.S., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England (1907); Surgeon-in-Charge of Out-patients at the Northwest London Hospital and Hampstead General Hospital; Assistant Surgeon to St. Peter's Hospital. With 2 Colored and 7 Black-and-white Plates, 34 Figures in Text, and 32 Charts. London, Paris, New York, Toronto and Melbourne: Cassel & Company, 1908.

After giving several clinical histories illustrating the failure of renal function in consequence of operations and anesthesia, Dr. Walker considers the chemical examination of the urine, the study of the kidney as a filter by means of cryoscopy, the testing of the renal functions by means of injections of methylene blue, phloridzin, indigocarmine, etc. The second part of the book is devoted to the methods of studying the functions of one kidney alone, *x*-rays, cystoscopy, ureteral catheterisation, and the chemical tests for each kidney being fully described. The book contains numerous charts and pictures taken from actual cases and is throughout written from the standpoint of the practical surgeon who is called upon to test the functions of the kidneys before any operative interference. To such a worker the compilation of all the methods in one book ought to prove of great assistance, and this is what Dr. Walker's book really is. It is sure to find many readers among surgeons and physicians interested in the diagnosis and treatment of renal disease.

Pathological Technique. A Practical Manual for Workers in Pathological Histology and Bacteriology, Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School; First Assistant Visiting Pathologist to the Boston City Hospital; Pathologist to the Children's Hospital; and James Homer Wright, A.M., M.D., S.D., Director of the Pathological Laboratory of the Massachusetts General Hospital; Assistant Professor of Pathology, Harvard University Medical School. Fourth Edition, Revised and Enlarged, with 152 Illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

The new edition of this well-known manual needs hardly any comment from the reviewer. The additions to bacteriological methods consist of Dr. Zinsser's anaërobic method for plate-cultures, of three new methods for cultivation and recognition of typhoid bacilli, and of entirely new paragraphs on the organism of actinomycosis. The histological methods are enriched by the improvements in the technique of staining fibroglia, myoglia, and neuroglia fibers; by Wright's method of staining blood platelets and giant cells of the bone marrow; by a new stain for glycogen; by staining methods for *Spirochæta pallida;* and by the methods of preparing bacterial vaccines introduced by Sir A. E. Wright. The book remains an indispensable companion to everybody engaged in histological or bacteriological work.

Society Reports.

ILLINOIS STATE MEDICAL SOCIETY.

Fifty-Eighth Annual Meeting, Held at Peoria, May 19, 20, and 21, 1908.

The President, Dr. William L. Baum of Chicago, in the Chair.

An Address of Welcome was delivered by Hon. Thomas O'Connor, Mayor of Peoria, which was responded to by President Baum.

Psychopathology of Hysteria.—Dr. S. T. Robinson of Edwardsville reviewed the two ideas "generally held: (*a*) that of the entity or dominating soul of the plain man's belief, and (*b*) the coordination of the experimental psychologists. Mentioning some of the conclusions of psychic research investigators, the author argued that the late evidence justified the presumptive view that both elements entered into the personality. Thus he considered the controversy largly reconciled. There was, accordingly, a union which was both a great colonial empire, with many apparently independent centers, and an empire which was dominated by an indwelling soul. Next, he outlined the further division of this complex personality into the supraliminal and the subliminal spheres. These he discussed with special reference to the subliminal self and the threshold of consciousness. To these elements of the healthy mind he added those of potential memorability, whereby facts were assimilated and stored in the subliminal self; selection, whereby the necessities of the moment were satisfied, and, finally, the law of psychic cohesiveness, the psychic analogue of gravity in the physical world. Out of these psychological elements, when they became unhealthy, he deduced the four main factors which underlay hysteria: (1) Psychic poverty; (2) lack of cohesiveness; (3) morbid selection; (4) undue permeability, or instability of the threshold. First, the author reviewed the morbid subliminal life in a personality suffering from psychic poverty and lack of cohesiveness, which might let go of the life above, with, for instance, the production of anesthesias, and then he showed how the narrowed life above might be disastrously influenced from below with, for instance, evolution of the fixed idea. Suggestibility, absent-mindedness, alternation, and anesthesia, he mentioned as the chief stigmata, so lucidly described by Janet, and concluded that as hypnotic suggestion was to the subliminal life, so hysteria was to the ordinary consciousness. Genius and hysteria were set down as the two far-distant poles of human personality, the one produced by healthy cooperation of the subliminal and supraliminal faculties, while the other was due to the incoordinated uprush of subliminal impulse in a retracted field of supraliminal consciousness.

Arteriosclerosis.—Dr. Thomas J. Pitner of Jacksonville said that in considering this disease we were approaching the origin of many diseases. The study of this process throughout the body tended to broaden our views of the nature and causes of local diseases by showing how largely they were due to antecedent widespread arterial changes. Arteriosclerosis was a primary pathological process. There were no morbid anatomic changes preceding it. The principal element of the disease was the fibrous proliferation of the internal coat. The other coats were involved, but not so generally and constantly. The artery became thickened and hardened, with narrowing of the lumen and subsequent degeneration.

Dr. Ferd. Engelbrectson of Chicago referred to the deposit of salts in the development of the osseous system, and said, after the bones were started, what became of these salts. The system was not ready to eliminate them. They must be deposited somewhere, and he thought the nonelimination of these salts produced many conditions, including arteriosclerosis.

Dr. Wm. J. Butler of Chicago thought that cardiovascular diseases that were dependent on syphilis, whether it was aortitis or arteriosclerosis, or a myocarditis in conjunction with it, were benefited by the use of potassium iodide or calomel.

Dr. Robert B. Preble of Chicago referred to the uncertainty of prognosis in these cases. No matter what the manifestations might be, whether renal, cardiac, cerebrospinal, or gastrointestinal, the clinical picture was susceptible to sudden variations in character, and in advanced cases of arteriosclerosis, cerebral hemorrhage or thrombosis might suddenly develop. There might be some severe circulatory or gastrointestinal disturbance, thrombosis, or embolism, and hence the great liability of these patients to sudden death.

Dr. Joseph L. Miller of Chicago said that many of these cases were benefited by the use of iodides where the cause or causes were not of syphilitic origin.

Dr. C. D. Westcott of Chicago said the oculist not infrequently saw changes in the retinal vessels of these patients in the course of routine examinations for refraction. These changes were noted most commonly in middle life, in those who did not suspect any constitutional condition. When the oculist observed these changes in the retinal vessels, the patients should be referred to a good internist.

Diabetes.—Dr. James B. Herrick of Chicago discussed some of the points concerning the treatment of this disease, with special reference to the use of oatmeal diet. He emphasized the importance of differentiating the clinical types of diabetes, and spoke of the value of other factors than the mere estimation of the amount of sugar in the urine in determining the severity of a given case. Reference was made to the principle of tolerance of carbohydrates and the practical application of the same treatment. He spoke of the necessity for carbohydrates and their place in warding off impending coma. He detailed the oatmeal diet of von Noorden, described the technique of its administration, and its importance when properly used as a therapeutic agent.

Dr. Frank Billings of Chicago said that, until more was known about the cause of diabetes, the management of patients suffering with the disease must be along lines that were thought best.

Dr. George E. Baxter of Chicago asked as to the amount of exercise these patients were allowed during the oatmeal diet; whether they were kept at rest or allowed the normal amount of exercise.

Dr. Herrick, in closing, said that exercise, as a rule, did not harm a patient with diabetes. In fact, moderate exercise was rather beneficial, and in putting patients on this diet he had never restricted them as to exercise unless there was some special reason for it. The oatmeal diet was a valuable therapeutic agent, yet he was firmly convinced that it was also attended with danger. He did not wish to convey the impression that it cured diabetes. However, he had seen what he regarded as very favorable results in children. He mentioned a little girl of twelve, whose life was prolonged a year and a half by this treatment with only traces of sugar in the urine at any time.

Food Values in the Nutrition of Children.—Dr. Josephine Milligan of Jacksonville described the practical application of food values in every-day practice in the nutrition of children from the age of nine months to puberty. In chronic disease the nutrients and calories should be kept at the full standard or slightly above. In convalescents the nutrients and calories should be increased. A convalescent child might demand even as much as an adult. When as much study and attention had been put on the diet of children over nine months of age as had been expended on children under nine months, another great advance not only in life-saving for children would have been accomplished, but in better developed and healthier bodies and mind for the adult.

Drug Treatment of Cardiovascular Conditions.—Dr. Joseph L. Miller of Chicago emphasized the importance

of an accurate knowledge of the action of drugs. Reference was made to drug nihilism. The foundation of our knowledge of pharmacology was based on the action of drugs on normal animals, and he pointed out the fallacies in applying this to the treatment of diseased conditions, using such agents as vasoconstrictors, digitalis, strophanthus, caffeine, camphor, adrenalin. He pointed out the indications and dangers of using vasodilators, nitroglycerin, nitrites, amyl nitrite, etc.

Study of Diagnosis and Pathology Should Not Lessen Our Confidence in the Intelligent Use of Drugs.—Dr. Thomas W. Bath of Bloomington said that if he said anything concerning the routine drug treatment in those diseases that were not specifically influenced by drugs, he believed that many patients were over-drugged. Many patients were needlessly over-drugged by physicians who were somewhat too credulous to the claims of materia medica and drug circulars. Until the riddle had been solved with reference to those diseases which were still treated expectantly, physicians would best serve their patients not by giving placebos or suggestions, or Christian Science, but by taking a sensible view of the case and in offering nature a helping hand when she desired support.

Control of Hyperacidity by Diet and Drugs.—Dr. M. Milton Portis of Chicago detailed some experiments that were conducted on dogs with a Pawlow stomach. A great variety of foods were given, and in all cases it was found that vegetables excited the stomach to the least secretion. The time of secretion and the amount secreted were much reduced as compared with the feeding of meat, but the per cent. of HCl secreted could not be reduced. The total amount of secretion could be still further reduced by giving the vegetables in a finely divided state. The alkalies were found to reduce secretion, as had been observed, especially if given before meals. Morphine and hyoscin were found to have very little effect. Atropine and strontium bromide were found to have a marked effect in reducing the amount of secretion.

Baths and Exercises in the Treatment of Heart Disease.—Dr. Robert H. Babcock of Chicago emphasized the fact that the water should be merely warm or tepid for the initial baths, and weakly saline; also that as the patient's reaction permitted, the temperature should be lowered from time to time, until toward the end of the series a temperature of 85° F. could be obtained, by which time the waters were strongly charged with sodium chloride, 3 per cent. calcium chloride, 1 per cent., and made strongly effervescing. The weaker baths should be considered sedative and suited to weak, dilated hearts, while the colder, strongly saline and carbonated waters were stimulating. Since the natural Nauheim waters were strongly impregnated with calcium salts, Dr. Babcock never omitted the addition of calcium chloride. Since these baths were capable of harm as well as good, he believed they should be prescribed only after frequent careful examinations of the patient, and with due regard to the individual's reaction after and his sensations during each bath. This treatment was applicable chiefly to myocardial incompetence and valvular insufficiencies. These baths should be given cautiously in cases of stenosis and arteriosclerosis, and were of doubtful utility when chronic fibrous mediastinitis was present, and not at all in cases of aortic aneurysm or ectasia, for although the heart's contractions might be invigorated, the vascular lesion could not be improved and might be increased. This balneological treatment should be deferred in cases of pronounced dilatation with edema, until rest and other measures had improved cardiac power. Exercises were of two kinds, the so-called resistance exercises and medical gymnastics. The former consisted of extension and rotation of the extremities and trunk, performed against a measured degree of resistance offered by a trained assistant. Their beneficial effects in feeble dilated hearts were attributed to dilatation of the intramuscular arterioles, and consequent unloading of the heart's cavities. Patients with chronic myocarditis soon appreciated the benefit of exercise by a lessening of dyspnea and palpitation by increased strength and by reduction in abdominal girth. The author maintained close watch of the effects and in some cases combined medicinal therapy with the exercises. He concluded that (1) he was justified in recommending medical gymnastics as an important part of the management of myocardial incompetence when this was not too advanced. (2) They should be performed only with the aid of a trained assistant, who understood the object and kind of exercises to be given, and who would maintain close watch upon the pulse and respiration. (3) These medical gymnastics produced results similar to those of resistance exercises, and in suitable cases more quickly and powerfully. (4) Individuals with myocardial incompetence should not be allowed to substitute for these medical gymnastics so-called self-resisting movements at home. (5) The effect on the heart should be watched by a physician, who could judge of the degree of benefit obtained and how long the exercises should be taken.

The Use of the X-Ray by the General Practitioner.—Dr. George S. Edmondson of Clinton had used the *x*-ray in diagnosing dislocations. He had been highly pleased with this treatment in cases of lupus. One case of carcinoma of the cervix yielded nicely to the application of the *x*-ray by means of the Caldwell tube, but returned just as rapidly after the treatment had ceased. He had treated many cases of superfluous hair on the face, and in not one had he witnessed a failure to remove the hair. In the course of a few months the hairs invariably returned, but usually were not so hard to remove the second or third time. He had treated several cases of acne by means of the *x*-ray with satisfactory results.

Fracture of the Base of the Cranium, with Diastasis of the Left Temporoparietal Articulation; Complete Recovery.—Dr. George de Tarnowsky of Chicago reported a case of fracture of the base of the cranium, and summarized by saying that all head injuries should be prepared in a surgical way. All cases should be placed under the very keenest observation obtainable. Do not operate in cases of diffuse cerebral contusion. A progressive disintegration of cellular structures could not be restrained by a simple relief of pressure. Never operate hurriedly without having first observed the symptoms of the case and their trend, namely, increasing severity or manifest tendency to spontaneous recovery. Having diagnosed epidural hemorrhage, if coma should deepen, temperature decline, and pulse grow weaker, operate at once; if, with reaction, the clinical picture showed a tendency to remain stationary or to clear up, wait and watch. Not all blood clots needed surgical removal in order to effect a complete recovery.

Traumatism of the Brain.—Dr. J. W. McDonald of Aurora discussed fractures of the skull, their diagnosis, and treatment. He devoted considerable space to the consideration of intracranial lesions, such as hemorrhage, thrombosis of sinuses, contusions, lacerations, and their sequelæ. He likewise discussed meningeal and parenchymatous inflammations usually of a septic character. He reported a case which was interesting on account of the extent of the fracture, laceration of the artery, extent of the hemorrhage, and the speedy recovery.

Dr. Daniel N. Eisendrath of Chicago said there was a condition of laceration or contusion of the brain which must be separated completely in the diagnosis and prognosis from concussion and compression. There might be cases of contusion or laceration of the brain without any of the accompanying symptoms of head injury, such as were usually found in compression and concussion. These cases manifested themselves shortly after the injury without any of the symptoms of unconsciousness or any of the other focal symptoms except a focal disturbance, such as would be ordinarily due to pressure upon some cortical area

of the brain. Aphasia, or a condition known as paraphasia, was well illustrated in a case recently operated on by him, for other focal symptoms, such as hemiplegia or monoplegia.

Dr. T. J. Sullivan of Chicago said that in all injuries, where there was only a slight abrasion, no one was justified in allowing them to pass without thoroughly shaving, disinfecting, and closing the wound with some occlusive dressing. In many of these injuries, where there was an escape of fluid from the ear, and where other symptoms did not warrant immediate operative interference, thorough attention to the ear was essential. The ear should be thoroughly washed with soap and water for a considerable time, and after that with alcohol, and in children, for instance, where there was an escape of serum, it could be completely stopped, and an occlusive dressing applied by packing the ear with iodoform gauze, saturated with compound tincture of benzoin. This would prevent the escape of serum, make an antiseptic occlusive dressing, and cut off the port of entry of infection.

Dr. S. C. Stremmel of Macomb agreed with the last speaker, but could not agree with Dr. McDonald in using applications of ice in these cases, as it interfered with repair afterwards in cases of the milder injuries. In the more serious injuries it was different.

Dr. H. C. Fairbrother of East St. Louis said the picture complex of a fracture of the base of the skull was variable, and not the same in any two cases, depending on the site of fracture, the amount of hemorrhage, and the crushing force producing the fracture, so that there was no definite picture of symptoms pointing to certain fractures of the base of the skull, and the only certainty in arriving at a conclusion is by post-mortem examination in fatal cases.

Dr. McDonald, in closing, on his part, said that an ice-cap may be used when indicated only, and then not applied to the site of the fracture, as it would delay repair.

Dr. Tarnowsky, in closing, said he thought the diagnosis of fracture of the base and of diastasis of the temporoparietal articulation was positive in his case and not guesswork.

Injuries to the Diaphragm.—Dr. John Young Brown of St. Louis delivered an address on this subject, in which he emphasized the importance of early diagnosis and the prompt surgical treatment of these injuries.

Further Studies in the Treatment of Tuberculous Sinuses, Fistulous Tracts, and Abscess Cavities.—Dr. Emil G. Beck of Chicago said that in the ten cases presented before the Chicago Medical Society, January 15, the fistulæ had remained closed, and the two which at that time had a slight discharge had since closed. A longer series of cases treated since, with equally good results, had taught him some new points. First, the bismuth paste, if it was not discharged during the healing process, became encapsulated and finally absorbed. In cavities with rigid walls, the bismuth plug became first organized by connective tissue, and after absorption of the bismuth, fibrous tissue remained. When the walls of the abscess were resilient, such as the pleura, for instance, they would gradually collapse while the bismuth was undergoing absorption. This could be proven, first, by the taking of radiographs at certain periods; second, by physical examination of the patient; third, by microscopic examination of tissues. Bismuth subnitrate, although considered an insoluble substance, had been proven to be absorbed, when taken internally, or injected into fresh wounds. It was found by many observers in the urine, blood and milk, as well as in the organs thirty days after ingestion. Having proven the absorption of bismuth, the practical question arises, Is the absorption harmful? Little was heard of poisoning by bismuth, although nearly every practitioner prescribed it, and radiographers administered as much as forty grams of pure bismuth subnitrate in one bismuth meal, to obtain radiographs of the digestive tract, and none had observed any ill-effects from it. A few authentic cases of bismuth poisoning found in literature had put him on his guard, but in about two thousand injections he had not yet met with any symptoms of poisoning. Guinea pigs were injected with 1-20 of their body weight of bismuth paste, exhibiting no symptoms of poisoning. Arsenic-free bismuth might be considered harmless, but it was safer not to use more than 100 grams of the 33 per cent. bismuth-vaselin paste in the first injection. The bactericidal value of bismuth subnitrate had been underestimated. It had been determined by him that its presence in the living tissues invariably caused the gradual diminution and often a complete extermination of microorganisms in the secretions. The *Bacillus tuberculosis* shared the same fate. The discharge from the fistula likewise changed from a purulent or a seropurulent to the serous. The method was contraindicated wherever the plug might obstruct the secretion from vital organs, or in the cranial cavity, where pressure on the brain might cause serious damage. There was a promising field in the sinuses of the head. Five cases of resisting suppurative disease of the antrum of Highmore had been cured by Dr. Joseph C. Beck by this method. The most important advance made since January 15 was the prevention of tubercular sinuses. The method was as follows: A cold abscess following tuberculous disease should, under the most aseptic measures, be opened by an incision about one-quarter inch long, the pus evacuated, the cavity refilled at once with half the quantity of a ten per cent. bismuth-vaselin paste, and the opening not sealed. A sterile gauze dressing was placed over the incision and a five-yard sterile gauze bandage was snugly put on and securely pinned, so that the patient, usually a child, could not displace and infect it. Fresh dressings are to be applied daily under aseptic measures. Should the opening close and fluid reaccumulate, it should be reopened; the fluid, which was then more serous, squeezed out, but the cavity need not be refilled, as it would usually remain collapsed. Three cases so far treated in this way had demonstrated the practical value of the prophylactic method by bismuth paste injection.

The Treatment of Joint Tuberculosis.—Dr. Edward H. Ochsner of Chicago said that the treatment of joint tuberculosis naturally came under three headings—general hygiene, the treatment best suited for joints in general, and the special measures required for each individual joint. Under hygiene we must give special attention to fresh air and proper food. Under the second heading we must strive to relieve pain and to raise the resisting power of the patient. This could be best accomplished by absolute immobilization, subcutaneous injections of minute doses of Koch's new tuberculin under the control of the opsonic index, and the prevention of secondary infection. If secondary infection should occur, the sinus could usually be healed by the injection of bismuth paste. In immobilizing the joints there were two points to be observed: First, to immobilize it absolutely, and (2) to put the limb in such a position that the antagonistic muscles were in perfect equilibrium. If this was accomplished, the muscle spasm would soon subside, the pain would be relieved, and a long step taken towards a cure of the affection.

Fetal Death in Utero.—Dr. C. G. Smith of Red Bud read a paper on this subject, in which he drew the following conclusions: (1) The fetus becomes to all intents and purposes a foreign body in the uterus as soon as it ceases to be viable. (2) It is not good practice to permit a fetus to remain in a woman longer than fifteen or twenty days after it has perished. Procrastination here may become equally as harmful as meddlesome early interference. (3) The removal of a dead fetus by careful surgical procedure, without the use of emmenagogues or ecobolics, when carried out along the lines of strict surgical cleanliness, can not work harm to the woman. (4) It appears that the advanced age of the parturient woman, in some cases, reduces the general vitality of those forces which are

concerned in the work of developing the product of conception, and this reduction of vitality may become the prime factor of intrauterine death.

Ectopic Gestation.—Dr. Arthur B. Eustace of Chicago reported a case of ectopic gestation which presented some interesting features, and drew the following conclusions: (1) The probabilities are that an intrauterine pregnancy in this case did not exist and that the gangrenous condition of the appendix was secondary to a suppurative process in the right Fallopian tube. (2) That a positive diagnosis of the conditions within the abdomen could not be made. (3) The surgical technique primarily used, *i.e.* vaginal celiotomy, was contraindicated, as it was impossible to use the proper surgical therapy necessary to correct the intraabdominal condition by the vaginal route. If later a laparotomy had not been performed, the condition of the vermiform appendix and the right Fallopian tube might never have been recognized, unless found at autopsy, whereas his patient made a complete recovery.

Treatment of General Peritonitis Complicating Appendicitis.—Dr. Daniel N. Eisendrath of Chicago reviewed briefly the principal points in the pathology and diagnosis of this complication of appendicitis. Although it was formerly regarded as a much dreaded condition, it was now felt that the surgeon could control the outcome in the majority of cases if they were seen during the first twenty-four to seventy-two hours. The reasons for this improvement were a rapid technique in removing the source, *i.e.* the appendix, a minimum amount of manipulation of the intestines with no irrigation, the use of the Fowler position, and the continuous administration per rectum of normal saline solution.

President's Address.—President Baum, in this address, suggested a State Commissioner of Health and a Board of Medical Examiners in lieu of the present State Board of Health, saying that these two separate offices had worked well in other States. This matter would be referred to the Legislative Committee, who would be instructed to prepare a bill covering the recommendation and present it to the State Legislature.

Some Observations on Ophthalmia Neonatorum.—Dr. Willis O. Nance of Chicago related some personal observations on the management of purulent conjunctivitis in the newly-born. He emphasized the value of Credé's method of prophylaxis, and pleaded for its more general adoption in private practice. The idea that ophthalmia neonatorum and gonorrheal ophthalmia were always one and the same did not hold good in the light of modern thought and investigation. Seventy per cent. of the author's cases were gonorrhea; the pneumococcus was responsible in ten per cent., and the staphylococcus, diplobacillus, and *Bacillus coli* were found in the remainder. Silver nitrate was the remedy *par excellence*, and no other preparation could take its place. Irrigations with permanganate of potassium, 1-15,000, by fountain syringe, using from one to two quarts three times a day, had proven particularly efficacious. When the lids were swollen, canthotomy was indicated. Warm applications were preferable to cold; the former, by stimulating circulation, enabled the leucocytes to wage a better fight against the pathogenic germs of the disease. Corneal complications were responsible for loss of sight. If haziness or ulcer developed, it was usually an indication that the treatment was illy chosen, or that it was being ineffectually carried out. If the disease was recognized early, and intelligent treatment was instituted promptly, there need be little fear of an unfavorable outcome of the disease. The worst stage of the disease should be when the case was first seen.

Diagnostics in Spinal Surgery.—Dr. Julius Grinker of Chicago said that a correct history of the past illnesses and injuries was absolutely necessary because of the frequent connection of past trauma with the development of surgical diseases of the spinal cord. Attention should also be paid to the order in which symptoms developed, and whether the onset was slow or sudden. The objective examination would concern itself with disorders of (*a*) motility, (*b*) reflexes, and (*c*) sensation. The determination of the exact level of the disease and what structures in the cord were involved would occupy the greater portion of time. Finally, the relation of the objective cord findings with past and present history and possible findings in other parts of the body would often enable the surgeon and physician to make not only a localizing but also a pathological diagnosis. Modern spinal surgery depended entirely on modern methods which were based upon the recent painstaking labors of laboratory and clinical neurologists.

Traumatic Lesions of the Cord.—Dr. R. C. Borland of Rockford followed with a paper on this subject, in which he favored immediate operation on apparent crushing injuries of the spinal cord involving the entire extent of the cord.

The Ophthalmoscope.—Dr. Cecil M. Jack of Decatur drew attention to this instrument as an aid in diagnosis in general practice and said its use had not received the importance it deserved.

The Sanatorium; Its Influence and Value.—Dr. J. W. Pettit of Ottawa said the sanatorium must be considered from a business standpoint and conducted on business principles. Just in proportion as physicians departed from business methods in the conduct of these institutions just to that extent was their usefulness impaired and failure invited. It was not possible, except on the most extravagant scale, to provide for even a majority of these sufferers; therefore it was the duty of those most prominently identified with their care not only to devise inexpensive methods, but to firmly oppose the present tendency to extravagance and lavish display which characterized all of our leading sanatoria.

The Tuberculosis Dispensary.—Dr. Ethan A. Gray of Chicago said the dispensary was, in the smaller cities exactly as it was in the larger, a most economical and efficient means of treating the moderately advanced indigent consumptive. Its influence was, in his opinion, quite as broad, if not broader than the sanatorium, by reason of the larger number of patients reached. Especially was this true where house conditions permitted of the ideal home treatment.

How Shall We Apply the New Antituberculosis Law?—Dr. E. J. Brown of Decatur said that if in each county the local medical society as a body would take up this matter and obtain through the referendum a carrying out of the provisions of this act in their respective communities, many hundreds of cases could be successfully treated, further infection of other people could be prevented, and millions of dollars saved to their families and the State thereby.

Frontal Sinus Surgery.—Dr. A. E. Prince of Springfield exhibited two typical cases, one a frontal sinus obliteration after the Killian method, in which the anterior wall of the frontal sinus was removed, and the other after the Jansen method, in which the floor of the frontal sinus was removed, thus eliminating the deformity. Dr. Prince spoke of three things which had heretofore retarded the progress of frontal sinus surgery, namely (1), danger to life. This was obviated by the use of radiographs, which indicated the lateral and antero-posterior diameter dimensions of the sinus. (2) Doubtful cure. This was corrected by thorough curettement and perfect drainage, the thoroughness of which had been emphasized and popularized by Prof. Killian, who removed the anterior portion of the os planum and the diseased cells of the ethmoid. He also removed the anterior wall of the sphenoid when necessary. (3) He emphasized the fact that the Killian operation, although excellent as regarded a cure, was not desirable for the American people, who placed a great deal of stress on personal appearance. This objection had been met by a modification of the Jansen operation, which was

especially advocated by Dr. Arnold Knapp of New York. Dr. Prince exhibited a further modification which was illustrated by one of the cases exhibited, showing no deformity. In this operation an incision was made along the eyebrow, but did not extend down the side of the nose. He presented a new rongeur forceps, which enabled him to remove the floor of the sinus, the anterior ethmoid cells, and to make a free communication into the nose through a comparatively small incision, which made the operation entirely devoid of deformity.

The following papers were also read: "Self-Cure by Advertised Medicine; or, Does It Pay to Have a Doctor?" by Dr. Chas. L. Mix, of Chicago; "Serum Diagnosis of Syphilis," by Dr. Wm. J. Butler, of Chicago; "Five Hundred Consecutive Cases of Alcoholism," by Dr. J. F. Hultgen, of Chicago; "Placenta Prævia," by Dr. F. D. Hollenbeck, of Chicago; "An Interesting Case in Diagnosis Confirmed by Surgical Operation," by Dr. C. B. Horrell, of Galesburg; "Diagnosis and Treatment of Acute Tenosynovitis of the Hand," by Dr. Allen B. Kanavel, of Chicago; "The Significance of Inflammation and Its Treatment," by Dr. S. C. Stremmel, of Macomb; "Psychic Aberrations Associated with the Diseased Prostate Gland," by Dr. J. F. Percy, of Galesburg; "Obstetrical Work by the Country Doctor," by Dr. C. B. Brown, of Sycamore; "Extrauterine Pregnancy and Hematocele," by Dr. A. Belcham Keyes, of Chicago; "Plea for More Active Cooperation with the Local Secretary," by Dr. C. Hubart Lovewell, of Chicago; "Fracture of the Patella," by Dr. A. P. Heineck, of Chicago.

Officers.—The following officers were elected: *President*, Dr. J. W. Pettit, of Ottawa; *First Vice-President*, Dr. J. L. Wiggins, of East St. Louis; *Second Vice-President*, Dr. E. M. Eckhard, of Peoria; *Secretary*, Dr. E. W. Weis, of Ottawa, reelected; *Treasurer*, Dr. E. J. Brown, of Decatur, reelected.

Quincy was selected as the place for holding the next annual meeting; time, third Tuesday in May, 1909.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 23, 1908.

DR. WILLIAM S. STONE IN THE CHAIR.

Report of Two Cases of Fecal Fistula, One Abdominal, the Other Ileovaginal; Operation; Cure.—Dr. CHARLES F. ADAMS reported these cases:

CASE I.—This case had been referred to him on July 23, 1907, by Dr. F. M. Burke of Brooklyn. She was forty-six years of age, had been married at the age of seventeen, and had seven children, the last fourteen years ago. She was well-nourished, and her general condition was good. She had had a feeling of bearing down for nearly a year, but no pain. For six months she had had a bloody discharge on intercourse. Examination showed the uterus high up in the pelvis, and barely reached by the examining finger. The cervix was completely involved in a cancerous growth, and the vaginal walls partially folded in over the growth. There was a serosanguinolent discharge with characteristic odor, and the cervix bled at the touch of the finger. The patient was told that the growth would probably return if removed, but she decided to risk an operation, and was admitted to the hospital on July 29, 1907. The following day she was operated upon. Dr. Adams had at first intended to do a partial vaginal hysterectomy, but the uterus was so high in the pelvis, and the vaginal walls so voluminous, with a narrow vaginal outlet, that he decided to go in from above. The uterus and appendages were removed, which was very difficult, as a large part of the operation had to be done by the sense of touch. The incision was closed in layers, plain catgut for the peritoneum, and chromic No. 2 for the fascia, and a subcuticular suture for the skin. Considerable shock followed the operation, but she experienced absolutely no pain after coming out of ether. The pulse kept about 120, and the temperature from 100° to 103° for four days, when the dressing was removed, and a foul seropurulent discharge was observed coming from the lower part of the wound. On the following day there was a separation of the lips of the incision down to the fascia with necrotic edges. The next day the whole line of incision had given way. The upper portion of the wound was covered by the omentum, but the lower part showed peristalsis taking place. For several succeeding days the wound was carefully dressed. On the sixteenth day, a tiny fecal fistula appeared in the most prominent loop of the small intestine. It was hoped that, as the fistula was so small, it might close up of itself, but he was disappointed. One morning he touched the opening with a stick of pure nitrate of silver, and the following day he found the opening the size of a goose quill, and the patient flooded with fecal discharge, the skin about the opening being badly excoriated. He operated upon her a second time, just one month after the first operation, and found the intestines bunched up in a mass in the incision, and densely adherent. In separating them, he made several more holes, which he sewed up. The original fistula was freed by removing a wedge-shaped piece from the free border by which he was able to get healthy tissue to unite without interfering with the mesenteric attachment. In closing the wound, he used through-and-through sutures of catgut, interrupted with knots coming inside the gut and Lembert sutures of catgut over this. The abdominal wound was partly closed with catgut, making use of a three through-and-through suture of silver wire and tension sutures, and not closing the wound tightly at the lower extremity for the purpose of giving drainage. There was a slight leakage of fecal matter on the third and fourth days, after which the patient made a good recovery. She was at present in good health, although there was considerable thickening in the vault of the vagina.

CASE II.—This was a case of illeovaginal fistula, operated upon in St. Mary's Hospital, Jamaica, on August 20, 1906. The patient was thirty-three years of age, and had one living child. In October, 1905, she had had a criminal abortion performed, and had peritonitis; she was confined to her bed until the following June. During this time a fecal fistula developed, establishing a communication between the small intestine and the vagina. She claimed that it appeared directly after the attempt at abortion. There had been a profuse discharge of fluid feces. Her weight fell from 154 to 94 pounds. Under the anesthetic examination showed a fistulous opening in the right vaginal fornix, which allowed a probe to pass for several inches; with the finger in the rectum, it was demonstrated that it did not communicate with that organ. With the exception of some thickening to the right of the uterus around the site of the fistula, the uterus and appendages seemed to be normal. The abdomen was opened in the median line. A loop of the intestine was found firmly bound down in the cul-de-sac extending from the median line to the right. This was freed with difficulty, and found to be the real seat of the fistula. About fourteen centimeters of intestine were resected, and the ends brought together with a Murphy button. The fistulous opening in the vagina was enlarged, and gauze drainage introduced. The patient made an uneventful recovery, the button coming away on the twelfth day.

Dr. ABRAM BROTHERS said he was interested in the question of when one should operate for the various forms of fistula. He had seen fistulas occurring after operation heal spontaneously. His cases had uniformly healed of their own accord. Some of these fistulas had followed operations for appendicitis, and some had followed operations on the adnexa, etc.

Dr. ADAMS said he thought that where the large intes-

tine was involved one could not get good results by any other than operative measures.

Dr. Brothers believed Dr. Adams was correct, when the sigmoid, rectum, or other portions of large intestines were involved.

A Case of Strangulated Dissecting Hernia, Simulating Peritubal Suppuration; Exsection; Recovery.—Dr. Arnold Sturmdorf related the history of this case. He said that "dissecting" properitoneal, or intestinal hernia, as it was called, was uncommon, especially in the female. The form known as the parainguinal was presented by the case related. The hernial canal ran parallel to the inguinal canal without any anatomical relation to the inguinal rings proper. The hernial sac, with its strangulated contents, was fixed within the layers of the abdominal parietes. The cases reported in literature like the present case were usually not detected until strangulation was present, so that it was difficult to detect exact conditions. The term parietal was applied to those cases in which the sac existed between the layers of the abdominal wall, either in the loose connective tissue existing between the peritoneum and the fascia transversalis, or between the internal and external oblique. The sac might spread in several directions, sustaining constrictions by fascial and muscular bands producing the bilocular or multilocular forms of this hernia. Of 115 cases collected by Gobell, 111 were in males and four in females. The occurrence of these hernias was attributed to a congenital diverticulum of the peritoneum escaping through abnormal ostia, resulting from embriological imperfections in the abdominal parietes. The case in question was a Russian, thirty-four years of age, married eight years, had had six children and two miscarriages. Her family and previous history was negative. Her present trouble dated back one year, and was supposed to have followed a currettage after the last miscarriage. The symptoms were attacks of pain with intervals of pain and fullness of the right side on a transverse line inwards, and about one inch from the anterior superior spinous process, some constipation, and leucorrhea. She had been treated for "womb trouble" in the outdoor department of Mt. Sinai Hospital. Five days before admission to the speaker's service she was seized with an attack of pain more severe than any hitherto experienced, which was accompanied by uncontrollable vomiting and constipation. The vomiting was not fecal, but the constipation was complete. The temperature was 100.8°, and the pulse 120. The general condition was good. One inch to the inner side of the right anterior superior iliac spine an infiltrating, resisting mass seemed to invade the abdominal parietes, covering an area of about four fingers' breadth and extending downward toward the right adnexa, which presented evidences of an old infection. The uterus was fairly mobile, and the left adnexa normal. The urine showed increased indican, the blood a leucocytic count of 23,400, with 94 per cent. polynuclears. These points seemed to suggest an old suppurative process with intestinal obstruction, due to adhesions or inflammatory bands. An incision was made directly over the prominent point of the mass. Dissection through the infiltrated muscles down to the transversalis fascia revealed a hernial sac with six inches of gangrenous ilium, constricted by an abnormal opening in the fascia, the hernia lying between the fascia and the peritoneum. The normal condition of the inguinal rings and canal was easily demonstrable. Exsection of the involved gut with its mesentery, followed by anastomosis, resulted in complete relief of all symptoms and the entire recovery of the patient.

Pregnancy Toxemia, Dead Fetus, Cicatricial Cervix, Vaginal Cesarean Section.—Dr. LeRoy Broun related the history of Mrs. H., aged thirty-seven, mother of several children, who consulted him on March 22, stating that she had not menstruated since September 19, and that she had only felt life on one occasion. Examination revealed the presence of a large fibroid in the fundus of the uterus, associated with pregnancy. The fetal heart was 150. Her temperature was normal and urine contained no albumin. The scant amniotic fluid brought the fetal parts into strong relief, simulating the presence of other fibroids. The head seemed to press firmly against the cul-de-sac. The possibility of this being a fibroid was admitted. The following day the physician was sent for on account of vomiting, though her condition was apparently good. Her pulse was 110, and she passed a good amount of urine. Her family objected to her going to the hospital, but finally, on March 30, she was brought to the Woman's Hospital, where Dr. Broun saw her, and found her without any radial pulse. Three ounces of urine, heavy with albumin and casts, were withdrawn. Her condition precluded any anesthetic. The cervix, which was hard and sclerotic, was dilated sufficiently to admit a finger. A bougie and bag were introduced. The patient was bled ten ounces, and a pint of salt solution was put under each breast every two hours; rectal irrigation with hot saline solution was kept constantly running. Within the next twelve hours she passed three drams of urine, and at the end of twelve hours her pulse became perceptible at the wrist. The uterus was then emptied by a vaginal cesarean section, the entire operation taking fifteen minutes. The saline injections and rectal irrigation was continued, but the kidneys ceased to act, and the patient died eighteen hours after the operation. No autopsy could be obtained, but Dr. Broun believed there were degenerative liver changes associated with some kidney lesion; otherwise, he could not explain the vomiting, which continued for four days, and the failure of the kidneys to respond after emptying the uterus. He presented the fetus, which had a marked spinal deformity. He presented the case for the purpose of accentuating the value of vaginal cesarean section in cases requiring rapid emptying of the uterus, when the existence of a sclerotic cervix rendered instrumental dilatation a dangerous operation. The existence of an unyielding cervix was risky in the extreme, being almost certain to be attended by deep tears to the base of the broad ligament, even extending to the lower segment of the uterus, followed by profuse hemorrhage. Vaginal cesarean section was practically devoid of danger in skillful hands, and could be performed in fifteen to thirty minutes.

Drainage After Rupture of Recent Ovarian Abscess.—Dr. LeRoy Broun reported this case, a woman, twenty years of age, married, who had aborted two weeks previous to entering the hospital. Since aborting there had been a vaginal discharge and tenderness over the lower abdomen. There was a tuboovarian mass on the left side, which was removed. The condition was one of salpingitis with a small ovarian abscess. The abscess was ruptured during removal, but the intestines were not soiled. On account of the recent occurrence of the infection, a pelvic gauze drain was introduced, isolating the site of the operation. The patient made the usual recovery, with the exception of a staphylococcus infection of the abdominal wound. He reported this case to bring out the fact that a certain class of cases should be drained. Tuboovarian abscesses of long standing were uniformly sterile, and operations for these need not be followed by drainage. In such cases, drainage was necessary only to stop oozing from a large raw surface, or in order to render certain necrotic areas in the site of the old abscess extraperitoneal. In the class of patients to which the case reported belonged, the bacteriological activity remained for some time after the subsidence of the acute condition of the uterus, and in such cases he had had the best results by introducing drainage.

Dr. Abram Brothers said that he thought every case of vaginal cesarean section should be placed on record. He wished to report a case operated upon about three months ago for conditions almost parallel to those of the case reported by Dr. Broun. The patient was a primipara, seven months pregnant. She was known to have albumin

in her urine one week before operation. She was placed in the best dietetic and hygienic surroundings in order to overcome the toxemia. She was seized with her first convulsion with a urinary secretion of forty ounces. Two more convulsions followed within a short time, and with no signs of labor coming on and a rigid cervix, he decided that a cesarean section was justified. As the patient was in no condition to be removed to a hospital, he performed the operation at her home. The convulsions ceased, and she went on to complete recovery except for a small vesicovaginal fistula, which he proposed to close in the near future.

Dr. Samuel W. Bandler said that he had had the opportunity of performing three vaginal cesarean sections, and the results in all three cases had been most gratifying and without injury to the mother.

Dr. Arnold Sturmdorf said he had had one sad experience with toxemia of pregnancy. His patient was a doctor, who was anxious to have offspring. The urine was examined regularly, and absolutely nothing was found. At 12 o'clock he was summoned, and found Dr. Dorman doing post-mortem cesarean section, trying to bring a living child into the world. At autopsy there were found the characteristic changes in the kidneys. There were no cardiac lesions. As to the question of pelvic drainage, he said that in acute conditions in the presence of temperature or of acute infection they should drain. Once the acute stage had subsided, it made no difference whether they drained or not. In subacute or chronic stages of suppuration the pus would seek the path of least resistance, and the introduction of gauze drainage might block the pus.

Dr. William S. Stone said that in acute fulminating cases, whether you emptied the uterus or not, the result would be the same. Such cases were analogous to cases of putrefaction from retained gestation products, with chills, rise of temperature, and the patient going on to complete convalescence.

Demonstration of a Manikin of the Pelvis.—Dr. Dougall Bissell presented this manikin, in order to demonstrate the operation for retrodisplacements about the round and broad ligaments. The after-treatment of these cases had not received sufficient attention. If the bladder was allowed to collect ten or fifteen ounces of urine it would force the uterus back further than one would imagine. This he demonstrated with the manikin. The bladder should be emptied more frequently after these operations than was often done.

Uninterrupted Tubal Pregnancy.—Dr. Hermann J. Boldt reported this case. Mrs. H., thirty-four years of age, mother of one child, was operated on September 9, 1904, for ruptured tubal gestation, complicated by peritonitis. The ruptured part of the tube was tied off, and the remnant with the ovary left. The right Fallopian tube was found to be in a condition of catarrhal inflammation, but was left *in situ*. The patient remained in excellent health until March 25, when she had gone four days over her period, and wished to know whether she was pregnant, as she had made arrangements to go to Europe in a few weeks. Examination showed the uterus to be slightly enlarged. To the right of the uterus a tubal swelling was felt, which was slightly sensitive to the touch. The diagnosis was made of either an early intrauterine pregnancy with an acute salpingitis, or a tubal gestation with the usual accompanying changes in the uterus. There being no etiological factor for the sudden acute inflammation of the tube, he leaned to the diagnosis of tubal pregnancy. Three days later there seemed to be no change, except that the swelling was more sensitive. A day later she began to stain. On April 1, the swelling was more sensitive and larger, and, despite the fact that the woman had no subjective symptoms, he felt sure of his diagnosis, and decided to operate. The tube was exsected and the ovary attached into the cornu. The remnant of the other tube was also exsected and the ovary attached to the cornu. The large appendix, which was inflamed, was also removed.

Progressing Tubal Abortion.—Dr. Hermann J. Boldt reported this case. This patient had had her last child five months ago, and was operated on April 13. She complained of irregular bleeding and severe cramplike pain in the lower abdomen. She also had pain in the lower rectum. A mass three inches in diameter was found to the left of the uterus. The uterus was slightly softer than normal, but not appreciably larger. The patient was supposed to have aborted, and had been curretted, and the mass was thought to be of inflammatory nature. On opening the abdomen, the fimbriated end of the tube was found to be occluded by adhesions with the omentum and intestines surrounding the tube, all of which were firmly adherent. The ovary being seriously affected, it was removed with the tube. Both patients were out of bed three days after the operation.

The Development and Malformation of the Female Genitalia.—Dr. Henry P. DeForest read this paper. He said that there was no treatise in existence in which the origin and development of the genital apparatus in the female was discussed, and at the same time the ultimate outcome of the variations in the normal development as they occurred in the adult was exemplified. He had tried to coordinate the two subjects and to show the comparison of the development and the malformation of the female genitalia. The three structures concerned in the formation of the sexual organs of both male and female, the Wolffian body and its duct, the Müllerian ducts, and the genital gland, existed in every embryo at an early stage of fetal life. As development progressed, the Müllerian ducts were principally concerned in the formation of the female sexual organs, while the rôle played by the Wolffian bodies was of little importance. In the male the Wolffian bodies played a principal part in sexual development, and the ducts of Müller were not entirely obliterated and the uterus masculinus might be of sufficient size to show a distinct uterine formation. The genital gland developed in the first instance into the ovary and in the second into the testicle. There was a tendency at the present time to maintain that sex was predestined from the very ovum itself, and while this theory was not firmly substantiated, it might also be true within the ovum cell. Variation might exist from the very onset of embryonic life. The fact remained, however, that from time to time individuals developed, presenting in one person well marked characteristics of both sexes, although, as a rule, one sex predominated. By reason of the wide variation of forms that had been observed, a more or less elaborate system of classification had been defined. He had used the one adopted by Van Cott. The general condition was known as hermaphrodisnus. There were two varieties, true and false. In the true the female generative organs were present; in the false either a male or female genital canal and either male or female genitalia. There were three forms of the true varieties: 1. Bilateral, ovaries and testicles on both sides. 2. On one side an ovary and on the other a testicle. 3. Unilateral, on one side ovaries and on the other testicles. In the majority of the cases of the true variety functionally active male and female organs were not present. Either the ovaries or testicles were stunted. There were two forms of pseudohermaphrodism, male and female. The male pseudohermaphrodism fell into three subdivisions: A. Complete: Testicles present, also tubes, uterus, vagina, and female external parts. B. External: Testes and male genital canal with female internal parts. C. Internal: Persistence of Müllerian ducts, rudimentary vagina, uterus, and tubes; testes and male external parts. The female pseudohermaphrodism (with ovaries) fell into three divisions: A. Complete: Ovaries, persistent Wolffian bodies and all male external genitals. External: Ovaries, internal female genital canal, external male organs. C. Internal: Ovaries, external female

genitals, persistent Wolffian duct. The majority of the false varieties of hermaphrodism belonged to the male sex. Dr. DeForest then related the following case. The individual was 24 years of age. The family history could not be obtained. The person had been reared as a woman, had menstruated regularly, and in both appearance and manner of life was regarded as a young woman of rather prepossessing appearance. She had no growth of hair upon the face or elsewhere, except on the pubic and axillary regions. She lived in a boarding house where was also a man of fifty and his daughter of eighteen. She lived with this man as his wife in a surreptitious manner, became pregnant, and was delivered of a child. In the meantime the daughter of the man became very friendly with her, and the masculine side of her nature asserted itself, and, overcoming the scruples of the girl, they lived together as man and wife. The daughter became pregnant and in turn was also delivered of a child. No further history of this unusual case could be obtained. A photograph was exhibited, showing the upper part of the body to be that of a well developed woman, the hair long, the contour of the face, though somewhat masculine in type, suggested a woman rather than a man. The breast were large and well developed. The lower part of the body was distinctly masculine in type, the pelvis and hips narrow and the external genitals, upon superficial inspection, were those of a man. The penis was well developed and both testicles were present and of large size. Another photograph showed that upon raising the penis and supporting the two halves of the divided scrotum, the vagina was exposed. The condition and arrangement of the internal organs could only be conjectured, but, in view of the fact that menstruation and impregnation took place, there was no doubt that a uterus existed and that one or both ovaries were present and functionating.

Dr. Samuel W. Bandler, Dr. Abram Brothers, Dr. H. V. Vineberg and Dr. LeRoy Broun discussed the paper.

Dr. DeForest closed the discussion.

SIXTH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Held in Washington, D. C., September 21 to October 12, 1908.

(Special Report to the Medical Record.)

SECTION ON PATHOLOGY AND BACTERIOLOGY.

Fourth Day—Thursday, October 1.

The Problem of Immunity in Tuberculosis.—Dr. Edward R. Baldwin, Saranac Lake, in a brief review traced the beginning of preventive inoculation experiments from the time of the discovery of the bacillus by Koch. The Americans were among the earliest to achieve a degree of success, especially Trudeau and de Schweinitz. Results on the whole were discouraging. The soluble extractives of tubercle bacilli having failed to immunize animals, Koch introduced the emulsions of new tuberculins which were partially successful. The discovery of differences in virulence between typical human and bovine types of bacilli by Theobald Smith gave an impetus to investigations of protective inoculations in cattle. To overcome the objections due to the use of living human bacilli and to apply the principle of immunization to human beings was the next step. Hope of this achievement was held out by von Behring in 1905, but nothing definite had been made public since then to indicate that this hope was justified. Other investigators had since worked with encouraging success—Pearson and Galliland, Calmette and Guerin, Heymanns and Klimmer. The situation now was not hopeful for the establishment of a long-continued immunity. Repeated protective treatment must be considered necessary from the present outlook and by means of an agent equally innocuous to cattle and mankind. The problem of passive immunity was still a distant goal which should not be forgotten; on this rested the hope of an efficient therapy.

Immunization Against Tuberculosis.—Dr. A. Calmette and C. Guerin, Lille, had published some time ago articles showing that it was possible to produce in cattle, goats, and guinea pigs a marked resistance to artificial tuberculous infection by way of the digestive tract. The resistance was obtained by feeding the animals emulsions of bovine tubercle bacilli. In cattle a single ingestion usually sufficed to produce an infection so slight that after reacting to tuberculin for one, two, or three months the animals ceased to react and became capable of resisting repeated doses of tubercle bacilli which infected the control animals. They possessed a special resistance against fresh tuberculous infections, a resistance which was in every respect comparable to that which Koch first observed in tuberculous guinea pigs that had received an injection of a fresh dose of virus. There could be no doubt that tuberculous animals and healthy animals prepared by previous large doses of tuberculin possessed incomparably greater resistance than animals which were new to the inoculation.

Experiments in Immunization Against Tuberculosis.—Dr. J. Bartel, Vienna, said the behavior of tubercle bacilli that had entered the body through natural channels indicated a protective action on the part of the cells of organs, especially of lymphocytes, against the infection. In vitro it was possible, with the aid of various organs, especially of a lymphocytic nature, to render living tubercle bacilli virulent by confining them for some time within the organs at a temperature of 38 degrees. This was true of human as well as of bovine bacilli. In the course of attempts to produce immunity on this principle, animals had been successfully immunized against an infection which proved fatal to the control animals

A Contribution to the Study of Tuberculous Immunity.—Drs. Jules Courmont and A. Lesieur, Lyons, made this contribution. The reinoculation of tuberculosis at another point on the body of an animal which was already tuberculous might give a positive or a negative result. They had tested this question on the guinea pig, using virulent cultures of bovine bacilli with the transcutaneous method. Favorable conditions found in the slowness of the process, the insignificance or absence of local lesions, and the magnitude of the caseous glands. The results were clearly defined when two successive inoculations were made at intervals of two weeks. The reinoculation was negative; no local lesion was produced; the glands did not become tuberculous and were never caseous. It was proven that a lesion in process of evolution prevented the evolution of a second inoculation.

Immunity Production by Inoculation of Increasing Numbers of Bacteria, Beginning with One Living Organism; Its Therapeutic Application.—Drs. G. B. Webb, W. W. Williams, Colorado Springs, and Prof. M. A. Barber, Kansas, referred to the importance of using living virus, as attempts to produce lasting immunity against tuberculosis by the inoculations of dead bacilli or their products had not proved satisfactory. A relative degree of acquired immunity to tuberculosis was suggested by the fact that probably 60 per cent. of all autopsies on man showed healed lesions. Organisms were selected from hanging drops, according to the technique of M. A. Barber, and inoculations made subcutaneously. Experiments made with mice, with anthrax bacilli; initial dose, one thread (about three organisms), gradually increased to 500 threads without causing evidence of disease. Immunity was thus produced. Guinea pigs with tubercle bacilli; initial dose, one bacillus, gradually increased to over 10,000, without symptoms of tuberculosis. Evidence of immunity. Rabbits, with tubercle bacilli; results on feeding with tubercle bacilli similar to other experiments.

Tuberculins and the Measure of Their Activity.—Prof. A. Calmette, Lille, in this contribution called attention to the fact that efforts had been made by means of various processes to obtain a purer and more active tuberculin. Koch's old tuberculin contained a large quantity of

foreign substances capable of producing a temporary rise of temperature when injected in nontuberculous subjects. These various attempts to obtain a new substance showed a great desire on the part of pathologists to obtain a product which would possess all the advantages of Koch's old tuberculin without producing the disturbing effects of the impurities. Prof. Calmette had finally prepared for therapeutic use a particularly active and relatively pure tuberculin which could be introduced intravenously into the body of a healthy animal in large doses without producing elevation of temperature, which was impossible with any of the other tuberculins. It was very well borne by tuberculous patients, and physicians experimenting with it in hospitals and sanatoriums had obtained excellent results, He did not claim that it cured tuberculosis, but evidently delayed the progress of the disease and endowed the organism with resistance to the infection.

The Treatment of Pulmonary Tuberculosis with Tuberculinum Purum.—Dr. J. Gabrilovitch, Halila, Finland, presented this paper. The tuberculin contained in full measure the active principles of Koch's old tuberculin. It was prepared from cultures of tubercle bacilli of the human variety, but was so altered by use of chemical agents that when used subcutaneously it no longer produced a general reaction, and could therefore be used in large and rapidly increasing doses, both in children and adults. It had been employed by the author in a sanatorium, as well as in private practice, and with good results. It could be used in cases of acute or subacute tuberculosis.

The Chemistry of the Tubercle Bacillus.—Dr. Victor C. Vaughan, Ann Arbor. The tubercle bacillus was grown in large quantity, and, after having been freed from fats, waxes, and other substances, soluble in alcohol and ether, was split up by an alcoholic solution of alkali into its poisonous and non-poisonous portions. The portion which was poisonous killed animals within a few months when given in doses of 75 to 100 mg. The non-poisonous portion sensitized animals to the tubercle bacillus but was without poisonous action. The non-poisonous portion had been used, and was being used, in the treatment of tuberculosis in man, but as yet it was too early to state whether it was better for this purpose than the old tuberculin.

On the Action of Soaps Upon the Vitality and Immunizing Property of Bacillus Tuberculosis.—Dr. Hidego Noguchi, New York, presented this paper. The experiments were to test the action of soaps on *Bacillus tuberculosis*. Oleate soaps possessed the power of modifying virulent tubercle bacilli so that when subsequently inoculated into guinea pigs they either failed utterly to cause lesions of tuberculosis or the lesions were much slighter in degree. Guinea pigs which failed on inoculation with oleate treated bacilli to develop tuberculous lesions acquired as a result of the inoculation a degree of immunity to virulent cultures of *Bacillus tuberculosis*. Oleate soaps possessed distinct bactericidal properties for bacillus tuberculosis. Addition of the soaps to otherwise favorable culture media prevented the growth of *Bacillus tuberculosis* even when the quantity was small. Solutions of the soaps brought in contact with emulsified bacilli diminished their ability to grow in cultures.

The Part of Enzymes in Tuberculous Lesions.—Dr. E. L. Opie, New York, had studied the enzymes of tuberculous tissue in animals inoculated in the pleural cavity with tubercle bacilli. The enzyme peculiar to polynuclear leucocytes was present shortly after inoculation, but quickly diminished in activity. A second enzyme which digested proteid in weak acid was present in abundance until caseation occurred, but subsequently disappeared. The serum of the exudate which accumulated within the chest lost the power possessed by the serum of the blood to inhibit this and similar enzymes. The enzymes which acted in acid were doubtless present in the epithelioid cells of the tubercle, and were similar to those of the large mononuclear cells of an inflammatory exudate which the epithelioid cells resembled. Autolysis caused by the enzymes no longer held in check might explain the occurrence of caseation in tissue containing products of tubercle bacillus and poorly vascularized.

Histochemical and Cytological Study of Tuberculous Sputum.—Drs. Fernand Benzancon and S. I. de Jong, Paris. The authors were unable to find any characteristic sign of a tuberculous nature of the pulmonary lesions, but discovered differences in the microscopic appearances of sputa, according to the variety and course of the lesion. In the ordinary form of chronic pulmonary tuberculosis the pulmonary endothelial cells were abundant and at first well preserved; often they were macrophagic. Elements often described as lymphocytes in tuberculous sputum were in reality fragments of densely packed polynuclear leucocytes, young pulmonary endothelial cells, or bronchial cells. During the period of cavity formation the degenerative features predominated. The investigations showed that prognostic information might be gained from this study of tuberculous sputum.

Studies on the Calcium Metabolism in Tuberculosis.—Dr. A. C. Croftan, Chicago, had conducted experiments to show that the deutero-albumose, almost universally present in tuberculous foci, sputum, cultures and media, and in the blood and urine of tuberculous subjects and tuberculized animals, when rendered calcium free possessed marked fever producing power in tuberculous animals and human beings, and that this power was lost when the albumose was again combined with calcium. The combination with calcium might, therefore, be considered as a protective antipyretic process in tuberculosis, and might aid in explaining the peculiar phenomenon of increased urinary calcium excretion, and suggested certain therapeutic possibilities which were strengthened by the observation that workers in lime salts seemed to possess a certain immunity against tuberculous infection.

Fifth Day—Friday, October 2.

Some Considerations Concerning Lesions of Tuberculosis.—Dr. W. T. Councilman, Boston, said the character of the tubercular lesion might be modified by the variety of bacillus and the number of bacilli. These differences were brought out by experiments on the lower animals. Animals not susceptible to a small number might be infected by a larger number. There was greater susceptibility of certain organs and local susceptibility due to injury or nutritional changes. Exudation entered more largely into the tubercle of the child than into that of the adult. As to the mode of infection, it undoubtedly took place both by the respiratory and alimentary tracts, as well as by the skin and genital tract. He demonstrated the histology of the tubercle, showing that the most predominant cells were the epithelioid and giant cells. The endothelioid cells migrated from the blood-vessels and were present in the tissue as wandering cells.

The Frequency of Healed Tuberculosis of the Mesenteric Glands, with Particular Reference to the Relationship to Hyaline Deposit in These Glands and the Healing of Tuberculous Lesions.—Dr. A. S. Warthin, Ann Arbor, in the course of ten years' study of the hemolymph nodes, had been struck by the constant presence of hyaline changes or deposits. These were usually spoken of as evidence of retrograde change, and no special value attached to them. He believed that they represented in all cases old healed lesions, and that the nature of the lesion in the majority or all cases was tuberculous. In all the cases of tuberculosis he examined he found transition changes between the lesion and these hyaline deposits. He believed that the intestinal portal of infection was as common and as important, if not more so, than the pulmonary.

Dr. Wm. H. Welch, Baltimore, said that these lesions had, of course, been long recognized, but the suggestion that they were tuberculous was rather new and extremely interesting.

Dr. W. T. Councilman, Boston, thought that though

tuberculosis could lead to these hyaline changes, they could also be produced from a number of other infectious diseases.

Prof. Harbitz, Christiania, agreed with Dr. Warthin that in most cases the hyaline deposits were due to tuberculous infection.

A Fibrotuberculoma of the Pleura.—Dr. Rist, Paris, reported a case of fibrotuberculoma of the pleura weighing ten pounds, occurring in the left pleura of a woman, taking the place of a completely atrophied lung. It was free in the cavity, being attached to the chest wall by a pedicle. Microscopical sections were shown.

Analysis of One Thousand Consecutive Autopsies in Montreal, with Reference to the Incidence of Tuberculosis in the Different Organs.—Drs. J. G. Adami and John McCrea, Montreal, presented this analysis of a thousand cases, showing tuberculosis past or present in 41.7 per cent., or 417 cases.

Anatomical Characteristics of Tuberculous Infections and Their Relation to Tuberculin Reactions.—Prof. S. Arloing, Lyons, showed that the lesions which accompanied tuberculous infection did not always represent tubercles visible to the naked eye. The lesions were sometimes extremely slight and visible only in histological sections. There were some cases in which the bacilli spread in the organism without leaving any trace of their passage. It might be revealed by experimental methods of diagnosis, especially tuberculin and the serum-agglutination test. These tests revealed the existence of infection rather than the presence of appreciable lesions.

The Pneumonic Process in Pulmonary Tuberculosis.—Prof. Raymond Tripier, Lyons, said in the lungs the morbid process in every kind of tuberculous formation was pneumonic, and it was observed that there was a simultaneous tendency to diffuse bronchopneumonia and lobular, sometimes pseudo-lobar, and exceptionally lobar inflammations which, if the condition became chronic, resulted in hyperplastic and sclerotic changes. If these productive phenomena which necessitated an increase of the circulation were frequently seen in pulmonary tuberculosis in spite of the debilitated state of the organism, it was because the caseous, necrotic lesions which were produced by the obliteration of numerous blood-vessels were necessarily accompanied by compensatory vascular dilatation in other portions. The diffuse pneumonic process was followed by diffuse sclerosis, and if hepatization took place it was never gray, but red, and its persistence produced hyperplastic pneumonia and the fibroid changes, which were to be regarded as cicatricial.

The Pathology of Tuberculous Peritonitis.—Dr. Walter Altschul, Prague, said that, although tuberculous peritonitis was quite frequent, as indicated by the fact that he found 299 cases among 10,322 autopsy reports, the recent pathological literature contained practically nothing about the etiology. Among 299 cases he found that 156, or 52 per cent., were women, and of these only 52 showed tuberculosis of the genital organs. By exclusion, the conclusion was arrived at that the infection traveled by way of the lymph channels, the path of infection being from the peribronchial lymph glands through the perforating lymphatics of the diaphragm into the peritoneal cavity, chiefly to the retroperitoneal glands, which were almost always involved in tuberculous peritonitis. That the infection actually did travel by this path was shown by those cases which presented tuberculous lesions only in the retroperitoneal and peribronchial glands.

Periostitis and Adipositis Tuberculosa Toxica Multiplex.—Dr. O. Amrein, Arosa, Switzerland. This was a report of a not yet described form of tuberculous disease, "multiple periostitis and adipositis." The chief characteristics of the disease were diffuse, hard, painful swellings (infiltrations) under the adipose tissue beneath the skin, without being abscesses, combined with infiltration of the periosteum, caused by the toxins of the tubercle bacilli.

Philadelphia County Medical Society.

At a stated meeting held September 23 a symposium was held on "The Division of the Fee." Dr. John H. Gibbon discussed the question from the surgeon's standpoint. He took the ground that such a practice is indefensible, being morally and ethically wrong to all the parties concerned. Both the attending physician and the consultant are entitled to adequate compensation, and the former, when requested, should designate the latter, by reason of his superior skill and knowledge and not on account of the size of a possible commission or division of fee. Dr. S. Solis-Cohen discussed the question from the point of view of the internist. He took the ground that there could be no difference between surgeon and internist as to the indefensibility of the practice. The injunction against procedures of that kind was issued many years ago in the words "Thou shalt not steal." In case of consultation the attending physician should receive from the patient a fee commensurate with the time required, the distance traveled, and the special skill contributed. Dr. M. Howard Fussell expressed the general practitioner's opinion of the evil. He was in entire accord with the views that had been expressed, and could conceive of no condition in which the payment of a commission by the consultant to the attending physician or a division of fees between the two would be justifiable. He felt that often the consultant should impress the patient with the value of the services rendered by the attending physician in arriving at an early and correct diagnosis and soliciting consultation with a view to effective treatment.

College of Physicians of Philadelphia.

At a stated meeting held November 4, Dr. Edward J. Wood of Wilmington, N. C., read by invitation a paper entitled "Studies of the Etiology, Pathology, and Symptomatology of Pellagra, with Reference to Its Endemic Occurrence." He referred to the distribution of the disease and to its recent recognition in the southern part of the United States, where a considerable number of cases have been observed. Here the disease occurs in all grades of society and it appears in two forms, acute and chronic. The former is almost invariably fatal, while the latter exhibits periodicity of recurrence, especially in the spring. Often there are constitutional symptoms, an anorexia, stomatitis, diarrhea, emaciation, together with paresthesial spastic-paralytic phenomena, as well as maniacal excitement, and hallucinations and delusions. A characteristic feature of the disorder is the cutaneous exanthem, which is rarely if ever absent. It appears on the hands, the feet, the face, the back of the neck, and at times in other situations. Often it takes the form of an erythema, while sometimes resembling sunburn. At other times it exhibits a weeping surface and it may be covered by crusts and be the seat of suppuration. Its striking feature is its almost exact symmetry in situation and in form. The disease is commonly attributed to the ingestion of Indian corn supposedly diseased, but it has been observed in persons not exposed to infection from this source, and in those using maize of the highest quality. Bacteria have been found in such corn and likewise in the blood of victims of the disease. No form of successful treatment is known. Drs. George E. de Schweinitz and T. B. Holloway presented a communication entitled "The Operative Treatment of Papilloedema (choked disc), with Special Reference to Decompressive Trephining." They pointed out the improvement in vision when this was impaired, and its preservation if impaired, effected by the relief of intracranial pressure in cases of brain tumor and allied conditions, and they made a plea for early operative intervention under such circumstances if the best results were to be obtained.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Indiana State Board of Medical Examiners.

May, 1908.

ANATOMY.

1. Give the structures of the gall-bladder and its surgical landmarks.
2. Give the origin and insertion of each of the following muscles of abdomen: Obliquus externus, obliquus internus, transversalis.
3. Name each bony prominence of the elbow and give its relations to the joint.
4. Name the blood-vessels and nerves divided in an amputation of the forearm at the union of the lower and middle third.
5. Name the blood-vessels that constitute the portal venous system, and the organs from which each conveys the blood.
6. Give the periods for the eruption of the temporary teeth.
7. Give the branches of the subclavian artery and thyroid axis.
8. Locate an incision for ligation of external carotid, and state what structures are encountered.
9. What muscles effect the displacement of the fragments in an oblique fracture from above, downward and backward, of the femur immediately above the condyles, and how?
10. Make a drawing showing the nine regions of the abdominal cavity with the name and contents of each.

PHYSIOLOGY.

1. Mention the chief heat-producing tissues of the body in the order of their capacity, and state why these structures evolve more heat than others.
2. Give your opinion of alcohol as a food, and state your reasons and authority for such opinion.
3. Define absorption, secretion, and excretion, and state through which anatomical structures each occurs with greatest activity.
4. What is the mechanical effect upon the circulation of the blood of inspiration, normal expiration, and violent expiration?
5. What portion of the vascular system is most susceptible or responsive to the vasomotor nervous influence, and why?
6. In what particular does the condition of the brain in coma differ from its condition in sleep?
7. Explain briefly the difference between emulsification and saponification of oil and fats in the process of digestion.

MATERIA MEDICA AND THERAPEUTICS.

1. Give derivation, physiological action, and indications for the therapeutic application of ergot.
2. Name three medicinal agents which increase diaphoresis.
3. Name an antagonist to the physiological action of jaborandi.
4. Name three medicinal agents which are emetic in their action, and dose of each.
5. Give physiological action, dose, and therapeutic indication for tr. of gelsemium.
6. Name (*a*) a hydragogue cathartic and (*b*) a cholagogue cathartic, and dose of each.
7. Name some therapeutic indications for mercury.
8. What effect has benzoin on urine? Name two preparations of the agent with dose of each.
9. Give derivation, therapeutic indications, and dose of apomorphine.
10. Write a prescription for acute articular rheumatism.

CHEMISTRY.

1. Give antidote in case of poisoning by (*a*) arsenic, (*b*) corrosive sublimate, and (*c*) carbolic acid.
2. Give specific gravity of healthy urine and give test for (*a*) bile, (*b*) sugar, and (*c*) albumin.
3. What is potassium iodide and how prepared?
4. Name the bile salts.
5. Name the fluids of the body that are normally of acid reaction.

PATHOLOGY AND BACTERIOLOGY.

1. How would you determine whether a dog had rabies or not?
2. Give technique of determination of rabies in the dog.
3. Give technique of determination of an epithelioma.
4. What is the difference between a benign and malignant growth?
5. What is meant by a metastatic growth?
6. Give morphology and method of culture of the diphtheria bacillus.
7. Give morphology and method of culture of the tubercle bacillus.
8. Give complete technique of determining a case of diphtheria.
9. How would you stain the tubercle bacillus?
10. What is meant by (*a*) pathology and (*b*) bacteriology?

PHYSICAL DIAGNOSIS.

1. Give technique of diagnostic puncture and the evidence derived therefrom.
2. Define ataxia. How is ataxia of the upper extremities tested? How is ataxia of the lower extremities tested?
3. Give discrimination between organic and functional murmurs.
4. Give technique of cardiac percussion.
5. What is the normal pulse rate? What is the increase for each degree of temperature above normal?

INTERNAL MEDICINE.

1. Give common cause, prevention, and treatment of summer diarrheas of infancy and childhood.
2. In auscultation of healthy lung, what sound is heard, and what is it called?
3. Name some diagnostic symptoms of secondary syphilis.
4. Name the cardinal symptoms of exophthalmic goiter.
5. Give differential diagnosis between renal colic and hepatic colic.
6. Name some of the causes of endocarditis.
7. What conditions predispose to cerebral hemorrhage?
8. Differentiate between cerebral vomiting and gastric vomiting.
9. By what routes and media does the exciting cause of typhoid fever gain entrance to the human organism? How may it be prevented?
10. Name some points of diagnostic value in chronic interstitial nephritis.

OBSTETRICS.

1. State the cause of (*a*) deficient power of the uterine muscle, and (*b*) excessive power of the uterine muscle. Give proper management of each.
2. Define caput succedaneum, and give etiology.
3. Name four important signs of pregnancy at the third month.
4. Differentiate between pregnancy and fibroid of the uterus.
5. Under what conditions would you perform podalic version? Give technique of operation.
6. What changes occur in the circulation at birth?
7. Give the causes of cystocele and rectocele, and state the treatment which should be employed.
8. When should ergot be employed in obstetric practice? What are its contraindications?
9. Name the symptoms of puerperal sepsis. How would you prevent it?
10. What are the premonitory symptoms of puerperal convulsions? What treatment would you employ to prevent puerperal convulsions?

GYNECOLOGY.

1. Define the (*a*) dorsal posture, (*b*) left lateral-prone posture, and (*c*) knee-chest posture.
2. Give causes, diagnosis, and treatment of endocervicitis.
3. Give diagnosis and treatment of ectopic gestation.
4. Give causes, pathology, diagnosis, and treatment of salpingitis.
5. Give preparation of patient for an ordinary plastic operation.
6. Give causes and symptoms of urethrocele. Give differential diagnosis.

SURGERY.

1. Give diagnostic points of fracture of base of skull.
2. Give diagnosis and treatment of appendicitis.
3. Describe a compound fracture and give treatment.
4. Give diagnosis and treatment of gallstones.
5. How many kinds of hernia are there?
6. Through what channels is carcinoma disseminated?
7. What indications are to be followed to promote primary union of a wound?
8. Give signs, symptoms, and treatment of fracture of the clavicle.
9. Give indications for trephining in fracture of the skull.
10. Name five causes of swelling in inguinal region.

PEDIATRICS.

1. Give sequelæ that most frequently follow eruptive fevers occurring in childhood, and state cause and prognosis for same.
2. Give diagnosis, cause, and treatment for cholera infantum.

NEUROLOGY.

1. Give symptoms of cerebral compression.
2. Give definition of dementia and state the more important forms.
3. What are the diagnostic symptoms of multiple sclerosis?

LARYNGOLOGY AND RHINOLOGY.

1. Give treatment of nasal polypi.
2. Give etiology and treatment of hypertrophy of the tonsil.

OPHTHALMOLOGY AND OTOLOGY.

1. Give causes, diagnosis, and treatment of chronic glaucoma.
2. Give symptoms, diagnosis, and treatment of gonorrheal conjunctivitis.
3. Give etiology, symptoms, and treatment of acute inflammation of the middle ear.

ETIOLOGY AND HYGIENE.

1. Give cause and hygienic treatment of diphtheria.
2. What is most essential from a sanitary standpoint in plumbing a bath-room?
3. What method would you use in filtering a city water supply?
4. How would you place a water-closet in relation to a farmhouse?
5. Write an article not exceeding seventy-five words on the practical value of the operation of the Pure Food and Drug Act.

MEDICAL JURISPRUDENCE.

1. Give signs of death by morphine.
2. Define (*a*) delusion, (*b*) illusion, and (*c*) hallucination.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

INDIANA STATE BOARD OF MEDICAL EXAMINERS.

May, 1908.

ANATOMY.

3. The bony prominences at the elbow are: (1) the external condyle of the humerus, (2) the internal condyle of the humerus, and (3) the olecranon process of the ulna. If the forearm is extended, the internal condyle of the humerus, the tip of the olecranon, and the external condyle will all be found on the same transverse line. In extreme extension the tip of the olecranon is slightly above the level of the condyles. If the forearm is flexed to a right angle, the tip of the olecranon is immediately below the condyles.

4. In an amputation of the forearm at the union of the lower and middle thirds there will be divided: (1) *Arteries:* radial, ulnar, anterior and posterior interosseous. (2) *Veins:* radials, ulnars, interosseous, median, anterior and posterior ulnars. (3) *Nerves:* median, radial, ulnar, anterior and posterior interosseous, musculocutaneous and internal cutaneous.

5. The blood-vessels that constitute the portal venous system, are: The (1) *superior mesenteric vein*, which conveys the blood from the small intestines, the cecum, and ascending and transverse colon; (2) *splenic vein* which conveys the blood from the spleen; (3) *inferior mesenteric vein*, which conveys the blood from the descending colon, sigmoid flexure and rectum; (4) *gastric vein*, which conveys the blood from the stomach.

8. The line of incision for ligation of the external carotid artery is the upper part of a line drawn from the sternoclavicular articulation to a point midway between the angle of the jaw and the tip of the mastoid process. The portion above the level of the upper border of the thyroid cartilage represents the line of the external carotid. The *structures encountered* are: The skin; superficial fascia with the external jugular vein and the great auricular nerve; the platysma myoides, and the deep fascia; the anterior border of the sternomastoid; the hypoglossal nerve; facial, lingual, and superior thyroid veins.

9. In oblique fracture of the femur, immediately above the condyles: The lower fragment is tilted backward by the gastrocnemius and plantaris. The upper fragment is drawn inward by the pectineus and adductors; and forward by the psoas and iliacus.

PHYSIOLOGY.

1. The chief heat-producing tissues of the body, are: (1) The muscles, during contraction (including the heart); (2) the secreting glands, especially the liver; (3) the brain, during mental activity.

2. "The exact value of alcohol as a food, broadly considered, is uncertain. Recent experiments, carefully made on man, however, clearly show that when moderate amounts of alcohol are ingested, the alcohol is burned up in the body—*i.e.* oxidized like any non-nitrogenous food. The potential energy of the alcohol is transformed into kinetic energy, and consequently alcohol is to be considered as having some food value. It may, therefore, be classified with the non-nitrogenous foods. Further, as a non-nitrogenous food, alcohol may replace an isodynamic amount of fat or carbohydrate in the diet without change in the balance of income and outgo. Alcohol serves to protect body protein and fat from oxidation; *i.e.* like a typical non-proteid food it diminishes the oxidation of tissue proteid by being itself oxidized. These facts, however, do not imply that alcohol is necessarily a desirable food or that it is physiologically economical. It is to be remembered that, prior to its oxidation in the body, alcohol may produce deleterious effects of various kinds, more than counterbalancing any gain which may result from its oxidation. It may likewise give rise to changes, either directly or indirectly, in the various metabolic processes of the body, which must of necessity influence more or less its value as a food. Alcohol has a direct and an indirect influence upon the secretion of gastric juice. In this direction it acts as a stimulant. It likewise stimulates the secretion of saliva."—(Chittenden in *Reference Handbook of the Medical Sciences.*)

3. *Absorption* is the process by which the products of digestion are taken up into the general circulation. It occurs with greatest activity in the villi of the small intestine.

Secretion is the process by which certain organs (glands and membranes) separate from the blood certain constituents which are further elaborated and serve some further office in the economy. It occurs with the greatest activity in the liver (unless the urine is considered as a secretion).

Excretion is a similar process by which there are removed from the blood waste materials, and products of no further use to the body, and which if retained would be injurious. It occurs with greatest activity in the lungs and kidneys.

4. *Inspiration* causes the blood pressure to rise, and the heart to beat faster, but each beat is shallower.

Expiration causes the blood pressure to fall and the heart to beat slower, but the beats are deeper and more dicrotic.

5. *The portion of the vascular system most susceptible to the vasomotor nervous influence:* The arterioles or small arteries.

The reason: Because they contain relatively the greatest amount of muscular tissue.

6. In *sleep*, the brain is anemic; whereas in *coma*, the cerebral vessels are congested with venous blood.

7. Under the influence of the steapsin of the pancreatic juice, neutral fats combine with water; the result is a splitting up into glycerin and a free fatty acid.

In *saponification* a similar reaction occurs, but the resulting products are glycerin and a soap.

Emulsification is a physical rather than a chemical process; the fat is broken up into minute globules which are in a state of more or less permanent suspension. Soap solutions make the most permanent emulsions.

MATERIA MEDICA AND THERAPEUTICS.

1. ERGOT. *Derivation:* The selerotium of the claviceps purpurea.

Physiological action: Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

Indications for the therapeutic application: To promote uterine contractions during third stage of labor; fibroids, menorrhagia, post-partum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

2. *Three medicinal agents which increase diaphoresis:* (1) Alcohol; (2) Dover's powder; (3) pilocarpus.

3. *An antagonist to the physiological action of jaborandi:* Atropine.

4. *Three emetics:* (1) Apomorphine hydrochloride; dose, gr. 1/10 hypodermically. (2) Copper sulphate; dose, gr. iv to vj in water. (3) Zinc sulphate; dose, gr. x to xv in water.

5. TINCTURE OF GELSEMIUM. *Physiological action:* Circulatory, respiratory, and nervous depressant.

Dose: 8 minims.

Therapeutic Indications: Headache, migraine, asthma, whooping cough, nervous cough, spasmodic dysmenorrhea, torticollis, and other conditions depending upon localized muscular spasm.

6. (*a*) A hydragogue cathartic: Elaterin, dose gr. 1/20 to 1/12. (*b*) A cholagogue cathartic: Podophyllum, dose gr. viij to xij.

8. Benzoin increases the acidity of the urine. Sodium benzoate; dose, gr. xv. Benzoic acid; dose, gr. vij.

9. *Apomorphine* is derived from morphine (by the abstraction of one molecule of water).

Therapeutic indications: To cause prompt vomiting, and as an expectorant (in bronchitis and pneumonia).

Dose of apomorphine hydrochloride: gr. 1/30 as an expectorant; and gr. 1/10 as an emetic.

10. *For acute articular rheumatism:*

℞.

Sodii salicylatis ʒijss
Fluidextracti glycyrrhizæ.
Tincturæ aurantii aa ʒijss.
Aquæ chloroformi q.s. ad. ʒviij. Misce.

Signa: Take two tablespoonfuls every four hours.

CHEMISTRY.

1. The antidote to: (*a*) *arsenic,* is freshly prepared ferric hydroxide; (*b*) *corrosive sublimate,* is white of egg in moderate quantity, followed by an emetic; (*c*) *carbolic acid,* is sodium sulphate, or alcohol.

2. The specific gravity of healthy urine is about 1015 to 1025.

(*a*) *Test for bile:* Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

(*b*) *Test for sugar:* The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

Fehling's test: Place in a test-tube a few c.c of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(*c*) *Test for albumin:* The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

3. Potassium iodide is a transparent, or milk-white, crystalline, solid; odorless, with a sharp salty taste. It is very soluble in water. It is prepared by saturating a solution of potassium hydroxide with iodine, then evaporating, and calcining the resulting mixture of iodide and iodate with charcoal:

$$6KHO + 3I_2 = KIO_3 + 3H_2O + 5KI$$

4. The bile salts are: Sodium glycocholate and sodium taurocholate.

5. The fluids of the body that are normally of acid reaction, are: The urine, gastric juice, and sometimes sweat.

PATHOLOGY AND BACTERIOLOGY.

4. *Benign tumors* are encapsulated, do not tend to infiltrate the surrounding tissues, do not give rise to metastatic growths, do not tend to recur after removal, do not produce cachexia, and do not have a fatal tendency (except from their location).

Malignant tumors are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

5. *A metastatic growth* is one that is set up in a part of the body not directly continuous with the original growth.

9. The material must be recent, and, if sputum should be free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

PHYSICAL DIAGNOSIS.

2. *Ataxia* may be defined as lack of co-ordination in muscular movements, so that the performance of certain acts becomes difficult or impossible.

To test ataxia of the upper extremities: The patient, with his eyes closed or bandaged, is asked to touch the tip of his nose or the lobe of his ear, first with one index finger, then with the other; or the tip of one finger with the tip of some other indicated finger. Or the patient may be asked to thread a needle. If these things are done successfully the co-ordination is good, and there is no ataxia.

To test ataxia of the lower extremities: If the patient can walk, he may be asked to walk along a straight line, such as the crack between two boards of the floor, or along the border of the carpet. If he cannot walk, he should have his eyes covered, and be requested to touch the inner malleolus of one foot with the great toe of the other foot. Or the patient may be asked to stand with his heels together and his eyes closed and to notice whether he stands fairly steadily or sways about considerably. In the latter event there is ataxia.

3. *Organic murmurs* are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

5. The normal pulse rate in the adult is about seventy to seventy-five a minute. For each degree of temperature above the normal, the pulse rate is usually increased about eight or ten beats.

INTERNAL MEDICINE.

2. In auscultation of healthy lung the inspiratory sound is heard, and also a sound during the first part of expiration. It is called vesicular breathing.

3. *Some diagnostic symptoms of secondary syphilis:* Sore throat, mucous patches; the skin lesions or syphilides, which are characterized: By not itching, by being of a coppery or raw ham color, by being painless, by polymorphism (macules, papules, pustules, etc., being present at the same time), and by being roughly symmetrical. In this stage may also appear; iritis, periostitis, and alopecia.

4. *The cardinal symptoms of exophthalmic goiter* are: (1) Tachycardia, (2) goiter, (3) exophthalmos, and (4) tremor.

5. In *renal colic:* The pain is in the region of the affected kidney, it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

In *hepatic colic:* The pain is in the region of the liver, it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

6. *Some of the causes of endocarditis,* are: Acute articular rheumatism, chorea, tonsillitis, scarlet fever, pneumonia, cancer, gout, diabetes mellitus, Bright's disease, septicemia, gonorrhea.

7. *The conditions which predispose to cerebral hemorrhage* are: Advanced age, rheumatism, gout, syphilis, alcoholic excesses, Bright's disease, prolonged muscular exertion, chronic lead poisoning, severe physical or mental excitement.

8. *Cerebral vomiting* is projectile in character, and is accompanied by little or no nausea, is continuous even after stomach is emptied; there is no salivation, no tenderness over liver or stomach.

Gastric vomiting relieves the previous nausea, and re-

turns on ingestion of food; salivation is present, also tenderness over liver and stomach.

9. Typhoid fever gains entrance to the human body by the mouth, chiefly through water, ice, milk, or other foods.

The entrance of typhoid fever into the human organism may be prevented by boiling all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food; flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed, after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over.

10. Some points of diagnostic value in chronic interstitial nephritis, are: Increased arterial tension, urine increased in quantity and of low specific gravity, a few hyaline casts may be present, albumin is either absent or present in very small amount; hypertrophy of the left ventricle, later on of the whole heart; a systolic murmur; uremia; retinitis, choked disc; anorexia, nausea, vomiting, diarrhea, cramps, numbness, dyspnea.

OBSTETRICS.

1. (*a*) *Deficient power of the uterine muscle* may be caused by: "Overdistention of the uterus from plural pregnancy or polyhydramnios; distention of the bladder or rectum; obliquities and displacements of the uterus; thinning of the uterine walls resulting from frequent and quickly repeated labors, or from degeneration of the uterine tissues; precocious or advanced age; general debility or feebleness of the woman from previous diseases, enervating habits, heat of climate, or of season, or the air of a superheated room; exhaustion of the woman from hemorrhage or from lack of sleep or food. Uterine action is sometimes inefficient from uremia, and when there is morbid adhesion between the fetal membranes and uterine wall. Mental emotions: fear, grief, surprise, anxiety, disappointment, and the presence of offensive persons or things will produce it. These last may depend upon idiosyncrasy or unaccountable personal antipathies."—(King's *Manual of Obstetrics.*)

(*b*) *Excessive power of the uterine muscle* may be caused by: Abnormally large pelvis, small fetus, unusual relaxation of the maternal soft parts, nervous excitability or peculiar temperament of the woman.

2. *Caput succedaneum* is a swelling on the presenting part of the fetus, which is developed during birth. It is due to edema of that part of the fetus (the presenting part), which is not compressed by the maternal structure during uterine contraction.

3. *Four important signs of pregnancy at the third month:* Softening of the cervix; purplish hue of the vagina; amenorrhea, and the enlargement, pigmentation, hardening, and possible secretion in the mammary glands.

4. *Pregnancy:* The tumor is hard and does not fluctuate, is situated in the median line, and may give fetal heart sounds and movements; the cervix is soft, and the other signs of pregnancy are present. The rate of growth of the tumor, and the general condition of the patient's health may also help in arriving at a diagnosis.

Uterine fibroid: Menstruation is irregular and sometimes very profuse; absence of the signs of pregnancy; the tumor is nodular, firm, irregular in outline, and while generally placed somewhat centrally is not in the median line, and is not symmetrical; the rate of growth is irregular, being, as a rule, slow, and sometimes extending over years.

5. The *indications for podalic version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother; and (7) in any case where speedy delivery is imperative.

6. *The changes occurring in the circulation at birth,* are: The hypogastric arteries become obliterated, the foramen ovale closes, the Eustachian valve atrophies, the ductus arteriosus and ductus venosus become impervious and shrivel up.

8. Ergot should be employed in obstetric practice to promote uterine contractions after the third stage of labor. It is contraindicated if the birth canal is not free and the os uteri is not dilated.

GYNECOLOGY.

3. Ectopic gestation. *Diagnosis:* "When extrauterine pregnancy exists there are: (1) the general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*"—(*American Text-Book of Obstetrics.*)

Treatment consists in the removal of the product of conception by a laparotomy, as soon as the diagnosis is made.

6. Urethrocele. *Causes:* Traumatism during labor and stricture or tumor in urethra.

Symptoms: Frequent and painful micturition; partial incontinence of urine; retention of urine in the urethrocele, later becoming alkaline and undergoing decomposition. The bulging in the anterior vaginal wall can be seen and touched, and a sound passed into the urethra can be felt through the urethrocele.

Differential Diagnosis:

URETHROCELE.	SUBURETHRAL ABSCESS.	VAGINAL TUMOR.
Indistinct bulging.	Prominent tumor.	Prominent tumor.
Disappears on pressure.	Only partially disappears, and pus may be squeezed out into urethra.	Does not disappear on pressure.
Tumor elastic and compressible, not tender on pressure.	Tumor fluctuating and prominent, very painful on pressure.	Tumor firm.
No pain on walking or coitus.	Very painful	
Only the vaginal and urethral wall between the examining finger and a sound in the urethra.	The thickness of the intervening structure is increased by the presence of the abscess.	The thickness of the intervening structure is increased by the tumor.

(Compiled from Ashton's *Gynecology.*)

SURGERY.

5. *Varieties of Hernia:* Hernia may be classified:

I. *Anatomically:*

1. Inguinal.
   - Oblique
     - Acquired
     - Congenital
     - Infantile or encysted
   - Direct
     - External
     - Internal
   - Interstitial
     - Intraparietal
     - Interparietal
     - Extraparietal

   [Incomplete, or Bubonocele.]
2. Femoral.
3. Umbilical.
   - Congenital
   - Of infants
   - Of adults
4. Ventral. 5. Lumbar. 6. Obturator. 7. Diaphragmatic. 8. Pudendal, etc.

II. *Clinically:* Reducible irreducible, obstructed or incarcerated, inflamed, and strangulated.

6. Carcinoma is desseminated chiefly through the lymphatics; less frequently by the circulation; and occasionally by mechanical transportation in the movements of the body.

10. *Five causes of swelling in the inguinal region:* Inguinal hernia, iliac abscess, lymphadenoma, retained testicle, and hydrocele of the spermatic cord.

NEUROLOGY.

1. *The symptoms of cerebral compression,* are: Headache, vertigo, vomiting, mental dullness, sometimes paralysis, contracted pupils, coma, and cyanosis.

2. *Dementia* is a general enfeeblement of all the mental powers.

The more important forms of dementia, are: Primary, secondary, acute, chronic, senile, paretic, alcoholic, and syphilitic.

3. *The diagnostic symptoms of multiple sclerosis,* are: Nystagmus, scanning speech, intention tremor, exaggerated patellar reflex, ankle clonus, ataxia, vertigo, unsteady gait.

MEDICAL JURISPRUDENCE.

1. There are no characteristic signs of death by morphine. The only lesions are those that may usually be observed after death from asphyxia. The blood is dark and fluid; the brain, meninges, and lungs may be congested; the bladder is usually full of urine.

2. A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion.* If the whistling of the wind is mistaken for a voice telling a person to do a certain thing—that would be an *illusion.* If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination.*

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 1
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	Jan. —
Indiana	W. T. Gott, Indianapolis	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. 8
Kansas	D. P. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	March 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec. 30
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 11
New York	C.F.Wheelock, Univ.of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	F. P. Davis, Enid	Muskogee	
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. 1
Rhode Island	G. T. Swarts, Providence	Providence	Jan. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Dallas	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 16
Washington*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	April 13
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 12
Wyoming	S. B. Miller, Laramie	Laramie	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Louisiana.—In accordance with a recent amendment to the medical practice act, providing for reciprocity, Louisiana now reciprocates with the following States: Colorado, Connecticut, Delaware, District of Columbia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, South Carolina, Texas, Utah, Vermont, Virginia, Wisconsin.

Pennsylvania.—Three hundred and ninety-five candidates took the June examination in this State, and three hundred and sixty-two passed satisfactorily. This leaves 8.37 per cent. of failures. The general average of failures at the June examination has been between 13 and 14 per cent.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 14, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	479	173
Diphtheria	337	23
Measles	180	3
Scarlet Fever	215	7
Smallpox	—	—
Varicella	96	—
Typhoid Fever	78	15
Whooping Cough	18	2
Cerebrospinal Meningitis	6	2
Malarial Fever	—	—
Totals	1409	225

Scoliosis and Nutrition in Adolescents.—Professor Hutinel believes that scoliosis is a general condition rather than a local one, and is a form of delayed rickets. It is to be found most frequently in girls between the ages of 8 and 16 and less frequently in boys. If we look at these young people we find that the lower part of the body and legs are well developed, but the chest and arms are narrow and meager. There are circulatory troubles, flushing and paling of the face, and cold, clammy hands. The digestion, liver action, and kidney action are all poor. Cyclic albuminuria is frequent. Diarrhea, constipation, and chronic appendicitis are common. Headache, hysteria, neurasthenia, and incapacity for work are all found The condition is often hereditary, and this factor, combined with malassimilation, bad feeding, and insufficient oxygenation, result in a condition similar to rickets. Treatment demands rest, sleep, good feeding, no severe exercise, massage, hydrotherapy, and plenty of fresh air.—*Annales de Médecine et de Chirurgie Infantiles.*

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending November 13, 1908:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, Berkeley	Oct. 10–17	1	
Indiana, Wort Wayne	Oct. 17–24	1	..
La Fayette	Oct. 19–26	1	..
Kentucky, Lawrenceburg	Oct. 8–31	8	1
Lexington	Oct. 18–24	1	..
Missouri, Cartersville	Nov. 2	6	..
St. Louis	Oct. 18–24	5	..
North Dakota, Bismarck	Mar. 31-Sept. 30	38	..
Ohio, Conneaut town and township	Sept. 1–30	6	..
Tennessee, Coulterville	Sept. 9–Nov. 4	30	..
Dowelltown	Sept. 16–Nov. 3	29	..
Wisconsin, La Crosse	Oct. 17–24	3	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Sept. 12–19	2	4
SMALLPOX—FOREIGN.			
Arabia, Aden	Sept. 29–Oct. 12	.	22
Brazil, Pernambuco	Sept. 1–15	.	45
Rio de Janeiro	Sept. 13–27	1,279	587
Santos	Sept. 6–13		11
Canada, Halifax	Oct. 17–24	1	..
Egypt, Cairo	Sept. 30–Oct. 7	7	..
India, Bombay	Sept. 8–15	..	2
"	Sept. 22–Oct. 6	..	2
Rangoon	Sept. 19–26	..	1
Indo-China, Saigon	Sept. 12–19	..	3
Italy, General	Oct. 5–18	47	..
Naples	Oct. 11–18	3	..
Java, Batavia	Sept. 12–19	2	..
Norway, Christiania	Oct. 3–10	3	..
Russia, Moscow	Sept. 26–Oct. 10	22	12
Warsaw	Sept. 19–26	..	3
Spain, Vigo	Oct. 10–17	..	1
Turkey, Constantinople	Oct. 11–18	..	10
Smyrna	July 7–Oct. 6	..	16
Brazil, Pernambuco	Sept. 1–15	..	1
Mexico, Merida	Oct. 16–24	Still present	
CHOLERA—INSULAR.			
Philippine Islands, Manila	Sept. 12–19	144	96
Provinces	Sept. 12–19	992	624
CHOLERA—FOREIGN.			
India, Bombay	Sept. 22–29	..	1
Madras	Sept. 19–Oct. 2	..	140
Rangoon	Sept. 19–26	..	1
Indo-China, Saigon	Sept. 12–19	6	6
Japan, Moji	Sept. 2–26	51	31
Wakamatsu	Sept. 8–15	6	3
Russia, General	To Oct. 10	22,295	10,252
Moscow	Sept. 26–Oct. 10	3	2
St. Petersburg	Oct. 18–24	21	12
Straits Settlements, Singapore	Sept. 12–19	2	..
PLAGUE.			
Brazil, Rio de Janeiro	Sept. 13–27	7	1
Great Britain, Liverpool	Nov. 10	3	2
India, Bombay	Sept. 8–Oct. 6	..	Imported 73

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Original Articles.

THE DIFFERENTIATION OF OUTBREAKS OF TYPHOID FEVER DUE TO INFECTION BY WATER, MILK, FLIES AND CONTACTS.*

By JOHN F. ANDERSON, M.D.,

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WHEN I received the invitation from our Honorable President, Dr. Lewis, to read before this association a paper on the differentiation of typhoid fever outbreaks due to infected water, milk, etc., I fully realized my limitations in dealing with the subject. However, I thought that a few observations I had made while investigating in my official capacity several epidemics of typhoid fever might be of some interest and, perhaps, profit to you.

It is a serious reflection upon the people of the United States that, according to the census report for 1900, there were 35,379 deaths in the United States that year from typhoid fever—a preventable disease. This loss of life, according to Whipple's calculation, represented a money loss to the community of $212,000,000 for that year alone.

The average typhoid death rate in cities of the United States is about 35 per 100,000. Whipple states that in the cities about 40 per cent. of the typhoid fever is due to water, 25 per cent. to milk, 30 per cent. to contagion—including fly-transmission, and only about 5 per cent. to all other causes. The Board of Officers of the Public Health and Marine-Hospital Service investigating typhoid fever in the District of Columbia found in 1906 that of the cases studied by them about 11 per cent. were definitely attributable to milk infection, about 7 per cent. to infection by contact: in 1907 they definitely attributed about 9 per cent. to milk and about 19 per cent. to contact. The cases attributed to infection in milk were those occurring in the course of definite outbreaks among the customers of certain dairymen and in the number were not included cases probably due, but not definitely traceable, to milk infection.

In the study of an outbreak of typhoid fever it is of vital importance, first of all, to determine whether the disease is really typhoid fever. For this purpose, in addition to the usual bedside methods two other procedures may and should be employed in all doubtful cases. I refer to the Widal reaction and to blood cultures. The blood culture is of more value than the Widal test, in that cultures can be obtained in the first days of the disease. For the examination of the blood we have found the bile enrichment method, followed by plating on Endo medium, the most satisfactory. By this method cultures taken in the first week of the disease will give positive results in 90 to 100 per cent. of the cases.

Having determined that the disease prevailing with undue frequency is typhoid fever it is necessary that each case be studied in detail from an epidemiological standpoint. In places which require the reporting of typhoid fever the study is much easier than in those where it is not done. The essential data can only be obtained by competent persons visiting the patients and obtaining all possible information from the patient, nurse, and family and by an inspection of the premises.

A blank form containing all the points about which information is wished facilitates the collection of data. These data should consist of the name of the patient, age, color, etc., date of onset of the disease, residence, occupation, water used wholly or occasionally, milk and other uncooked food, relation to persons sick with typhoid fever or who have recovered from the disease lately or remotely, whether servants have recently been changed, and a general survey of the premises paying especial attention to privies, flies, screens, etc. The blank form used by the Board of Officers of the Public Health and Marine-Hospital Service in Washington, D. C., is one of the most complete I have seen.

TYPHOID FEVER CASE CARD

Date of investigation..... Case No.....
Name.....
Age..... Color..... Sex..... Nationality....
Probable date of onset..... Date definite symptoms....
Name and address of physician.....
Residence.....

Residence in D. C.....

Residence when taken sick..... from.....to.....
Previous residences.....from.....to.....
Subsequent residences.....from.....to.....
Temporary absences from D. C. within 30 days prior.....
Number of occupants.....ages.....
" " " who have had typhoid....when....
Newcomers in house within three months prior.....
" " " had typhoid?.....
Servants—
White: Resident..... Typhoid?.....
Non-resident..... Typhoid?.....
Colored: Resident..... Typhoid?.....
Non-resident..... Typhoid?.....
Typhoid at homes of servants..... When.....
Disposal of sewage.....W. C. in house.....
W. C. in yard.....privy.....location.....
General sanitary condition of residence.....
Occupation.....
Place.....from.....to.....
Other cases.....

WATER WITHIN 30 DAYS PRIOR

Solely.....principally.....
Occasionally.....

FOOD WITHIN 30 DAYS PRIOR

Where taken.....
Milk (how used).....from.....
Boiled?.....Pasteurized?.....
Ice cream?.....Where?.....
Uncooked fruits and vegetables.....
Shellfish.....

*Read by invitation before the American Public Health Association in Winnipeg, Man., August 27, 1908.

Contacts

Association 30 days prior with patients in febrile stage....
" with suspected cases.....
" with persons who have had typhoid within
6 months.....
1 year.....
2 years.....
3 years.....
4 years.....
5 years.....
Association 30 days prior with persons in contact with patients in febrile stage.....
Treatment of stools and urine of patients.....
Other precautions.....
Remarks:.....
.....
Summary:.....
.....
Signature.....

It is well to have a map of the city and, as the data for each case are collected, to indicate the location on the map by sticking in a large pin. A glance at this map will readily show if the cases are confined to any particular locality; if so, it might indicate some local condition responsible for the infection, such as an infected well or conveyance by flies, etc.

It may be found that an unusual number of cases are occurring on the route of a certain dairy. If this be the case, the dairy should be visited and the handling of the milk followed from the cow to the consumer. Special inquiry should be made in regard to the possibility of the milk having become infected in any way. If the cases are generally distributed and the epidemic began with explosive onset attention may be focused on the water supply, and this should be studied from all standpoints.

All data collected should be at once tabulated and carefully studied as to the bearing of the various probable sources of infection.

I shall now take up in detail the special characteristics of outbreaks of typhoid fever due to infected water and milk, and to transmission by flies, etc., and cite a typical example of each.

CHARACTERISTICS OF OUTBREAKS DUE TO WATER.

The striking characteristics of outbreaks of typhoid fever due to water are:

1. General distribution of cases throughout the area supplied by a particular water. The incidence of cases is independent of social conditions, occupation and age, except that very young children as a rule are not affected in equal proportion to other ages, due to the difference, perhaps, in susceptibility and to taking less water.

2. Explosive onset of the outbreak. When a water supply previously good becomes suddenly infected, as in the case of Plymouth, or Butler, Pa., the outbreak begins with great suddenness and violence. There is a sudden and great increase in the number of cases reported; this increase may continue until the sources of infection of the water are removed or the water supply changed. If the former be the case there is a more gradual decline in the number of cases than when the supply is suddenly replaced by a pure one, in which case the decrease is sudden and marked. Secondary cases from contacts may keep the number above normal for a time.

When there is a continuance of the source of the infection, as in the case of the Lowell and Lawrence outbreaks of 1890 and 1892, the onset is not usually so explosive in character and the decline is more gradual. In Pittsburg, where there is a continual infection of the water supply, the disease is more prevalent in the fall and winter, which may be due in part to other causes than the water.

When a water supply, such as a river, is subject to continual infection the increase in the number of cases in late summer and fall may be attributed to the fact that, as the number of cases increase which supply infection for the stream, the amount of infection is correspondingly increased.

3. Seasonal prevalence; spring or late winter. Outbreaks of typhoid due to infection of a water supply previously good usually occur in the late winter or spring. This is due, as in the case of the Plymouth and New Haven epidemics, to the fact that infected discharges are thrown on the frozen ground and when thaws or floods come the infection is suddenly washed into the stream.

When a supply becomes infected by the failure of the purification methods used or by a change in the supply the outbreak is, of course, independent of season.

4. Comparative freedom from the disease of persons not using the suspected water. When there is more than one water supply or where persons use pure bottled waters or boil the water the comparative freedom of such persons from the disease is striking. This was well shown in the Butler epidemic, where a large part of the first ward of the city received their water from deep driven wells. In this ward, with an equal population to the other four wards, there were only about one-half as many cases.

5. Inspection of the water shed shows evident sources of infection. An inspection of the water shed may show that it is being continuously infected by discharges of typhoid fever cases. In some cases, as at Butler and other places, the discharges may actually have been allowed to go directly into the stream from privies overhanging it.

6. The outbreaks may have begun or ended following a change of the water supply. When a previously good water is replaced for any good reason by an unknown water or a suspected water is replaced by one of undoubted purity the consequent beginning or discontinuance, as the case may be, of an outbreak of typhoid would properly be laid to water.

7. Bacteriological and chemical examination reveals evidences of pollution. While it is practically hopeless to expect to find the typhoid bacillus in water, still the finding of *B. coli* in small amounts of water and chemical evidences of pollution are additional evidence against the water.

8. Exclusion of all other probable causes. This means the exclusion of milk, food, contact, fly transmission, and other possible sources of infection.

The Butler epidemic was a typical outbreak due to infection of the water supply and a brief account of it is given.

The Butler Epidemic.—I had the opportunity of investigating the epidemic of typhoid fever in Butler, Pa., in the fall and early winter of 1904. Through the kindness of Dr. W. R. Batt, of the State Board of Health, I was able to see many of the cases and to study the causes that led up to the outbreak.

Butler had a population of 16,000 to 18,000. It derived its water supply from three sources: (1) Deep and shallow wells, (2) water from the Connoquenessing Creek, which was collected by an impounding reservoir and then filtered by a mechanical filter, and (3) water supplied by a company from five driven wells. The water supplied from this last named source was delivered only in what is known as the first ward.

On August 28 the impounding dam was carried away and from that time until November 15 water was taken directly from the creek through the

emergency intake. From August 28 to October 20 the water was probably, at times, supplied to the city unfiltered. On account of some repairs to the plant the water from October 20 to November 2 was pumped directly from the emergency intake in the creek without filtration to the reservoir and supplied to the city.

The investigation for the State Board of Health* by Dr. Batt of the water shed drained by the Connoquenessing Creek showed that there had been 17 cases of typhoid fever on the shed during September and October. Two of the cases were within 1,500 feet of the intake at the pumping station and the farthest removed was seven miles. Four cases occurred within 450 feet of the reservoir, being located on a slope draining directly into the reservoir. Practically no disinfection of the discharges had been practised.

From October 1 to January 29 there were 1,348 cases of typhoid fever, 71 being in persons residing out of the city. The cases by months were as follows: October, 47; November, 976; December, 222; January, 32; making 1,277 which, with the 71 outside cases, made a total of 1,348, with 111 deaths.

The first ward, which has previously been referred to as receiving its water largely from driven wells, while the largest in population, had only a little more than half as many cases as any of the other four wards.

The conclusions of Dr. Batt sum up the situation so thoroughly that I quote the following:

"The conclusions to be drawn from a review of the facts as they have been found to exist are that, following the destruction of the Boydstown dam on August 28, water for distribution to the people of Butler was taken from the Connoquenessing Creek through an emergency intake at the pumping station; an examination of the waters of this creek showed that it maintains a fairly constant evidence of pollution, and that at various periods the operation of the filter plant designed to remove such pollution was partially or entirely suspended, and that as a result of this polluted water being used for domestic purposes, 1,348 persons who so used it were stricken with typhoid fever between October 1, 1903, and January 29, 1904, with 111 fatalities."

OUTBREAKS DUE TO MILK.

On investigating an outbreak of typhoid fever the following points would indicate very strongly that the infection was being introduced through the milk:

1. Sudden outbreak of an unusual number of cases followed by a rapid decline. The outbreak is frequently sudden in its onset; a large number of cases occurring on a certain milk route within a few days. If the infection be introduced only once, as by flies, there is a sudden rise followed by a sudden decline in the number of cases. If there is a continuance of the infection, as from a bacillus-carrier, the onset may be more gradual and the decline will be delayed.

In dairies which do not practise sterilization of bottles the milk may become infected through bottles delivered at houses where there are cases of typhoid fever; these infected bottles are returned to the dairy, refilled, and delivered to other customers. Where the milk becomes infected by washing the cans with infected water, as in the Palo Alto outbreak, the number of cases is usually much greater than when infected in other ways. After the usual incubation period secondary cases from contacts begin to appear.

2. The appearance of an unusual number of cases among the customers of a certain dairy. The appearance of an unusual number of cases without a general increase elsewhere on the route of a dairy should at once direct especial attention to that milk.

Of course, typhoid fever due to infection from other sources may occur among persons supplied by a particular dairy, but they will not be found to be chiefly consumers of the milk. It is often very striking how the customers of a dairy whose milk is infected may be picked out by the unusual proportion of cases on that milk route. Very frequently cases may be traced in persons not directly supplied by the suspected dairy, but who have taken this milk at the home of some friend or at a restaurant. An increase in the number of cases on a certain route associated with a decrease generally throughout the city is particularly suggestive of milk infection.

3. Unusual incidence of cases among users of milk. It will be found that there is an unusual prevalence of typhoid fever among the users of milk; the non-consumers escape or develop as secondary cases. As women and children generally use more milk than men an unusual prevalence of the disease among them is a common feature of milk-borne outbreaks. Those families on the suspected route who make a practice of pasteurizing their milk escape, except from infection as secondary cases.

The following table, taken from Whipple, shows the relative percentage of cases of typhoid fever in different ages in the Stamford (milk) and the New Haven (water) epidemics and brings out the unusual prevalence of the disease among children in milk outbreaks:

Place	Ages in Years				
	0 to 5	6 to 15	16 to 30	31 to 45	Over 45
Stamford	16.95%	18.19%	32.90%	14.76%	4.15%
New Haven	8.10%	36.73%	40.63%	10.43%	3.18%

4. More cases among the well-to-do than among the poor. In a milk outbreak there are usually more cases among the well-off, due to the fact that they are more able to buy milk and use it in larger quantities than the poor, while in fly-borne outbreaks the poor and those living under insanitary conditions are more often attacked.

5. The finding of the typhoid bacillus in the suspected milk. This is practically hopeless, as the milk rarely comes under suspicion for at least three weeks after having become infected. In addition, the technical difficulties are so great that it is an almost hopeless procedure, though the isolation of the organism should be attempted. If successful, it is absolutely conclusive.

I shall cite, as an example of a milk outbreak, one in Savannah, Ga., which I had the opportunity of studying in the early summer of 1907.

Outbreak of Typhoid Fever in Savannah, Ga., Due to Infected Milk.—This outbreak, which I had the opportunity of studying, was undoubtedly due to infection in the milk supplied by one of the largest dairies in the city.

The city has an unusually pure water supply, it being derived from a system of deep artesian wells. From the 1st of January, 1907, to May 1 there had only been 19 cases of typhoid fever reported to the health officer, two of these being imported cases. Preliminary investigations showed that an unusual

*Epidemic of typhoid fever in Butler, Pa. Twentieth Annual Report, State Board of Health, 1904.

number of cases were occurring among the customers of a certain dairy. This dairy did a wholesale as well as a retail business. The milk sold wholesale was delivered in cans to dealers, who retailed it out to their customers.

On March 5 there was a death from typhoid fever in a family who lived over one of the milk depots. There does not seem to have been any decided increase in the number of cases of typhoid fever reported until the last two weeks of April, when there were six cases reported. From May 1 to 15 there were 17 cases, and from the 16th to the 31st 78 cases were reported.

The cans in which the milk was delivered to the depots were returned to the dairy and, without any sterilization, were used to deliver milk to the same or some other dealer. Various members of the family in which the case of fever occurred assisted in the sale of milk in the bakery as well as in the care of the patient.

The following table shows in bi-weekly periods from January 1 to June 1 the number of cases of typhoid fever reported and the milk used before being taken sick:

Semi-Monthly Periods	Dairy														Condensed Milk.	No Milk Used.	Imported Cases.	Contact Cases.	Total.
1907	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O				
Jan. 1–15.	.				1			.											1
Jan. 16–31.	.	.			.	1		.											1
Feb. 1–14.	2						1	.							1				4
Feb. 15–28.	.	1	.	.	.			.											1
Mar 1–15.	1							.											1
Mar. 16–31.	.	.			.		1								2				3
Apr. 1–15.	.	.			.	.	.	.	1								1		2
Apr. 16–31.	2	1			.	.	1		1								1	.	6
May 1–15.	9	.	.	1	.	.	1	.		1							4	1	17
May 16 31.	54	.	1	1	.		4				1	2	1	2	1		5	5	1	78
Total...	68	2	1	2	1	1	8	1	1	1	1	2	1	2	1	3	5	11	2	114

Of the 114 cases shown in the table 68 had used milk from the suspected dairy (dairy A). Deducting from the total of 114 cases those who used only condensed milk, those who used no milk, imported cases, and cases clearly attributed to contact; 75 per cent. of the remainder were persons who had used milk from dairy A.

CHARACTERISTICS OF OUTBREAKS DUE TO CONTAGION AND TRANSMISSION BY FLIES.

For purposes of convenience I shall discuss the characteristics of outbreaks of typhoid fever due to contagion and transmission by flies at the same time. The great part played by flies in the transmission of typhoid fever was first emphasized in the masterly Report on the Origin and Spread of Typhoid Fever in United States Military Camps during the Spanish War, by Reed, Vaughan, and Shakespeare. They concluded that "flies were undoubtedly the most active agents in the spread of typhoid fever. Flies alternately visited and fed on the infected fecal matter and the food in the mess tents. More than once it happened when lime had been scattered over the fecal matter in the pits, flies with their feet covered with lime were seen walking over the food. Typhoid fever was much less frequent among members of messes who had their mess tents screened than it was among those who took no such precautions. Typhoid fever gradually died out in the fall of 1898 in the camps at Knoxville and Meade with the disappearance of the fly, and this occurred at a time of year when in civil practice typhoid fever is generally on the increase. * * * The first pits at Knoxville contained, before the first 24 hours had passed after the arrival of the troops, fecal matter infected with the typhoid bacillus. Flies swarmed everywhere. Instead of abating, the disease increased. The soldiers were using the same water used exclusively by the inhabitants of West Knoxville, and among the latter there was not at that time a case of typhoid fever. Certainly the disease was not disseminated through the drinking water."

Alice Hamilton* investigated in 1902 an outbreak of typhoid fever in the nineteenth ward of the city of Chicago. This ward, which only contained about one-thirty-sixth of the total population of the city, had between one-sixth and one-seventh of all the deaths from typhoid fever. It seemed to her that, while the water was undoubtedly the causative factor in the epidemic throughout the city, there must be some local cause for its undue prevalence in the nineteenth ward. The sanitary arrangements in this ward were found to be very bad and on those streets with the worst sanitary arrangements there were the largest number of deaths from typhoid fever, irrespective of the poverty of the inhabitants.

Flies caught in two undrained privies, on the fences of two yards, on the walls of two houses, and in the room of a typhoid patient, were used to inoculate 18 tubes; from five of these tubes the typhoid bacillus was isolated. In this outbreak the chain of evidence implicating the fly in the spread of the disease was certainly convincing and almost complete.

The outbreak in the city of Winnipeg, in August, 1904, investigated by Dr. E. O. Jordan, which was confined almost entirely to the poorer part of the city, was attributed to transmission by flies and contacts.

Outbreaks due to direct contact are seen especially in institutions where there are typhoid fever cases and in houses where the family and friends visit and assist in the care of the patient. In these cases the infection is conveyed either directly by the future patient or indirectly by the nurse to food consumed by others.

Typhoid-carriers such as the one reported by Soper in the person of a cook, who was responsible for at least 28 cases of typhoid fever in families in whose employ she had been, are instances in which the infection is conveyed by a third person.

The bacilli have been found in practically all of the excretions of typhoid fever cases and it is only by the most scrupulous care on the part of the attendant that infection can be avoided for himself and others.

The chief characteristics, then, of outbreaks of typhoid fever due to transmission by flies and by contact are their local character, their appearance in places where the sanitary conditions are poor or where they are neglected, occurring during the fly season in the case of fly-transmission, and among those most closely associated with the patient.

OUTBREAKS DUE TO INFECTION BY VARIOUS OTHER MEANS.

There have been reported in the literature many interesting outbreaks of typhoid fever due to conveyance of the infection by oysters and other shellfish, fruits, vegetables, ice cream, watercress, celery, ice, etc.

Investigating an epidemic of typhoid fever in Lexington, Va., in November, 1903, I was able

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to trace a number of cases which were most probably due to infected ice. The water used for the manufacture of ice was obtained from a spring which was open to contamination by drainage from the privies of houses in which were cases of typhoid fever. I isolated the typhoid bacillus—proved to be such by cultural and agglutination reactions—from the water storage tank in the ice factory.

ROCKY MOUNTAIN SPOTTED FEVER.

WITH REPORT OF A CASE.*

By ALF. A. ROBINSON, M.D.,

OGDEN, UTAH.

WITHIN the last decade Rocky Mountain spotted fever has become a nosological entity. Investigations under the directions of the Montana State Board of Health, the U. S. Public Health and Marine Hospital Service, and the American Medical Association have thrown much light upon this heretofore obscure disease.

Because of the name "tick fever" by which it is known, one should not think of any connection existing between this and African tick fever or Texas cattle fever which are transmitted by the bites of ticks, although the etiological factor was at one time thought to be closely allied to the *Piroplasma bigeminum* (Smith and Kilborne) of the latter disease. Neither should it be confused with typhus or cerebrospinal fevers because it is referred to as "spotted fever." This confusion of nomenclature will be avoided by designating the disease as Rocky Mountain spotted fever, which name has been adopted by Stiles and Ricketts.

Rocky Mountain spotted fever is an acute infectious, endemic disease, transmitted by the bite of a tick; characterized by (1) severe pains in the back, muscles, and joints; (2) a papular or petechial eruption, appearing first about the ankles, wrists, and forehead and extending later, though to a less marked degree of intensity, over the entire body and (3) an irregular fever, terminating by lysis in from two to seven weeks.

The history of this disease may be divided into two epochs: (1) from 1847 to 1902; (2) from 1902 to the present time.

The first period consists principally of vague rumors and indefinite reports of a disease which may or may not have been Rocky Mountain spotted fever. Only a few symptoms were recorded by the early writers. There were meagre surmises as to its nosology and etiology, but no accurate investigations were made. During this period the disease was referred to as "mountain fever," "bull fever," "typhomalarial fever of the Rocky Mountains," "black fever," "blue disease," and "spotted fever."

In 1902, under the direction of the Montana State Board of Health, there were begun investigations as to the true nature of the disease. Hypothetical surmises then gave way to scientific researches and Rocky Mountain spotted fever, as a distinct and definite problem, was studied with proper and befitting accuracy. Since that time it has borne the names "tick fever," "Rocky Mountain spotted fever," "piroplasmosis hominis," and "intermittent tick fever."

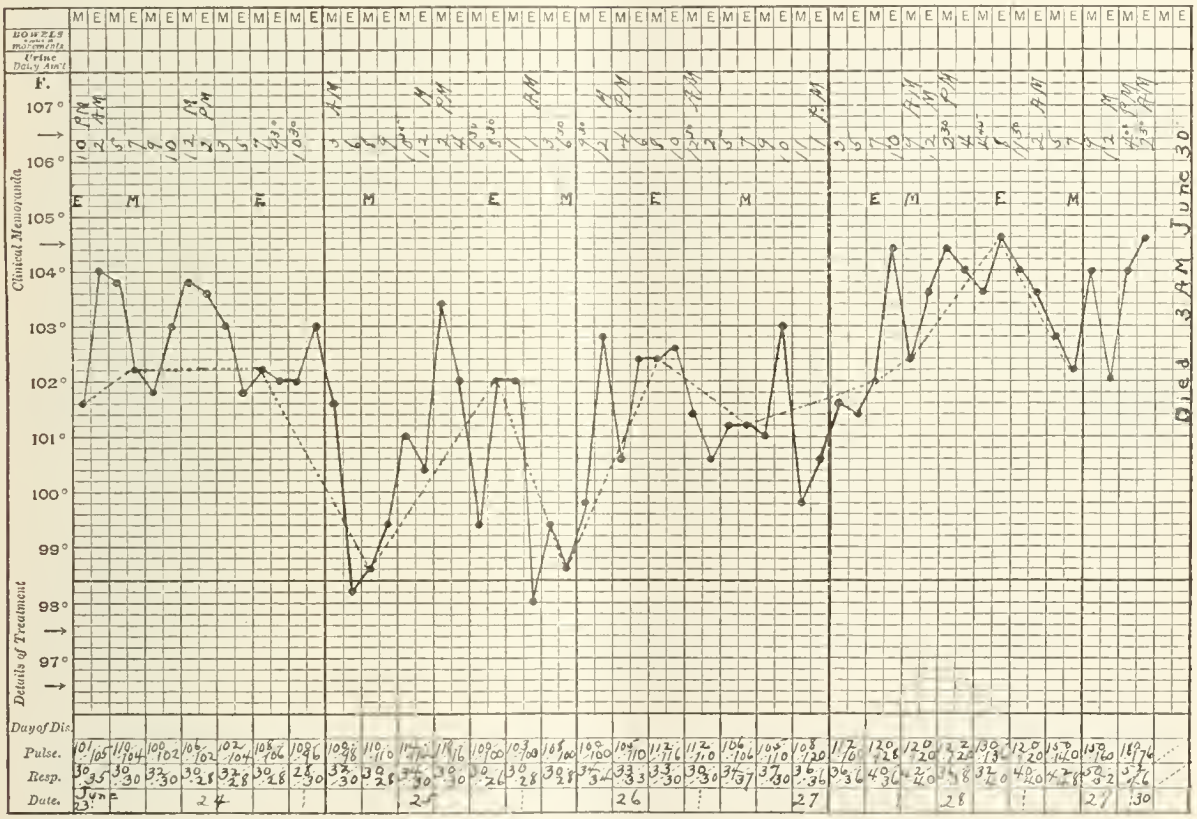

CHART 1.—Common type of temperature (Wilson and Chowning). The dotted line represents the curve of the usual morning and evening observations; the continuous line shows the intermediate variations.

Information of its occurrence among the Indians is rather unsatisfactory. Buckley was unable to obtain any convincing evidence that they suffered from "spotted fever."

The Mormons, en route to Utah in 1847, may have encountered this disease. No accurate description is given, but the conditions under which they traveled, the season of the year, and the country through which they passed, render it highly probable that these pioneers suffered from Rocky Mountain spotted fever.

*Prize Essay, Francis W. Shain Prize, Jefferson Medical College, 1908.

C. E. Boyle, while traveling to the Pacific coast in 1851, met a disease which he called "Rocky Mountain fever," or "bull fever." It appeared at

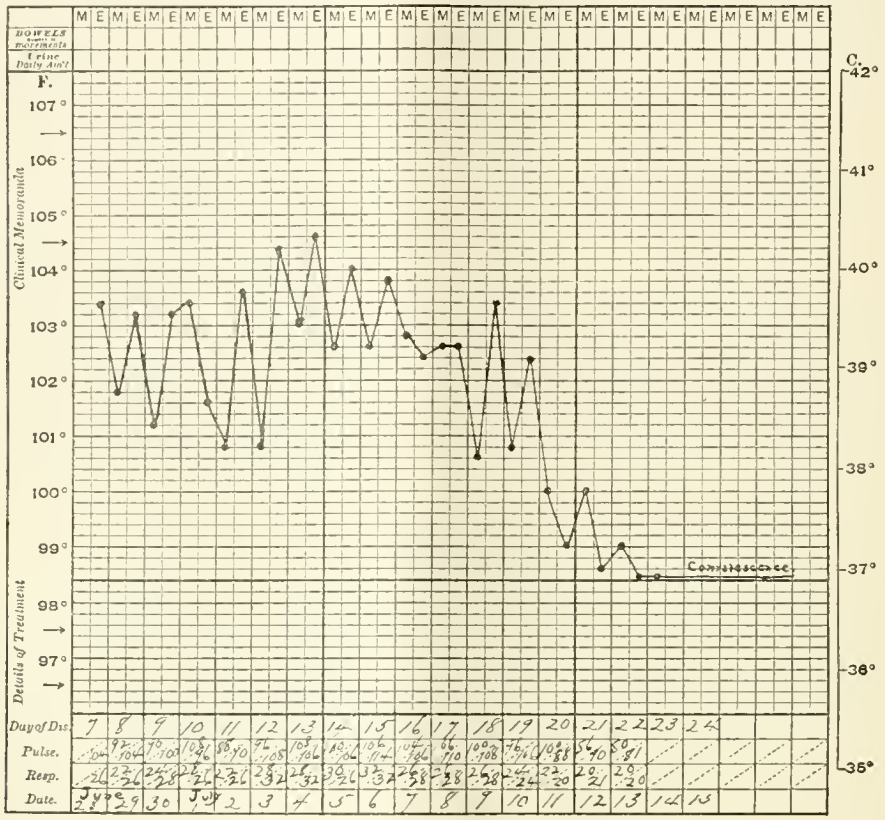

Chart 2.—The curve of defervescence (Stiles).

South Pass, Wyoming, among the members of his company. His description is vague, however, and inconclusive.

Lyons, Colorado, met a disease "called mountain fever by pioneer brethren," but these cases were proven to be malaria. The fort was afterwards re-

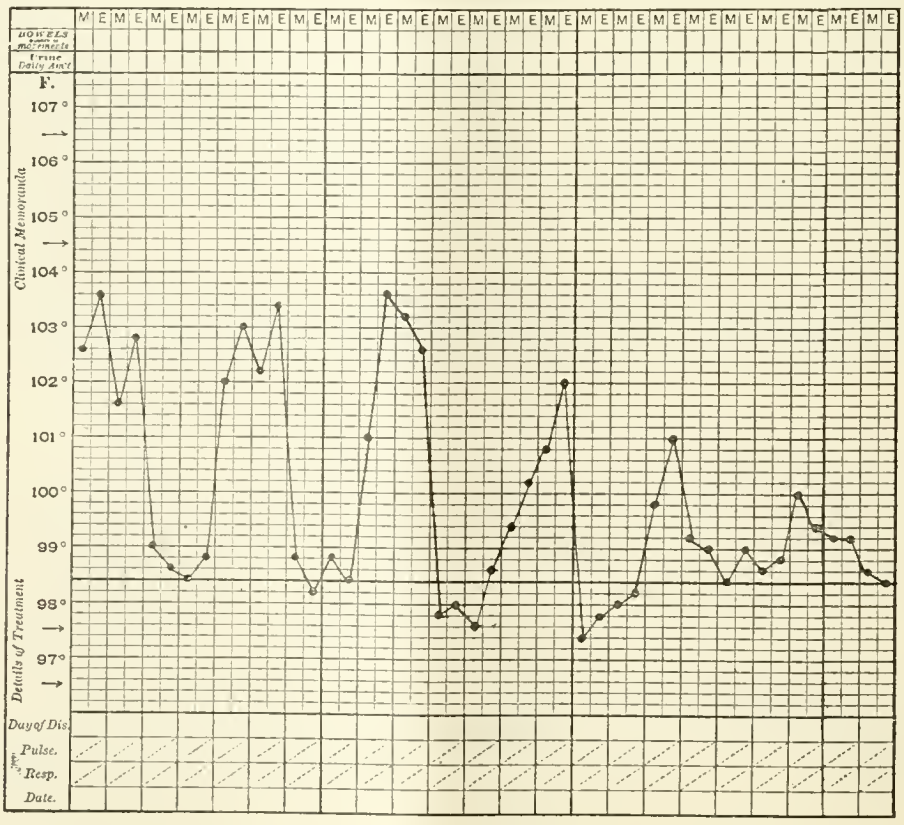

Chart 3.—The intermittent type (Kieffer).

At the same place, four years later, W. T. Ewing saw twenty-five cases of a unique disease. Of these, two were fatal. He thought it most simulated malaria but knew of no assignable cause other than altitude.

Waggoner, of the U. S. Army, while at Ft. moved on account of its unsanitary location.

In 1868 Curtin saw four cases at Cheyenne. Two of the men were prospectors and the other two had

been living in tents, thus exposing them to the bite of ticks. He believed the disease to be "one of the already classified varieties," described an eruption, and pointed out the fact that well known diseases were diagnosed as Rocky Mountain fever.

In 1875, Patski, of the U. S. Army, of Ft. Steele, Wyoming, referred to "mountain fever" as occurring among wood choppers along streams. He attributed it to malarial infection, and claimed successful treatment with quinine. These patients were in Rocky Mountain spotted fever and not malarial districts and were likely subjects to become hosts for ticks.

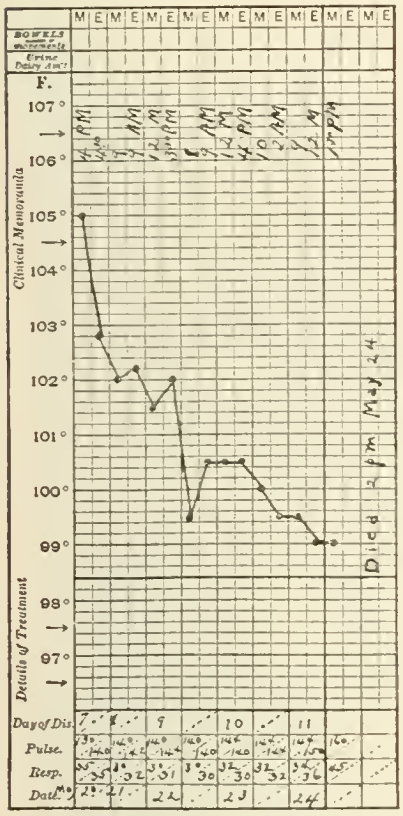

Chart 4.—The preagonal decline (Wilson and Chowning).

In the same year Jaquette, of the U. S. Army, of Ft. Boise, Idaho, wrote of . . . . . occasional case of fever, either remittent or intermittent, commonly called in this country 'mountain,' or 'typhomalarial fever.' This prevails more especially among the citizens who are occupied in mining or on farms in the valley along the river." This corresponds well with Maxey's geographical distribution in Idaho.

Also in 1875 Town, of the U. S. Army, of Ft. Shaw, Montana, made a brief reference to what may have been this disease.

"Mountain fever" was discussed by Williamson and Benedict at a meeting of the Salt Lake Medical Society on March 18, 1877.

Smart, of the U. S. Army, published an article in 1878 in which he says: "Now the question comes, is it a fever *sui generis* or are we to give it recognition as typhoid, typhomalarial, or malarial remittent fever?" He repeated a number of cases met with by Gray, at Ft. Fetterman, Wyoming. Gray found that quinine had no effect to prevent or control the daily return of high fever.

In 1880, Hoff, of the U. S. Army, wrote: "From time to time there have appeared in American medical periodicals articles under the caption 'Mountain Fever,' giving description of a febrile disease of somewhat peculiar character, which apparently is indigenous to the country vaguely demonstrating the Rocky Mountain region. Owing, doubtless, to the spareness of population, the rarity of the disease, and, not least, the fact that the pioneers of our profession in this extreme Western country are, as a rule, workers, not recorders, the literature of the subject is extremely meagre."

In 1896, Wood, of the U. S. Army, submitted to the Surgeon-General descriptions of the disease from eight Idaho physicians and was the first to refer to it as "spotted fever."

In 1898, Woodruff, of the U. S. Army, wrote on "The Form of Typhoid Fever called Mountain Fever." This reference was made to typhus levissimus and not to Rocky Mountain spotted fever. The Widal reaction was obtained in his cases.

In 1899, Maxey, of Boise, Idaho, read a paper before the Oregon State Medical Society, in which he expressed his opinion that "spotted fever" is an independent, specific disease. His description is much more lucid than any antedating.

McCollough and Gwinn each presented a paper on "Spotted Fever" before the Montana State Medical Society in May, 1902. They state that the disease has prevailed in the Bitter Root valley from the earliest history of settlement by white inhabitants. Gwinn reported two autopsies.

In 1902 the disease was investigated for the Montana State Board of Health by Wilson and Chowning of the University of Minnesota. They advanced the tick theory of transmission, described parasites within the red blood cells, and suggested the burrowing squirrel (*Citellus columbianus*) as representing the original host of the disease (cf. Etiology).

Anderson, of the Public Health and M. H. Service, visited Montana in 1903 and made a study of the disease. He confirmed the blood findings of Wilson and Chowning and referred to the malady as "tick fever."

Wilson and Chowning continued their work in 1904 and published new observations. They named the blood parasite *Pyroplasma hominis* (and later *Piroplasma hominis*) as the cause of the disease.

Stiles, Chief of the Division of Zoology, of the Hygienic Laboratory, visited Montana in 1904 and made a study of Rocky Mountain spotted fever. He failed to confirm the observations of Wilson and Chowning, and Anderson, as to the presence of a piroplasma in the blood.

In 1905, R. W. Smith, of Seattle, Washington, reported the study of one case, in which he observed the intracorpuscular body described by Wilson and Chowning.

Nine cases were studied by Kieffer, of the U. S. Army, at Ft. Russel, Wyoming. Careful laboratory investigations gave unsatisfactory results. He referred to the disease as "intermittent tick fever."

In 1906, a grant was made by the American Medical Association through the Committee on Scientific Research for the study of Rocky Mountain spotted fever, and working in part under this grant, Ricketts of the University of Chicago made bacteriological and hematological studies, of which the former gave negative results, and has continued his

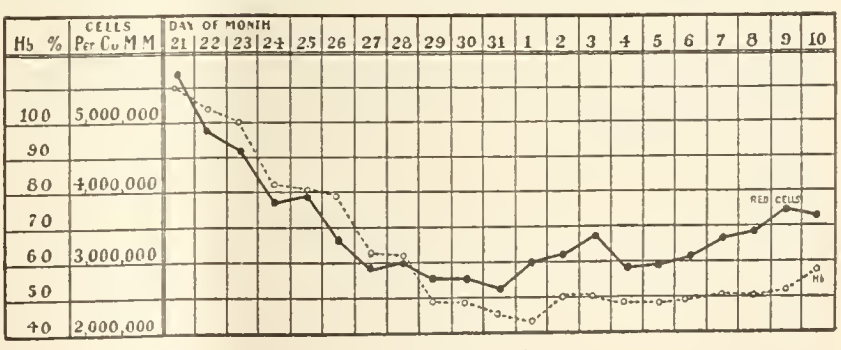

Chart 5.—Blood Chart (Kieffer).

investigations of the infectious agent by means of animal inoculations. He has demonstrated that the disease can be transmitted to the monkey and guinea-pig by the bite of a tick.

Etiology.—Rocky Mountain spotted fever has a distinct geographical distribution and occurs only in the spring and early summer months. Some years there occur a greater number of cases than others. Maxey states that there were few cases in Idaho in 1907, but he can assign no cause for it. The intensity of the disease also varies from year to year.

Two types are met with: a rare one in which no eruption developes, which is usually a mild form; another, characterized by a distinct rash, in which the symptoms are more marked.

Geographical Distribution.—The disease has been reported from Montana, Idaho, Wyoming, Nevada, Oregon, Washington, Utah, and Colorado.

The most constant locality in which this fever prevails in Montana is the Bitter Root valley. Wilson and Chowning state that on the western side of the Bitter Root valley, in an area of four to ten miles wide and fifty miles long the disease is most prevalent. McCollough says the disease has been found to occur in Phillipsburg, Clinton, Camas Prairie, Rock Creek, up the Blackfoot, Rattle Snake valley and far up the Lo Lo as well as in the Bitter Root valley. Gates reports a number of cases near Bridger.

Ed. E. Maxey, Secretary of the Idaho State Board of Health, outlines the distribution in that State as follows: "The geographical distribution in this State, as I know it, is about as follows: The valleys of the Weiser, the Payette, the Boise, and the Wood rivers; I might say the disease has been reported along the entire north-bank watershed of the Snake River. I know of no cases having been reported from the territory south of the Snake River. I do not know if they have the disease in the north end of the State or not, but think not. A few cases have been reported from southwestern Idaho, but these cases, I think, were on streams flowing south into Salt Lake. In other words, it has been our experience here in Idaho, that the disease is found only on watersheds which face or flow toward the south."

Gates reports cases from Thermopolis, Meyersville and Shoshone River in Wyoming. Kieffer says: "The region in which the men from this post have become infected is that section embraced in the headwaters of the three small streams which go to make up Crow Creek." Probable cases are reported from South Pass, Ft. Fetterman, Ft. Steele, and Cheyenne.

The disease is reported in the Quinn River valley; Paradise valley; near Winnemucca; at Ft. McDermitt, and from Reno in Nevada.

Geary reports a case from Burns, Oregon. R. E. Lee Steiner, at present of Salem, tells me of twenty-three cases he attended in the vicinity of Lakeview. John G. Patterson, of Merrill, had one near that place.

R. W. Smith of Seattle reports a case from Moses Lakes, Douglass county, Washington.

I am informed by Noyes of American Fork of three cases occurring in Cedar valley, Utah. One patient was a sheepherder and resided at Fairfield, while the other two, a farmer and his daughter, lived at Cedarfort. Wheritt has had several cases at Heber City. Laymen tell me of having contracted "mountain fever" while hauling wood from a district designated as "Tickville," which is about fifteen miles north of the villages Fairfield and Cedarfort. From the abundance of ticks in this locality the district gets its name. R. J. Smith reports a case, but his patient had been visiting in Idaho.

Braden of Carbondale, Colorado, reports four cases from that locality. He refers to one seen by LeRosignol and Hotopp near Rifle.

Rocky Mountain spotted fever is a disease of the spring months. Cases have, however, been seen as early as February and as late as July. It usually makes its appearance in March and reaches its maximum in May, after which time it declines. This is illustrated in the following table of 114 cases: March, 6 cases; April, 19; May, 43; June, 31; July, 5. In spring, but exact month uncertain, 10 cases.

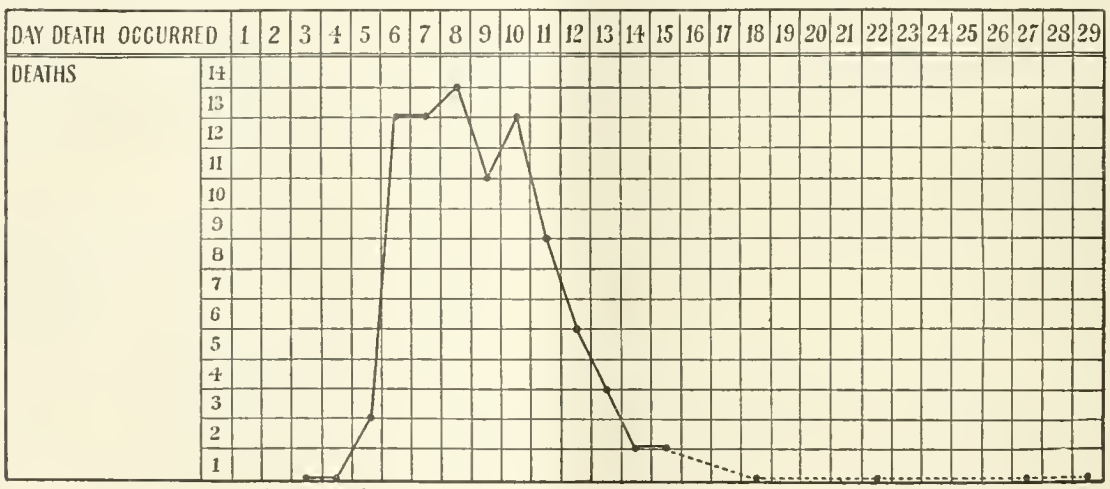

Chart 6.—Showing the days in which death occurred in 96 cases.

Age seems to play no rôle. Anderson gives the ages of greatest liability to infection as from fifteen to fifty, and reports eighteen months as the youngest and seventy-four years as the oldest ages recorded. Of 121 cases, 76 were males and 45 females. Maxey states that it is much more frequent in men on account of their exposed occupations.

A summary of cases reported shows that those whose occupations take them into the hills, along streams and through brush, are the ones most frequently infected. Among sheepherders, cattlemen, engineers, prospectors, ranchers, and lumbermen the disease is principally found. The female patients are commonly housewives living on farms and the children are principally those of the rancher.

Wilson and Chowning made studies of the blood of patients suffering from Rocky Mountain spotted fever and in their results published, described ovoid, intracorpuscular bodies possessing ameboid movement. This organism they named *Piroplasma*

hominis, which they said is similar to the malaria parasite and to *Piroplasma bigeminum* (Smith and Kilborne, 1893) found in Texas cattle fever.

Anderson's findings were in harmony with those of Wilson and Chowning. He describes these organisms as follows: "In the fresh blood a few cells were found to contain parasites. Three forms were seen. The most common was a single ovoid body, refractile, situated within the cell, usually near its edge. When the slide is warmed this body possesses the power of projecting quite rapidly pseudopodia and a slight change of position. This form, which is apparently an early or young form, is about 1.5 to 2 micra in length, and 0.5 to 1 micron in width at its widest part. It closely resembles the earliest intracorpuscular parasites of estivoautumnal malaria. Another form, not so common, was larger, being about 2 to 2.5 by 1 to 1.5 micra, larger at one end and showing in the larger end a dark granular spot; this was also ameboid. The third form was not arranged in pairs, distinctly pyriform, with the smaller end approaching, and in two cases a fine thread uniting the small ends was seen. Motion was not observed in this form, but the spot mentioned in the second form was seen."

Cobb, Westbrook, and R. W. Smith agree with the findings of Wilson and Chowning. Chowning now believes that "the organism present in the blood is a streptothrix or some closely related fungoid organism."

In four hundred hours of microscopic study of fresh and stained blood of typical cases, Stiles and Ashburn were unable to find this parasite. Maxey, Simon, and Cole found no piroplasma in the blood of cases in Idaho. Maxey took blood smears to Prof. Welch for examination, who gave it as his opinion that he could see no changes in the blood save the disintegration of red corpuscles which is found in other febrile diseases. Ricketts was unable to identify a parasite within the red blood cells.

FIG. 1.—Map showing the distribution of cases reported as follows: Montana: (1) by Wilson and Chowning, (2) McCullough, (3) Gates; Idaho: (4) Maxey; Wyoming (3) Gates, (5) Kieffer, (6) Boyle and Ewing, (7) Gray, (8) Patski, (9) Curtin; Nevada; (10) Wilson and Chowning, (11) Stiles, (12) Mooser; Oregon: (13) Geary, (14) Patterson, (15) Steiner; Washington: (16) Smith; Utah: (17) Noyes, (18) Wherritt; Colorado: (19) Braden.

Craig proffers an explanation of the *Piroplasma hominis.* He made no investigation of this disease, however. "In the examination of thousands of specimens of blood, I have often observed appearances coinciding in every particular with the description by Chowning, Wilson, and Anderson of *'Piroplasma hominis'* (so called), which were not parasitic in nature but rather of a degenerative character, due to some unknown action of the disease-producing elements in the cases studied. I have observed these bodies in a large number of diseases, especially in fevers such as typhoid, malaria, small-

pox, measles, grip, and very frequently in pneumonia and tuberculosis."

Kieffer also searched for the parasite, but was not convinced of its entity. He found some few objects within the red blood cells but says of them: "A very careful study of these bodies leads me to the conclusion that they are either artefacts or, more likely, evidence of vacuolization of the erythrocyte with deposit of the staining materials in the margins of the vacuole."

It is very apparent that the *Piroplasma hominis* awaits confirmation.

The hypothesis of Wilson and Chowning that the burrowing squirrel (*Citellus columbianus*) or spermophile represents the original host of the disease has neither been confirmed nor disproved.

Fig. 2.—Eruption of Rocky Mountain spotted fever (Anderson).

Philo E. Jones of Salt Lake City, who has had considerable experience with the disease, expresses his opinion relative to the etiology as follows: "Among the cases that I have seen and attended, less than 25 per cent. have been bitten by ticks. I have a suspicion that when the intruding host has been found it will be that of our mountain mosquito. As the snow recedes from the foot hills in June, close up to the snow line there are swarms of these mosquitos, and they are biters of no mean order. All the cases of spotted fever that I have seen give histories of having been bitten by these insects."

No history of tick bite, and even denial of this, is found in a considerably large number of cases reported. Probably no attempt was made to elicit a history of mosquito bites from several of these patients. Stiles reports a case in which tick bites were denied, but there were many abrasions on the feet and legs all said to be due to scratching mosquito bites. In view of the above facts and inasmuch as the original host of the disease has not been definitely determined, it is not improbable that the mosquito gets the virus from the same source as the tick. This hypothesis certainly deserves investigation.

Wilson and Chowning could find no record of one individual having contracted the disease from another so these investigators were led to examine the skin for indications of direct inoculation. They found evidence of tick bites on every patient under observation and thought this a probable source of infection. Working on this they found: "Ticks are known to appear in the spring as soon as the snow melts from the sunny exposures; in other words, in the Bitter Root valley, as early as February 15. They are, however, chilled and inactive until the latter part of March or first of April. In relation to this, scattering cases of 'spotted fever' appear during the latter part of March and first of April and are most numerous during May and June. Ticks become less numerous about the middle of June, and finally disappear about the middle of July. In connection with this it should be noted that cases of 'spotted fever' become less and less numerous from the middle of June until the middle of July, after the twentieth of which month no cases have been observed."

Some dispute has arisen as to the genus to which this arachnid belongs but Stiles, a recognized authority, says of it: "I have been able to compare the specimens of ticks from Montana with specimens of *Dermacentor reticulatus* from France and I think they are different. For some time I considered the Montana form a distinct species which I named *Dermacentor andersoni* but more recently I obtained the original type of *Dermacentor occidentalis* from California. So far as I have been able to make out the Montana form agrees with *occidentalis*. My studies are not yet quite completed. I expect very shortly to finish a paper on this subject and will then straighten out the nomenclature. From the present indications the Montana form is *occidentalis*."

Ricketts has established the following points concerning the relationship of *Dermacentor occidentalis* to Rocky Mountain spotted fever: "(1) Infected ticks exist in the so-called infected districts in nature. (2) Both the adult male and the adult female may acquire the disease by feeding on an infected animal, and may transmit it to a normal susceptible animal for a period of several weeks thereafter. (3) During either of its intermediate active stages, larval or nymphal, the tick may acquire the disease in the same manner, retain it during moulting, and prove infective when it reaches the subsequent active stage. (4) The infected female may transmit the disease to her young through the egg. It is possible that this does not happen in all instances, and it is quite certain that the brood of an infected female may include many uninfected larvæ. This seems to have been proved in three of my experiments in which the infectivity of the females had been proved before oviposition; the larvæ in these experiments failed to infect normal guinea pigs. (5) The virus exists in both the salivary glands and the gut of infected ticks at a certain time, and since it also invades the generative organs of the female the condition is probably one of a generalized infection, at least for a period. The disease is not highly destructive for the tick."

A parasite has not been satisfactorily demonstrated by culture or the microscope, but inoculation and filtration experiments locate one in the body fluids generally and not essentially in the erythrocytes or leucocytes. Attempts to pass it through a Berkfeld filter have been unsuccessful.

Inoculation of defibrinated blood of patients suffering from Rocky Mountain spotted fever infects the guinea pig and monkey and the virus may be kept alive by alternate inoculation of monkey and guinea pig or continuous passage through the guinea pig.

The infectiousness is largely destroyed by grinding infected blood in the ball mill, which process probably crushes the organisms and thereby liberates the toxic substances.

The writer has been unable to find an authentic example of a second attack of the disease under discussion. It seems possible that one attack renders the body immune. In the monkey and guinea pig Ricketts found that "one attack of the disease establishes a rather high degree of immunity to subsequent innoculation."

Morbid Anatomy and Histology.—The amount of autopsy work in this disease has not been sufficient to justify one in making too positive assertions as to constant lesions found post mortem.

Anderson found that rigor mortis is usually intense and appears early.

On the dependent parts there is a lividity of the skin. The remainder of the body shows petechial spots, dark purple in color, found to the greatest extent about the ankles, wrists, arms, and back. Bowers thinks the spots are due to a sanguineous exudate, probably into or beneath the corium. The capillaries are congested. Sometimes jaundice is very marked.

The pleuræ show no special lesions. The lungs are edematous or hypostatic pneumonia is present. Rarely they are normal. Stiles reports an enlargement of the bronchial nodes.

The pericardium appears normal, but an excessive amount of fluid in the pericardial cavity has been described. Anderson found a few small petechial hemorrhages under the epicardium over the left ventricle in seven cases. Wilson and Chowning reported two autopsies in which were found small hemorrhagic areas over both ventricles. The right heart is full of blood while the left is empty and contracted. The myocardium is frequently pale and flabby and miscroscopic examination reveals granular and fragmented fibers with poorly stained nuclei.

The spleen is enlarged, weighing from 500 gm. to 700 gm. (three or four times the weight of the normal organ). It is usually purple in color; the capsule is distended and thinned, and on section the tissue is dark red. The outlines of the Malphigian bodies are lost. There is considerable infiltration of polymorphonuclear leucocytes in the region of the Malphigian bodies. Anderson found "many mononuclear leucocytes, containing from one to four red corpuscles."

The kidneys are enlarged and the capsule usually strips without difficulty. The seven cases studied by Anderson and six of Wilson and Chowning showed small subcapsular hemorrhages on the ventral surface. On section the cortex was seen to be congested and swollen; the pyramids were well outlined and deep red in color, and small hemorrhages were present in the pelvis. The microscope disclosed minute extravasations of blood in the cortex, veins filled with blood, nuclei of convoluted tubules poorly stained, cells granular and in places detached, and newly formed casts in the tubules.

The stomach is usually normal. Hypostatic congestion is sometimes seen. There is no constant lesion of the intestines. The mesenteric and retroperitoneal nodes are not enlarged. Ricketts found "generalized enlargement of the lymph glands, including those of the mesentery and mediastinum" following inoculations of guinea pigs.

There have been but few autopsies in which there was not an enlarged liver. The general appearance is pale, consistency is normal, and areas are outlined by bile pigment. Section usually manifests a fatty infiltration. The gall-bladder shows no special lesions.

Anderson found the pancreas to be twice its normal weight. In one case it was normal in appearance except for enlargement.

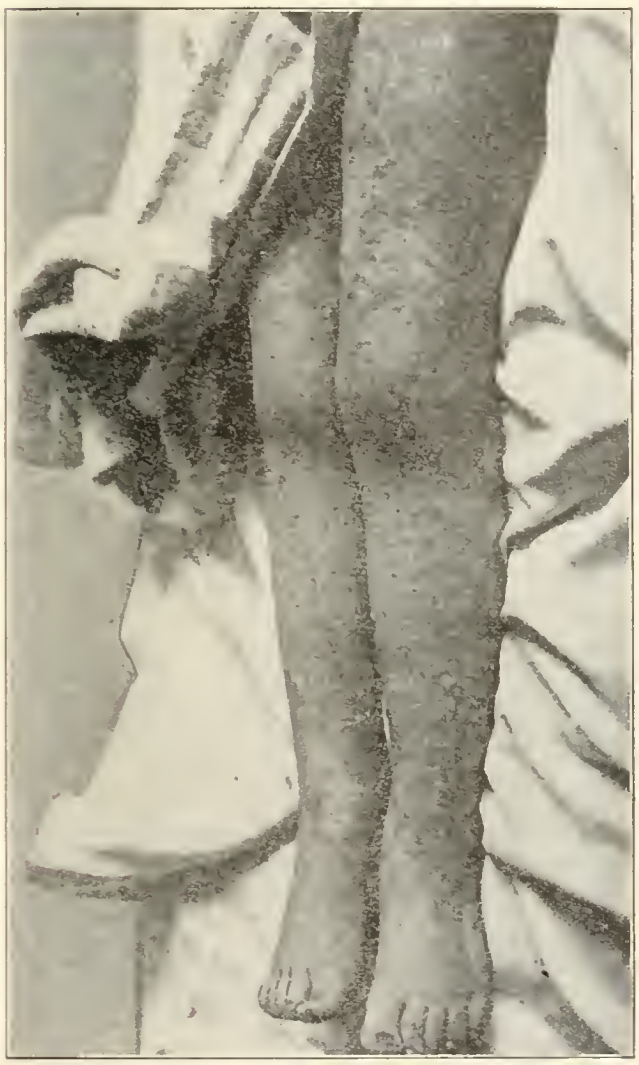

Fig. 3.—Appearance of eruption two hours after death (Chowning).

The urinary bladder is usually normal and contains a small amount of dark urine. Congestion of the ventral wall has been reported.

In severe cases the scrotum and testicles are swollen and gangrene and sloughing sometimes occur. Following inoculations of guinea pigs, Ricketts observed "the scrotum and testicles became enormously swollen, and on the sixth day the skin of the scrotum was occupied by large dark colored hemorrhages of irregular outline . . . this swelling of the testicles and scrotum and the hemorrhage into the skin of the scrotum is the most characteristic sign of the disease as produced in the male guinea pig."

Wilson and Chowning found a slight congestion of the meninges and some distention of the peri-

cellular spaces in the cortex. Anderson reported only a slight hypostatic congestion of the meninges.

Symptoms.—The period of incubation is thought to be from three to ten days, seven days being about the average.

Onset. The patient has chilly sensations, malaise, nausea, and possibly vomiting, pain in the back, headache, coryza, loss of appetite, nosebleed, and finally a distinct chill. The muscles, joints, and bones are sore; some cases even simulating dengue. The bowels are constipated; the tongue is coated and has a red tip and edge; sordes appear early, and the urine is scanty, high colored and contains traces of albumin and granular and blood casts.

During the period of incubation the morning temperature is normal, but a slight elevation is noted in the evening. After the initial chill an abrupt rise to 103° to 104° is common, and according to a number of observers a rise in the evening with a slight morning remission, the maximum being reached on the eighth to the fourteenth day, is the rate (Chart 1). The temperature then returns to normal about the sixteenth to the twentieth day, followed by a subnormal period of a few days (Chart 2). Kieffer described an intermittent type: "The fever rapidly rises to 103° or 104° and remains high with narrow fluctuations for 48 hours in the ordinary type of paroxysm. In some few cases the febrile stage lasts only 24 hours. After this stage is passed an intermission or remission occurs, during which the temperature falls to or near the normal. * * * The intermission lasts 48 hours, thus completing the cycle, when a second chill takes place and the second paroxysm begins and terminates as the first; a two days' fever and a two days' intermission" (Chart 3).

This cannot be an extremely uncommon type. Jacquette, Smart, and others designated the temperature as intermittent or remittent and some were led to class the disease as a malarial infection on this account, but quinine had no controlling effect on the paroxysms. In fatal cases the fever usually remains high, although "the temperature occasionally becomes normal or subnormal eighteen to twenty-four hours before death" (Chart 4).

At the onset the pulse is slow, full, and of high tension but later it becomes rapid, running, and weak. There is a slight disproportion between pulse and temperature, but not so marked as in enteric fever. The character of the pulse is doubtless significant of an increasing toxemia.

The respiratory rate is increased to from thirty to fifty per minute, reaching as high as sixty in some cases. It is rather shallow and regular. Occasionally there is slight bronchial cough. Hypostatic pneumonia may develop.

The eruption appears during the first week of the disease, from the third to the fifth day. The spots are first noticeable about the ankles, wrists, and forehead and later spread over the entire body, sometimes invading the eyes, causing photophobia. There are fewer spots on the trunk than on the extremities, especially is this true of the abdomen.

Upon first appearance they are hyperemic maculæ 3 mm. to 6 mm. in diameter, which disappear readily on pressure, rapidly to return. In three or four days they enlarge to from 6 mm. to 8 mm., become papular and are modified only slightly on pressure (Fig. 2). Frequently petechiæ are seen, which may extend to an area of ecchymosis as large as a hand. As the fever declines the eruption begins to fade. It disappears slowly, a few days to several months being required for complete absorption to take place. Exposure to cold or a warm bath may cause the spots to show distinctly months after recovery.

In addition to the eruption the skin is congested and cyanotic, giving to the face a bloated and stupid expression. Ordinarily, jaundice is met with, first noticed in the conjunctiva. As will be seen in the blood picture, hemolysis takes place to a more or less marked degree, which is probably responsible for the jaundice, although pressure from an enlarged pancreas or mucosal swelling of the bile ducts as possible causal factors should not be lost sight of.

Desquamation begins upon convalescence and extends over the entire body. Gangrene of the scrotum, penis, and toes may occur in severe cases. In fatal cases the spots turn purple and remain post mortem. (See Fig. 3.)

During the first week the appetite is often good, but some nausea is present and vomiting is an occasional symptom. The teeth are covered with sordes and early the tongue has a heavy white coat with red tip and edge. Later the coat becomes brown and the mouth is parched and dry. In some cases marked irritability and pains in the stomach are experienced. Constipation is usual during the entire illness, although diarrhea may occur. Tympanites and tenderness of the abdomen seem to be absent.

The liver is somewhat, although not markedly, enlarged and the gall-bladder gives rise to no symptoms.

Headache is perhaps the most common symptom of the development of the disease. The patient also complains of pains in the back, muscles, joints, and bones. On this account restlessness and insomnia are common early, but later there is almost freedom from pain. Kernig's sign is absent. Photophobia is not extremely rare. The pupils react normally to light and accommodation. External divergent squint is reported by Mills and irregular dilatation of the left pupil by Geary.

The urine is considerably reduced in amount, high colored, acid in reaction and contains traces of albumin in varying quantities. Occasionally it is loaded with amorphous urates. Granular and blood casts are perhaps most commonly found, although the hyaline and epithelial varieties are not infrequently present. According to Wilson and Chowning, hemoglobinuria is absent or very slight. This is not the picture of a piroplasmatic disease.

Although jaundice is a common symptom, I have been unable to find any record of biliuria. This may be due to failure to make the test, but Stiles reports no bile present (Gmelin) in one case.

The red cells and hemoglobin show a progressive decrease. Five cases of Wilson and Chowning, at an altitude of 3,500 feet where the normal count is above rather than under 5,500,000, gave the following results: 4,100,000, 4,200,000, 4,300,000, 4,500,000, and 4,600,000. Kieffer recorded a greater decrease than this. The fall was from 5,800,000 (altitude 6,200 feet) to 2,600,000. (See chart No. 5.) The macroscopic appearance of the blood in his cases was characteristic of a piroplasmosis—thin, watery, and pale—while in those of Wilson and Chowning "the blood appears somewhat darker than normal as well as somewhat less fluid." Poikilocytes are present. The malarial parasite is not found. The entity of *Piroplasma hominis* is not established.

No marked leucocytosis is present; from 8,000 to 13,000. A constant feature, apparently, is an increase in the large mononuclear cells. A differential count made six times by Kieffer resulted as follows:

Polymorphonuclear.	76.6	77.	72.	71.	73.	72.
Large mononuclear.	12.4	13.6	15.6	16.5	15.6	16.6
Lymphocytes	9.6	9.	11.	12.	10.	11.
Eosinophiles	.8	.4	.9	.6	.8	.4
Mast cells	.6	.0	.5	.0	.6	.0
	100.	100.	100.	100.	100.	100.

An average in two counts made by Anderson gave similar results: Polymorphonuclear, 77.7; large mononuclear, 11.4; small lymphocytes, 10.0; eosinophiles, 0.9.

Occasionally there is a peculiar urinous odor about the patient which persists in spite of care and cleanliness.

The *diagnosis* of Rocky Mountain spotted fever is not difficult to physicians in the localities where the disease is known to exist. The laity also recognize it.

Its occurrence from late February to early July; history of tick bite, or possibly mosquito bite; headache; malaise; nausea and vomiting; constipation; pain in the muscles, bones, and joints; a chill, followed by a rise in temperature; the appearance between the third and fifth days of an hyperdermic, macular eruption, first about the ankles and wrists and later becoming diffuse, are the clinical features upon which a diagnosis may be made. The absence of the eruption does not render the diagnosis untenable because in the mild form no rash appears.

Differential Diagnosis.—Cerebrospinal fever.—Delirium, followed by stupor and coma, occurs at the onset. Herpes appears and the rash is variable. Retraction of the neck, tremor, rigidity of the muscles, and Kernig's sign are important diagnostic features. Lumbar puncture usually gives a turbid but sometimes purulent or bloody fluid and in coverslip preparations the diplococcus intracellularis is seen. A leucocytosis of from 25,000 to 40,000 is an early finding.

Enteric Fever.—After reaching the fastigium by a step-like rise, the fever is subcontinuous for a week or longer. The rose spots differ from the eruption of Rocky Mountain spotted fever in that they are distributed principally upon the abdomen and chest in successive crops, the first appearing from the sixth to the tenth day. Isolation of typhoid bacilli from the blood, stools, and urine, and the presence of rose spots afford fair evidence of the disease. The Widal reaction of typhoid has never been obtained in Rocky Mountain spotted fever. The Diazo reaction may be of service.

Typhus Fever.—Physicians have diagnosticated Rocky Mountain spotted fever as typhus fever. The highly contagious character of the latter is important and the eruption appears first upon the abdomen and chest, later upon the extremities, which is the reverse to the Rocky Mountain type. It is not limited to the spring and selects its victims in crowded cities rather than among the roomy ranchers. A mousy odor is peculiar to typhus.

Measles.—The contagious and epidemic nature of measles, together with the catarrhal condition of the respiratory tract, the enanthem (Koplik's spots) and the papular efflorescence, appearing first on the face, enable this disease to be differentiated with comparative ease.

Dengue.—The pandemic character and rapidity of diffusion are important in dengue. It has the highly infectious character of exanthematic fevers and occurs in tropical and subtropical regions. The onset is remarkably sudden, the joints are swollen and a pleomorphic eruption appears over them.

Purpura Rheumatica (Schönlein's disease).—The eruption varies greatly in character: purpura urticans, erythema exudativum, and pemphigoid purpura. The temperature range is not high. Sore throat and multiple arthritis are quite constant features.

Purpura Hæmorrhagica.—The prodromes and systemic disturbances are slight, and only a mild fever is present. Bleeding from the mucous surfaces may cause profound anemia.

Malarial Fever.—The absence of an eruption, the presence of the plasmodium malariæ in the blood, and the specific therapeutic action of quinine serve to differentiate this from Rocky Mountain spotted fever with comparative ease.

Prognosis.—The disease seems to be more virulent in some districts than in others. In the Bitter Root Valley the mortality is higher than in other localities. Anderson gives the mortality in Montana as varying from 70 to 90 per cent.; Wilson and Chowning as from 70 to 80 per cent. Of the Idaho cases, Maxey says: "The prognosis in spotted fever is, as a rule, very favorable if the patient is transmitted to the lower valleys where he can have home comforts and proper care." According to Mooser the Nevada cases are not so fatal as those in Idaho, Utah, and Montana.

During certain years the percentage of fatalities is reduced below that of other years.

The development of jaundice, delirium or other involvement of the nervous system, or of the hemorrhagic diathesis is almost invariably followed by death. The cause of death seems to be toxemia and exhaustion.

As will be seen in the accompanying chart (No. 6) of fatalities the patient most frequently perishes from the sixth to the eleventh day.

Anderson thinks the abundance of the eruption bears no relation to the severity of the disease. In the mild type, however, death almost never occurs. Geary reports an intercurrent diphtheritic infection which yielded to treatment by antitoxin.

Treatment.—The treatment is principally expectant and symptomatic. No medicinal agent seems to exercise any specific power over the disease.

An attempt to exterminate the tick would seem useless, as this would mean extermination of all animals, wild and domesticated, which are the chief hosts for ticks.

As prophylactic measures, some of the Western physicians advise early removal of the arachnid by applying a volatile oil, such as kerosene or turpentine, which causes him to let go, and cauterization of the wound with 95 per cent. carbolic acid. This, however, has been futile in most instances.

Pioneer settlers tell me their method of treatment was by the administration of wild sage tea.

After the supposed discovery of the *Piroplasma hominis* it was suggested that quinine be given hypodermically in large doses. At present there exists considerable diversity of opinion as to the propriety of administering this drug, some maintaining that it increases the subjective discomfort and is very unsatisfactory, while others affirm that good results are obtained by its use.

Calcium sulphide is spoken highly of by a number of physicians.

Kieffer is quite convinced that arsenic has a controlling and curative effect on the disease. He recommends the subcutaneous injection of 1 to 2 c.c. twice daily of the following solution:

R	Sodii arsenitis.....	0.1
	Cocainæ hydrochlor.....	0.4
	Aquæ	10.0

The cocaine is added to prevent burning.

If Kieffer's observations be correct, atoxyl might prove of value in this disease, as a greater quantity

of arsenic can be borne when given in this form. In view of the results obtained from this drug in trypanosomiasis and the promising results in syphilis, it may be well to try this drug in Rocky Mountain spotted fever.

A dark, quiet room is preferable. As constipation is the rule, the bowels should be kept open by some laxative. The relief of pain has been obtained by Dover's powder and the coaltar products. The latter may be too depressing in this toxic condition.

Anderson states that warm sponge baths or packs reduce the fever and relieve the congestion of the skin.

The heart is kept up by strychnine, alcohol, and digitalis; while diruesis is accomplished by the administration of an abundance of fluid. A liquid or semisolid diet is advised.

The following report of a case of Rocky Mountain spotted fever is made by Dr. J. G. Patterson, of Merrill, Oregon.

Fred Steemans, homesteader on the southeast slope of a range of hills separating Lower Klamath Lake basin from Tule Lake basin. Patient had been engaged in clearing sage brush land and had many ticks on his body. He first came into my office April 19, 1906, complaining of headache, anorexia, general lassitude, hebetude, soreness of muscles, especially those of the back and limbs, which symptoms had existed for two days. Tongue was furred, conjunctiva injected, discomfort in splenic and hepatic regions, temperature 103° F., and pulse slow and full.

I was called to see him again April 22, 1906. His temperature was then 104.4° F., he had great thirst, constant headache, photophobia, and profound prostration, and had suffered from nausea. There was present at this visit a profuse rash which had come out first on the anterior aspects of the limbs, especially the legs. This rash was first a macular roseola and later papular. It seemed to terminate in rather indefinite petechia and in some places there were distinct blotches. A slight bronchitis developed. The bowels were constipated throughout the attack and the urine contained a slight amount of albumin (febrile).

I visited the patient on April 28, 29, May 4, 9, and 23. During this time the original symptoms continued. His mind was clear except when the temperature was high, at which times there was a tendency to delirium.

He left his bed May 27 (after a period of five weeks) but was unable to attend to work for several weeks after this date because of extreme weakness. The patient entirely recovered without any sequelæ.

Treatment was purely symptomatic and stimulant. The temperature was reduced by cold sponges. A dark but well ventilated room was occupied.

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IMPRESSIONS DERIVED FROM A VISIT TO THE WARM SPRINGS OF VIRGINIA.

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A FOUR weeks' trial of the course commonly prescribed for those who frequent the Warm Springs of Virginia has set me to thinking upon the manner in which the use of these pools of water produces beneficial results in certain maladies. At the risk of "carrying coals to Newcastle," of calling attention to matters which in all probability are discussed in a more careful and authoritative manner in all standard treatises on balneology, I will state briefly the essential facts relating to these pools and to the manner of using them.

There are two of these pools (one for men and one for women), in both of which the water comes up from the bottom in large volume; and with the water comes a considerable amount of gas, which bubbles up at numerous points throughout the cen-

tral part of each pool.* Presumably, this gas is composed in part, perhaps chiefly, of carbonic acid, but no analysis is needed to satisfy one that sulphuretted hydrogen enters into its composition. The temperature of the water is 98° F. The pool for women has an average depth of 5 feet, and that for men 6 feet, but the outlets of both are so arranged that the attendants can, in a minute or two, diminish the depth to the extent of twelve or fifteen inches. Several dressing rooms are located around each pool, and over the central point the sky is visible through a large circular opening in the dome-like roof of the wooden building which encloses the pool. The buildings and the entire equipment are of the simplest character, having been constructed more than one hundred years ago; but they serve their purpose well, and the beauty of the pools themselves is such that the visitor is not disposed to criticize the primitive character of these accessories.

Those who enter the pool for the first time are advised by the attendant not to remain in the water longer than ten minutes, and this seems to be good advice, for I was distinctly conscious, after my first bath, of a sense of fatigue; and this lassitude was felt on subsequent occasions, although I had increased the duration of the bath to only fifteen minutes. Upon leaving the pool one finds the attendant waiting, at the entrance of his dressing room, ready to rub him down briskly with a large bath towel and then to subject him to a brief series of slapping and kneading manipulations which quickly remove all sense of chilliness. (The nights here in October are frequently frosty.)

One cannot help asking oneself the question: How does systematic bathing in such a pool as that which I have described produce greater therapeutic effects than a similar amount of bathing in a hot bath at one's home would produce? I do not feel competent to give a complete and satisfactory answer to this question, but I suspect that there exists here—and, for aught I know, at similar sulphur baths in other parts of the United States—a factor which certainly is not to be found in any ordinary tub bath.

Over the surface of each of these pools is constantly present a deep stratum (certainly 8 or 10 inches deep) of warm vapor lightly charged with sulphur. On a cool October day this vapor is plainly visible. The bather, whether swimming or simply resting in the water in an upright attitude, is obliged to inhale this sulphurous vapor so long as he remains in the bath, and it seems reasonable to believe that far more sulphur—a remedy of acknowledged value in rheumatic affections—enters the circulation by this route than can possible enter by any other—as, for example, by way of the skin.

There is another action which these pools produce upon the bather, an action which they possess in common with all other pools the water of which remains constantly at a temperature of about 100° F. Almost immediately after one enters the water, a very large quantity of blood is diverted from the more deeply seated parts of the body to the skin;† and one can scarcely be mistaken in attributing this effect to the action of simple hot water. Except in large bathing establishments, such as are found in only a few cities, it is very difficult, if not practically impossible, to keep the water in the bath at a constant temperature of 98°—100° F. Pools fed by hot springs supply all the conditions needed for the production of whatever benefit is to be derived from prolonged immersion in hot water; and if they are, at the same time, sulphurous in their composition, situated in the midst of beautiful scenery, and under the management of a hotel so admirably conducted as is the one at Warm Springs, this benefit may be looked for with confidence.

That the drinking of the water which bubbles up from a third group of springs in the immediate vicinity of the pools, contributes to the success of the case, I have no reason to doubt; but fear of getting beyond my depth compels me to abstain from the discussion of this part of the subject.

*The pool for men measures 40 feet in diameter, and that for women, 50 feet.

†The reduction of one's girth, in the case of a person who is quite stout, is strikingly great—often amounting to as much as five inches. The diminution of the blood-content of various abdominal organs affords a plausible explanation of this reduction of girth.

CHOLECYSTITIS, WITH SUGGESTIONS FOR THE PREVENTION OF GALL-STONES.

By HENRY WALD BETTMANN, M.D.,

CINCINNATI, O.

Cholecystitis is an inflammation of the gall-bladder due to infection. By far the most frequent cause is the colon bacillus; the typhoid bacillus is responsible for many cases; occasionally cholecystitis is caused by the pus-formers, the influenza bacillus, or the pneumococcus. Tuberculous cholecystitis is very rare. The manner of infection is not always clear. It is highly probable that in nearly all cases, the infecting bacteria reach the gall-bladder by way of the portal circulation. Ascent from the duodenum through the papilla of Vater is uncommon. Infection through the arterial circulation is also unusual. Just what conditions permit of an invasion of bacteria through the portal circulation is not always clear. The most frequent result of cholecystitis is the formation of gallstones. It may be considered as proved, that gallstones occur only as a sequel of catarrhal cholecystitis or cholangitis. The clinical history of gallstones has been pretty well worked out. We know the cause, the symptoms, the complications, and the cure. The underlying disease, viz., the cholecystitis, has not received nearly the attention it deserves. Cholecystitis is probably the most frequent inflammatory disease within the abdomen. Nevertheless it is scarcely recognized by the profession as a disease *per se*. The fact that it is so frequently complicated by gallstones, has focused the attention on the latter disease and has strangely retarded our recognition of the significance of cholecystitis as the primary and often the more important condition. The history of appendicitis is closely analogous. The most serious complication of appendicitis, viz., peritonitis, caused the nature of the underlying disease to be entirely overlooked up to within very recent times. Chiefly through the influence of the surgeons, the profession at large were taught to recognize appendicitis when they saw it, and it is only since the general practitioner has learned to diagnosticate the milder forms of appendicitis, that the enormous frequency of this disease has been generally recognized. Now exactly the same history will repeat itself in regard to the inflammations of the gall-bladder. Almost all the cases of mild cholecystitis have hitherto been entirely overlooked or wrongly designated. Countless cases are set down as attacks of gastritis, spoiled stomach, acute indigestion, or even appendicitis. As a result, we are

*Paper read at the eleventh annual meeting of the American Gastroenterological Association at Chicago, June 1, 1908.

not yet in a position to state just how frequent cholecystitis actually is, or under what conditions it may occur; we cannot say in what proportion of cases one attack is followed by others; we do not know in what proportion of cases gallstones are formed; we cannot say surely whether we can influence the formation of stones or not. In fact, the whole clinical history of cholecystitis remains to be written.

The object of the present paper is to throw a little light on a few of the more important clinical features of the disease. During the past 18 months I have had the opportunity of observing nearly 120 cases of gall-bladder disease. My conclusions are based largely on a study of these cases. In many of them, complete data were not obtainable.

The relation of cholecystitis to child-bearing.—A large number of observations has led me to believe that, in women, pregnancy and especially the puerperium directly lay the foundation for the primary infection of the gall-bladder. Furthermore, it seems exceedingly probable to me, from personal observations and a close study of the clinical histories, that in women the great majority of gallstones have their inception in attacks of cholecystitis during the active child-bearing period. These conclusions are based on the three following observations:—

(1) I have personally observed in many cases acute primary attacks of cholecystitis within a few weeks or months of parturition.

(2) I have repeatedly seen acute exacerbations of cholecystitis in the puerperium.

(3) Many women who are subject to gallstone attacks give an unmistakable history of cholecystitis immediately following some preceding confinement.

It is not hard to see why the puerperal state should predispose to infections of the biletract. It is generally said that pregnancy lends itself admirably to stagnation of the bile. Personally, I believe that the phrase "stagnation of bile" lacks scientific definiteness and has more theoretic than actual existence. Clinically, we know nothing of stagnation of bile, except that due directly to obstruction. During the puerperium, however, the pelvic lymphatics and veins are overloaded with waste products from the placental site and the involuting uterus. Even at its best, the liver is not always able to bar the progress of bacteria from the incoming portal blood into the bile. In the puerperium we have a frequent combination of constipation, overeating (often indulged in for the sake of the milk supply), physical inactivity, and a portal blood supercharged with waste material. What better opportunity could be offered the ever-ready *B. coli* for a successful invasion of the biletract?

Primary attacks of cholecystitis occur usually between the ages of 20 and 35. After the frequency of catarrhal cholecystitis becomes generally recognized by the profession, it will require some years of observation to determine definitely at what age cholecystitis is most prevalent. Autopsy findings indicate that gallstones are more common after 30 than before, and still more common after 40. My own observation leads me to believe that cholecystitis is comparatively rare before the age of 20, that it occurs with very great frequency between 20 and 30, especially in women, and that the majority of primary attacks occur before 35. Attacks of cholecystitis which take place after the age of 40 are usually recurrent ones, and in the majority of instances are already complicated by the presence of stones. If these observations and conclusions are correct, it would seem that cholecystitis in a very large proportion of cases precedes the formation of stones by months or years, and that patients frequently have recurring attacks of cholecystitis long before stones are formed. It is established by operations, that a certain proportion of sufferers from cholecystitis escape cholelithiasis altogether; but it is not possible in the present state of our knowledge to say just how large this proportion is.

The interval between the primary cholecystitis and the formation of gallstones is universally neglected by physicians. Kramer (*Journal of Experimental Medicine,* May, 1907) has shown that when colon bacilli are grown in a sterilized mixture of alkaline peptone bouillon and bile, a gradual precipitation of cholesterin and other components of gallstones occurs. At the end of four weeks a closely packed semisolid mass can be seen at the bottom of the tube. After six months, the supernatant fluid can be poured off, leaving a well molded mass resembling soft gallstones.

Ten years ago, Mignot showed that gallstones can be produced experimentally in dogs, in 4 or 5 months. Numerous cases are reported, making it seem very probable that human gallstones can be formed in from 4 to 8 months. So far as we know, the formation period may often be very much longer. Whether bacteria must continue to grow in the gall-bladder during this whole period, in order that stones should be formed, is not as yet definitely known.

Kramer has suggested that the precipitation may be due to the acid reaction of the bile induced by the growth of the *B. coli* or *B. typhosus.* Now it seems probable that the interval between the primary cholecystitis and the deposit of cholesterin would be a most fruitful one for therapeutic endeavor. It may be regarded as conclusively demonstrated that the usual treatment of the gall-bladder is effective in reducing inflammatory conditions and in a measure preventing their recurrence. No observer can doubt that the usual Carlsbad treatment or the Carlsbad method modified for home use, has a certain utility in well-established cases of gallstones. Now that the exciting cause of gallstones can be recognized clinically, months before their actual formation, it seems to me we permit the golden opportunity to escape, when we do nothing for our patients during the months following an acute attack of cholecystitis. During the attack, the patient should rest in bed and should have warm Priessnitz compresses over the upper half of the abdomen. Opiates should be given to relieve pain if necessary. The diet should be exceedingly limited during the first few days, and all cathartic drugs are contraindicated. After the swelling of the gall-bladder has subsided and the local soreness has disappeared, the patient may be out of bed most of the day. The diet should consist largely of cereals, meat, simple vegetables, bread and butter. Alcoholic drinks, acid foods, and fruits should be prohibited. The use of salines should be begun early.

Sulphate of sodium, phosphate of sodium, bicarbonate of sodium, and salicylate of sodium may be given in various mixtures. They are best administered dissolved in plenty of hot water, one-half to one hour before each meal. I do not believe there is any special virtue in the salicylate of sodium, not possessed by the other drugs mentioned; nor do I think it advisable for the patient to eat more than the three regular meals a day. It is possible that urotropin or other drugs may prove to have unusual value. Under this simple treatment, continued for months, or if need be for years, patients are given an excellent chance to escape recurrence of inflammation, and in fact all symptoms referable to the gall-bladder.

I cannot state with certainty that the formation of stones is thereby actually prevented. Proof of such an assertion would be exceedingly difficult to offer. If we get rid of the inflammation, the gall-bladder may of itself dispose of the salts already precipitated within it. This was experimentally demonstrated by Bain, in 1905, who showed that if gallstones are introduced into the healthy gall-bladder of dogs, they are dissolved in the course of a few months.

I do not believe that well-formed gallstones are ever dissolved within the human gall-bladder. Nevertheless, most of the symptoms of cholelithiasis are due not to the stones themselves, but to the associated cholecystitis. After the stones are formed, the tendency to recurrent attacks of cholecystitis is increased. Symptoms which do not promptly disappear under appropriate medical treatment or which recur notwithstanding proper habits of life, call for surgical intervention.

Leverone Building.

A CASE OF SYRINGOMYELIA.

SUGGESTING A POSSIBLE RELATIONSHIP WITH AN ACUTE CEREBROSPINAL MENINGITIS 18 YEARS AGO.

By L. S. MANSON, M.D.,

NEW YORK.

During the winter of 1890-91 a seven year old child with opisthotonus and other typical symptoms of acute cerebrospinal meningitis was seen in consultation by Dr. Francis Delafield. This physician admitted the desperate, though not absolutely hopeless, nature of the case, but would not sanction the rapid mercurialization of the patient—a method of treatment which, in spite of the absence of luetic taint, had proved successful in several similar cases in my experience prior to that date.

As the child's condition grew worse and worse and began to look hopeless I did employ about 3 ounces of oleate of mercury (10 per cent.) by inunction in four doses, every six hours. Before the twenty-four hours had expired consciousness returned, the patient began to converse with attendants, and made a rapid recovery. I reported what I had done to the consultant, who remarked in his characteristic droll but pleasant manner, "If the child had died it would have been a nasty job."

I next saw this patient July 27, 1908. He had been perfectly well in every way, bright and intelligent, was graduated from the public schools, had learned the trade of machinist, and was a good mechanic. About two years ago he began to notice a gradually increasing weakness on the right side commencing in the hand and arm. The gait became unsteady, he complained of frequent attacks of vertigo, and every few days he was seized with spells of overpowering drowsiness or sleepiness lasting several minutes without loss of consciousness. Weakness of the facial muscles and slight ptosis on the right side became manifest, producing a narrowing of the palpebral fissure and a stupid expression. During walking the body deviates somewhat from the median line, but there is not sufficient involvement of the spinal muscles to produce any marked lordosis. There is no distinct ataxia. The muscles of the hand are sufficiently wasted to make it impossible to use in writing, the patient being compelled to use the left hand for that purpose. The entire left side of the body up to the median line is insensitive to heat and cold and anesthetic, painful pin thrusts creating only tactile impressions. There is complete sexual impotence and loss of the stereognostic sense, the patient being absolutely unable, with the eyes closed, to distinguish objects such as a penknife, box of matches, or coins held in the right hand. The tactile sensibility is also markedly delayed, for with the eyes still closed tactile sensibility remains 8 or 10 minutes after removal of these objects. The muscles affected show diminished reaction to faradization, but no decided R.D. There is slight fibrillary twitching in some of the affected muscles, the knee jerks are greatly exaggerated, but there is no ankle clonus.

I saw the patient again on August 9, when his condition was practically the same, but during that night he died rather suddenly with symptoms of bulbar (respiratory) paralysis. An autopsy was not obtained. Here, then, we have a good clinical picture of syringomyelia with the lesion, a dilatation of the central canal with gliomatosis, probably involving the cervical segments and extending upward through the medulla and pons, in which an attack of cerebrospinal meningitis 18 years before was the possible etiological factor. This case is worthy of record because the etiology of this disease is practically unknown, or, to say the least, very obscure.

616 Madison Ave.

New Diagnostic Methods in Appendicitis.—Rovsing of Copenhagen has employed for the past three years an original and, as it appears, a very valuable method of examination in cases suspected of appendicitis or typhlitis. With his right hand he presses his left one, palm downwards, against the integument of the left iliac fossa and lets it glide upwards along the descending colon until it reaches the vicinity of the left colic flexure. By this procedure the gases contained in the large intestine are made to exert a greater pressure against the intestinal walls than before, with the result of eliciting severe darting pains in the region of McBurney's point. In each of his two first cases in which he tried his new method of examination there was strong suspicion of the affection being a perityphlitis judging by the usual signs. The one patient, however, did not experience the least pain in spite of rather vigorous massage of the descending colon, while the other patient felt at once severe pain, referred to McBurney's point, after a mere compression of the middle part of the descending colon. The subsequent operations explained the difference. The last-mentioned patient turned out to be suffering from appendicular peritonitis, whereas the first patient on being explored by laparotomy did not present any alteration of the vermiform appendix or intestine, but a retroperitoneal swelling, which lifted up the ascending colon and which a lumbar incision proved to be due to a perirenal phlegmon.

Judging from his experience in more than 100 patients, Rovsing considers his method a trustworthy, sensitive, and valuable diagnostic help. Its importance lies in a twofold direction. First, it will aid in the correct diagnosis in the many doubtful cases in which the nature of a painful swelling in the right iliac fossa cannot with any certainty be made out, such as those in which the diagnosis of a renal affection, a ureteric or hepatic lithiasis, or a salpingitis appears just as probable as that of an appendicitis. For only in those cases where the pain is caused by an affection of the appendix or cecum will it be elicited by pressure against the healthy descending colon. The trustworthiness of the symptom is well borne out by the following observation. In several cases of gangrenous appendicitis where the pain was referred only to the epigastric area and had therefore led to the suspicion of a gastric affection (perforating ulcer of the stomach), Professor Rovsing's method gave at once the correct diagnosis, pressure against the healthy descending colon immediately eliciting the typical pain over McBurney's point. The second field for application of the method is to be found in the acute cases where direct palpation is dangerous, painful, or impossible on account of defensive muscular rigidity and therefore must be omitted, whilst palpation of the healthy descending colon does not present any difficulty.—*The Lancet.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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ABSURDITY IN RESEARCH.

WE believe that the majority of the medical profession does not look with favor upon such uncritical attitude toward new methods in medical art and science as has been displayed, for instance, in connection with the conjunctival reaction to the instillation of tuberculin. Whatever may prove to be its final value in the recognition of cases of tuberculosis not diagnosed by the older methods of procedure, it was self-evident from the start that the use of the conjunctival membrane for testing the effect of tuberculin must be connected with grave danger to the patient, a most delicate and most important organ of the body being exposed to injury or destruction by any unexpected severity of the reaction. Yet current medical literature was flooded for a time with papers recounting so and so many healthy and diseased persons upon whom the reactions were tried, even though the very first publications showed that to be of scientific value such work had to be done in institutions where the opportunities of verifying the clinical diagnoses by pathological examinations were frequent, where time and means were abundant to carry out the older methods of diagnosis properly, and where it was possible to follow the patient carefully so as to institute immediate treatment if the reaction was becoming dangerous to his vision. It is true that the unfortunate results reported have been few in comparison with the great number of tests made, but it is probable that many cases have not been made public; moreover, it must be remembered that the reaction in question is simply a means of corroborating a diagnosis and not in the least a method of treatment or, by itself, an indication for treatment. We doubt whether the presence of the reaction alone would justify a course of treatment for tuberculosis in the absence of other signs of the disease. Of course, many methods of treatment are accompanied with possible danger of injury or even of death. Collapse after the injections of antitoxin, death caused by anesthetics, deaths due to shock of operative procedures are instances of this kind, but the patient is usually well informed as to the possibility of such accidents and considers the risk worth taking in the attempt to get rid of a serious disease. That the great majority of patients on whom the ophthalmoreaction was tried were kept in ignorance of the meaning of the reaction as well as of the risks of it is, of course, probable, for every possible clinic and hospital material was utilized in getting up papers on the subject. It would seem that an attitude toward such patients was called for that was more in agreement with the Golden Rule.

An article in the *Wiener klinische Wochenschrift* for September 10, 1908, in which Oppenheim describes another "reaction to tuberculin," serves very well to point the above remarks. Oppenheim wanted to observe the behavior of the mucous membranes to tuberculin and selected for this purpose—the male urethra! This mucous membrane, of course, reacted quite frequently to the irritant, and the author was rewarded by the appearance of acute urethritis which sometimes occurred in patients in whom the cutaneous reaction was observed and at other times in individuals in whom that reaction was negative. No control experiments with the component parts of tuberculin other than the bodies and products of tubercle bacilli are reported by the author, and no mention is made of the fact that the urethra, especially in men who have once suffered from gonorrhea—and some of Dr. Oppenheim's patients gave the history of that disease—reacts quite readily to irritants of any nature. The conclusions of the author are quite characteristic: "Not only the conjunctiva but the urethral mucosa as well may give evidence of an allergic reaction to the injection of tuberculin; such reaction is weaker and less constant than the ophthalmoreaction; no practical diagnostic significance can be attached to the urethral reaction." It would seem that these conclusions could have been safely established by a little deductive reasoning without the necessity of carrying the experimental, inductive research to an absurdity.

The zeal of the physician to discover new facts in the art of science of medicine must not run away with his better judgment; and certainly the desire to figure in literary discussions and to be among the first to try every newly recommended procedure must not overcome his sense of duty to the patient and consideration for the health and comfort of the latter. Any other attitude is fraught with danger not only for the individual physician, in case of some untoward accident, but for the good repute of the whole medical profession as well.

A PURE MILK CRUSADE IN GREAT BRITAIN.

ONE result of the recent International Congress on Tuberculosis at Washington has been to show conclusively that the views of Dr. Koch as to the innocuousness of milk containing the germs of tuberculosis, are not those of the majority of the medical profession in all parts of the world. True, Dr. Koch presented his opinions at Washington in a considerably modified form, and stated that he now believed it to be possible to contract tuberculosis from tuberculous milk, but that such an occurrence was so rare as to be almost a negligible quantity. However, the consensus of opinion seemed to be that a large proportion of sufferers from tuberculosis contracted the disease by the agency of contaminated milk. Thus it may now be regarded as more or less definitely proven that milk infected with the germs of tuberculosis is a prominent factor in the spread of the disease. This, of course, is especially the case with infants, and it may, perhaps, be taken as demonstrated that the channel of infection is quite frequently the intestinal tract.

But, while tuberculosis is the most serious disease

which is propagated on a large scale by means of milk, yet dirty milk is a potent menace to public health in many ways. This statement is a truism, but it cannot be too constantly insisted upon in order that reforms may be instituted to insure a comparatively pure milk supply. In New York State and in New York City, in particular, the milk supply is controlled as well as, if not better than, in other large communities of the world. Compared with London and the many large centers of population in Great Britain, the manner in which milk is supervised in New York is distinctly satisfactory, but there is still room for improvement.

Up to a short time ago but little interest was taken in the British milk supply either by the medical profession or by the general public. The *Lancet* has from time to time endeavored to rouse the population to a sense of the dangers to which the careless methods in vogue were subjecting them, but until recently to no purpose. About two years ago there was published in the *Lancet* a series of articles dealing with the transportation to and distribution of milk in London, and since that time an intelligent concern in the matter has been constantly manifested. At the present time, judging from articles and reports which have appeared in British medical and lay papers, the interest in the matter is becoming acute, and London and all the large provincial towns have awakened to the responsibility of providing at least a fairly pure milk supply.

A feature of the greatest moment in the crusade against contaminated milk in Great Britain is that legislation is to be invoked to prevent, or, at any rate, to minimize the danger likely to occur from the milk and flesh of cows and cattle suffering from tuberculosis being sold without restriction. Exactly what steps are to be taken in this direction has not been decided as yet, and although preventive measures will probably not be so radical as is wished by some, there is little doubt that enactments will be put into force which will remove, to some extent, the menace of the spread of tuberculosis by the agency of diseased cows. This, of course, is an advance movement of the first importance to public health. If the spread of consumption is to be stayed, it stands to reason that the evil must be grappled with at its source, and so long as cows afflicted with tuberculosis, and especially with tuberculosis of the udder, are allowed to be the providers of milk, just so long will the disease flourish among the young. If our present conception of the matter is right, and the discussions at the Congress in Washington go to prove that it is right, then in the first instance, we must insist that our cows are not the means of spreading the malady.

Professor Delépine has recently made some instructive investigations in regard to the milk supply of Manchester, England. Perhaps the most interesting of his observations are that there is a distinct average correlation between the amount of dirt and the pathogenicity of the milk. That is to say, that dirty milk is far more capable of disseminating any disease than is a clean milk. London is seeking powers for extending the control which is now possessed as regards tuberculous milk to that which is dirty and contaminated, even though it comes from perfectly healthy cows, and other large British cities are following in its wake.

Koch's pronouncement some years ago, did much harm, but now that it is almost universally recognized that his assertions were premature and based on lack of knowledge, the harm can be remedied. The solution of the problem of how to procure a reasonably pure milk supply is in sight. The knowledge is possessed, and it only remains to put it into effective practice.

INHALATION ANESTHESIA IN "HEALED" PULMONARY TUBERCULOSIS.

In submitting patients to operation the condition of the lungs is seldom given so much attention as the importance of these organs most assuredly merits. No surgeon would think for a moment of neglecting careful and conscientious examination of the anatomical part upon which he intends to operate. Ordinarily he also demands an analysis of the urine and blood, and seldom neglects an examination of the heart. Examination of the lungs, however, is often omitted or left to an assistant. The anesthetist also is apt to feel that he has done his duty by a patient if he has inquired as to recent ingestion of food and the presence of false teeth, and if he has determined the absence of organic lesion of the heart. But it is not the heart which is the most important in many cases. A vital question is the matter of glandular tissue if it appears in excess, so as to obstruct breathing, or if it leads one to fear a status lymphaticus. From an operative viewpoint the condition of the lungs is also of prime importance, and a tuberculous focus in these organs is just as much a matter of vital concern as a mitral insufficiency or a chronic diffuse nephritis.

An example of this fact came to notice a few weeks since in reference to a patient who had been operated upon for fistula *in ano*. Previous to this event, which was described as an insignificant affair, this patient had suffered from pulmonary tuberculosis, but had been "cured" in the mountains of California. He had been able for some years to carry on the management of a large business without difficulty, and had always described himself as a well man until the appearance of the fistula. Ten days after the etherization he went through a severe attack of tuberculous pleurisy. It seems probable that in this case an old focus was broken down either through violent coughing or through the direct irritating action of the fumes of ether.

If an operation is essential to the life or well-being of a patient with pulmonary tuberculosis, effort should be made toward the use of either rectal or local anesthesia. It is quite impossible to say when a tuberculous focus is "healed." Mere arrest of symptoms is no criterion of the pathology of the condition, nor does it predicate the possible virulency of a so-called latent process. Nature's protecting wall may be adequate for ordinary purposes, but when subjected to special strain may prove quite unable to resist the attacking force. It behooves every surgeon therefore to handle such conditions with the utmost care, and when undertaking an operation under ether to be mindful of what can and may happen from pursuing a contrary course.

MEDICINE'S LOSSES AND GAINS.

Under the above caption the *Nation,* in its issue of October 1, attempts to give a comparative estimate of the present and past status of medical science as seen from the layman's viewpoint. It thinks that the general impression is coming more and more into prominence that various schools of mind cure are carrying on a winning fight against orthodox medicine. This impression is founded on the growing number of spiritual healers, on the prominence given to them by the press, on the well-known persons they convert, and on the fact that so-called religious clinics are springing up in connection with church activities. Professor Osler is cited as maintaining that practically our entire pharmacopeia might be discarded without appreciable loss to the general public health, but, fortunately, Osler is no longer accepted as an authority in therapeutics. To be sure, there are only a few diseases for which we possess specific remedies, but so long as these diseases are not preventable, or, rather, not prevented, we cannot do without mercury in syphilis, quinine in malaria, or the salicylates in rheumatism. Symptoms may be improved by diet, exercise, massage, rest, and mind therapy, but none of these is germicidal, and so long as the germ is active just so long will the infected patient be menaced by latent manifestations of his malady. The assertion is made that "the human mind has always felt the anomaly of giving the mastery over life and death into the hands of men who are no better than ourselves," which strikes one as bad psychology and worse judgment. To feel an anomaly, mentally speaking, is, to say the least, an uncanny thing, and its spectral existence is disproved by the eagerness with which the aid of a physician is sought when a human being is in great pain. Even the Christian Scientist is forced to submit to the fell stroke of Tyrant Pain. There is no compromise save by the knife or hypodermic needle.

But even admitting that rational medicine is losing a few of its educated devotees, it is gaining converts among the immigrant millions. To quote again: "The Jews of the East Side have called in the doctors, whom in poverty-stricken Russia they could not afford to consult. . . . In view of such successful effort as medical science is making against tuberculosis and other diseases, it would be absurd to maintain that medicine is being discredited as a science or art." Just so soon as people can be made to understand that physicians are not merely dispensers of pills and potions, but are experts in the management of disease prevention, just so soon will disease be lessened and the sum total of human misery dependent thereon approach the vanishing point. It is not alone knowledge, but wisdom—wisdom on the part of both physician and patient—which shall triumph in the end over disease.

The Effects of Pleuritic Exudate Upon Pulmonary Tuberculosis.

Enforced rest, whether compelled by the subjective sensation of pain or by some mechanical means, is among the first phenomena observed in the spontaneous response of the organism to injury effected. Only if some important function is involved, this mode of response is somewhat modified or delayed, but even then the principle of symmetric repetition of organs allows of partial rest or of complete rest for a limited period of time. It is in imitation of such natural phenomena that a number of physicians have tried to influence the course of pulmonary tuberculosis by the production of artificial pneumothorax upon the side of the lung affected by the disease. In the majority of cases reported distinctly a favorable effect has been noted in consequence of the procedure, but the number of patients in whom it could be tried has been very limited. An analogous natural phenomenon, however, the formation of a pleuritic exudate, has not been sufficiently studied for its effect upon the course of tuberculosis and, indeed, has been frequently interfered with in a routine way without individualization of the treatment adopted. In the *Beiträge zur Klinik der Tuberculose* (Vol. X, No. 4) Dr. Konzelmann makes up for this omission by reporting the effects of pleuritic exudates in a number of patients under his observation. In the majority of these patients the complication seemed to have been productive of very marked improvement in the symptoms of the disease and, indeed, in a few cases it seemed to have initiated convalescence which ended in recovery. Among the signs of improvement there were noted diminution in the amount of sputum, disappearance of the bacilli from the sputum, fall of temperature after an initial and marked change for the better in the general condition of the patients. The conclusion seemed warranted that the compression of the lung by the exudate and the consequent enforced rest of the infected tissues enabled the natural resistance of the organism to the spread of the disease to assert itself much more strongly than the constant motion of the active organs allowed before the appearance of the exudate. Thus direct proof is given of the benefit that artificial measures such as the production of a pneumothorax may exert; yet more important is the changed point of view with which pleuritic exudate in pulmonary tuberculosis must be regarded. Of course, every natural response to injury may have to be interfered with, because in serving the local needs of the tissues it may do irreparable harm to the organism in general. But whenever this is not the case, such exudates should be considered as distinctly beneficial factors in the struggle of the organism with the infective process in the lungs.

Lordosis and Orthostatic Albuminuria.

The discovery that intermittent albuminuria often depends for its existence upon the posture of the patient, appearing during the day and disappearing at night, or vice versa, has stimulated the interest of the medical professon in the influence of mechanical factors upon the functions of the kidneys. After Jehle had shown that lordosis is a frequent accompaniment of orthostatic albuminuria it occurred to Bruck to study the effect of posture simulating lordosis upon the excreton of albumin by the kidneys. His findings, reported in the *Münchener medizinische Wochenschrift* for November 3, 1908, completely bore out the truth of *apriori* conclusions in the matter; children, who excreted no albumin whatever when in their natural postures, quickly showed albuminuria if kept in a posture of artificial lordosis, the amount of proteid excreted increasing with the period of time during which the constrained position was enforced. This phenomenon was not at all exceptional, for over 18 per cent. of the children examined passed albumin under such condi-

tions; any coexistent disease of the kidneys was excluded by the examination of the urine during three months previous to the experiments. Other related phenomena consisted in the fact that the amount of urine was markedly diminished during the period of excreton of albumin and that such excretion was much more marked in the intervals between meals than just after sufficient nourishment had been taken. The whole series of observations throw light upon the so-called functional disturbances of the organs, for it is probable that physical circumstances of temporary nature are often at the bottom of such disturbances. That lordosis causes changes in renal circulation or in the relation of the kidneys to the ureter is, of course, very probable, and it is these changes that somehow modify the normal activity of the organs and lead to the excretion of albumin. But one autopsy has been recorded, that of Heubner, upon a patient who in life showed the symptom of orthostatic albuminuria; the kidneys proved to be quite normal. It would be interesting, however, to follow all such cases as well as those in which albumin may be caused to appear by the assumption of any posture modifying the renal circulation; it seems hardly probable that such gross disturbance as the excretion of albumin can appear in perfectly healthy organs upon such little provocation. It may be that such tendency shows a predisposition to renal disease, and long observations should clear up this point. If such is the fact then experiments similar to those performed by Bruck will become a valuable means of diagnosing inherent weakness of the kidneys and thus increase our knowledge of the prophylaxis of renal disease.

Cholesterin in the Treatment of Tetanus.

That tetanus antitoxin has a distinct preventive action has been amply shown by the annual experience with the ugly wounds that follow in the wake of our barbaric celebration of the Fourth of July, on which occasion we risk our lives and limbs and encourage our children to do likewise for the doubtful pleasure of setting off some fireworks. This antitoxin, however, has proved to be of very little value after the disease has developed, and every once in a while some new remedy is proposed for the dreadful affection. These remedies, necessarily, can be tested in but a very limited way in the human subject and the first enthusiasm that attends their introduction is usually succeeded by disappointment as time offers more opportunities of showing their uselessness. Yet every new remedy must be tried because of the very helplessness with which we are compelled to face cases of tetanus at the present time. Some years ago Wassermann and others showed that the tetanus toxin is quickly bound by the central nervous symptom. Two Italian physicians, Almagia and Mendes, succeeded in showing that lecithin and cholesterin are the substances that fix the toxin in this manner and were led to try the effect of these substances upon the experimental tetanus of animals. Numerous experiments of this nature showed that cholesterin has a distinct inhibitory action upon the toxin, much larger doses being required to kill animals if cholesterin had been previously introduced into their bodies. Recently opportunity was offered to test the remedy in cases of human tetanus, and the two patients in whom it was tried recovered from the disease though the infection seems to have been very severe in both cases ("International Clinics," Vol. III, 18th Series). The authors properly remark that only a large number of cases can determine the value of this mode of treating the disease, but the appalling mortality of the infection justifies the publication of even such limited experience with the effect of cholesterin in cases of human tetanus as is detailed in their article.

News of the Week.

Harvey Society Lectures.—The fourth lecture of the Harvey Society will be delivered by Dr. Wilhelm Falta of the University of Vienna, on Saturday, November 28, at 8.30 o'clock, at the New York Academy of Medicine, 17 West Forty-third street. Dr. Falta will speak on the subject of Therpeutics in Diabetes.

Dr. Francis C. Wood, Professor of Clinical Pathology at the College of Physicians and Surgeons, New York, spoke before the Hospital Graduates' Club on Thursday evening, November 19, on the subject of the Practical Value of Some Recent Laboratory Tests. Dr. Wood described the tuberculin tests for tuberculosis, and the reactions for syphilis, and discussed their value from the practitioner's standpoint.

Dr. Thomas E. Satterthwaite of New York City received the honorary degree of LL.D. from the University of Maryland on November 11, on the occasion of the celebration of "Academic Day."

An Emergency Man.—After a recent serious explosion in the excavation for a new sewer in Brooklyn, and when there was considerable confusion among the different city departments engaged in the work of rescue, Mayor McClellan ordered Sanitary Superintendent Walter Bensel to take charge with authority over all other officials. Commenting on this, the New York *Sun* says: "Dr. Bensel seems to be a municipal emergency man, capable and called in to do all sorts of hard jobs. When the Street Cleaning Department seriously needed attention Dr. Bensel was borrowed to do what was necessary. Now he is selected for a work that would fall naturally to the police. Apparently a handy man to have around is Dr. Bensel, Sanitary Superintendent."

Woman Doctor a Mayor.—For the first time in its municipal history, Great Britain has a woman mayor in the person of Mrs. Garret Anderson, M.D., recently elected Mayor of Aldeburgh. Mrs. Anderson is the pioneer woman physician of England, having received her degree in Paris in 1870, after the English medical college had refused to admit her. Her fight to enter the medical profession was used by Charles Reade as a part of the theme of his novel, "The Woman Hater." After the establishment of the London School of Medicine for Women, Mrs. Anderson served as its dean from 1876 to 1898, and in 1896 was elected president of the East Anglian branch of the British Medical Association. She was senior physician to the Euston road Hospital for Women from 1866 to 1890, having received a license to practise five years before she passed her final examinations. She is an ardent woman suffragist.

Disease Among Cattle.—For the first time since their establishment, in 1863, the East Buffalo stockyards have been quarantined. The outbreak of foot-and-mouth disease, which was first noticed in Pennsylvania, has spread to the Buffalo yards, and all have been closed. It is feared that a disastrous shortage in the milk supply may result from the destruction of cattle. The disease prevails in twelve counties of the State of Pennsylvania, and

it is feared that extension to other counties will take place. Stringent measures have been adopted to prevent the spread of the disease, and more than 200 head of cattle have been killed to this end. There are seven centers of original infection. Those whose stock and property are destroyed in the endeavor to eradicate the disease will be indemnified, the State making good one-third of the loss and the Federal Government two-thirds. It is anticipated that the quarantine will be maintained for at least six months. The British Board of Agriculture has forbidden the importation of cattle, hay, and straw from Pennsylvania, New York, and New Jersey. So far as is known this is only the second time the disease has appeared in North America, the first outbreak having occurred in the New England States in 1892. The source of the infection has not yet been definitely learned.

Tuberculosis in Prisons.—Dr. J. B. Ransom, physician of Clinton Prison, Dannemora, N. Y., speaking before the New York State Conference of Charities and Correction recently, called attention to the danger of infection by tuberculosis in prisons, and stated that only twenty-one prisons in the United States had in any degree attempted to make any special provisions for the tuberculous prisoner. He estimated that from 16 to 25 per cent. of the total number of prisoners in this country were infected with some form of tuberculosis, and suggested the establishment in every State of a special institution for the care of prisoners with tuberculosis.

Smallpox in Vermont.—A small epidemic of smallpox is reported in Brattleboro, Vermont, but the situation has been well controlled by the State Board of Health. The schools and colleges have been closed, and there has been a general vaccination of the townspeople. There has also been a slight outbreak of the disease in a mild form in Amsterdam, N. Y.

Street Car Accidents.—The Public Service Commission reports that during the month of October, 47 persons were killed and 106 were seriously injured by the street cars of New York. As is usual the greatest number of accidents occurred while passengers were alighting from the cars. A coincidence of the report is that exactly the same number of persons, 47, were killed, and exactly the same number, 15, had fractured skulls, during October, 1908, as during October, 1907.

Health in Indiana.—The Indiana State Board of Health reports that the continued drought has had serious results, and a new disease called "dust fever" is described, which is thought to be an outcome of the dry weather and the greater amount of dust in the air. The symptoms are severe headache, backache, and chills and fever. Generally, however, health conditions are reported to be much better than during October of last year.

Fire in Roosevelt Hospital.—A small fire in the drug room of the Roosevelt Hospital early on the morning of November 18, was extinguished by the House Staff before the arrival of the firemen. The flames followed the explosion of an oxygen retort, and caused about $500 damage. As the drug room is in the basement of the administration building and the smoke was confined to that part of the hospital, there was no excitement among the two hundred patients in the east and west wings.

New East Side Hospital.—The official opening of the new east side hospital, a nonsectarian institution, but built and supported by the Jews of the city, occurred on November 15. The original name chosen for the hospital, Mount Moriah, has been changed, by the substitution of the Hebrew word for mount, to Har-Moriah, in order to avoid any possible confusion with Mount Sinai Hospital. The money for the new hospital, which is situated on lower First avenue, has been raised entirely by popular subscription, the largest individual contribution being limited to $250. A guarantee fund to meet all expenses for five years has also been provided. The hospital contains eighty beds, besides a children's ward and operating room.

Brooklyn Jewish Hospital.—The annual report of the President of the Board of Trustees of the Jewish Hospital of Brooklyn shows that during the past year 2,720 patients were received, an increase of 60 per cent., and that the dispensary visits numbered 19,152, an increase of 61 per cent. The hospital now contains 175 beds, and an urgent appeal for funds to erect an additional wing for wards, and another to be used as a home for the nurses in the training school, was made.

Chicago Contagious Disease Hospital.—The new city hospital of Chicago for contagious diseases will be opened in a few days. The total cost to the municipality is about forty-five thousand dollars, which means that the important reforms put into effect by Health Commissioner Evans have been accomplished with a minimum of expense and a maximum of results. Up to the present time the city, except in smallpox cases, has been dependent upon the limited facilities of the contagious disease department of the County Hospital.

Cook County Hospital Alumni Association.—This Association held its forty-seventh annual meeting November 23, at the Illinois Athletic Club, Chicago, under the Presidency of Dr. Samuel C. Plummer. The program included addresses by Dr. William E. Quine, on "Nicholas Senn as a Man;" by Dr. William L. Baum, on "The New County Hospital;" by Dr. Arthur B. Eustace, on "Our First Regular Resident Staff," and by Dr. Theodore Tieken, on "The County Hospital as a Field for Scientific Work."

New Cottages at Illinois Hospital for Insane.—There have been two new cottages erected at the Illinois Hospital for the Insane, Bartonville, at a cost of $100,000, and equipment with eight solaria, for the continuance of the work of phototherapy inaugurated by the Superintendent, Dr. Zeller. These cottages will be dedicated Thanksgiving Day. The solaria are equipped, two in ruby, two in violet, two in amber, and two in opal.

Polyclinic Hospital.—The trustees of the New York Polyclinic Medical School and Hospital have elected the following officers for the coming year: *Chairman,* John R. Abney; *Vice-chairman,* Patrick F. McGowan; *Secretary,* Dr. John A. Wyeth.

The Eastern Pennsylvania Institution for the Feeble-minded and Epileptic at Spring City was officially opened on November 16. The plant has been in course of construction for two years and is only partially completed. Seven buildings are ready for occupancy and three more are about ready for acceptance by the State. The plans provide for an ultimate group of 23 structures, whose early completion is looked for. Some $350,000 has already been expended on the buildings and the total cost will be about $1,000,000. When finished the institution will accommodate about 1,000 patients. Dr. Henry M. Weeks has been selected as Superintendent.

New Maternity Hospital.—The facilities of Grace Hospital, Hartford, Conn., have recently

been increased by the gift of a house situated in the grounds adjoining the hospital building to be used as the maternity ward of the hospital. In honor of the donor the addition will be known as the Mary J. Munsill Maternity Ward. Accommodation will be provided for about twenty patients. It is planned to connect the two buildings by a tunnel leading from the kitchen.

Mrs. Margaret Benton Hayre, known to both the Union and the Confederate forces as the American Florence Nightingale, for her work at the Nashville (Tenn.) Hospital during the war, died recently at El Paso, Texas. In recognition of her services Mrs. Hayre received two bronze medals, one from the Confederate soldiers and one from the Grand Army of the Republic.

Gift of Library.—The Medical School of Maine has received as a gift the library of the late Dr. Harold Charles Martin, of the class of 1895.

The University of Vermont College of Medicine began its fifty-fifth annual session on November 11, with an entering class of over seventy students, the largest in several years. Dr. J. W. Scane of McGill University addressed the students. A course of instruction in *x*-ray work has been added to the curriculum.

Chicago Physicians Warned to Obey Ordinances.—Medical men who have been neglecting to report their cases of tuberculosis have lately been warned to obey the ordinances which apply to this disease as well as other infectious diseases. Tuberculosis has been designated a reportable disease for a number of years; it is so shown on the regular postal card reporting form furnished by the Department.

Dairy Law in Louisiana.—Following the action of the New Orleans Health Board in suspending the tuberculin test in cattle, the dairymen of Louisiana are agitating the repeal of the present law, the abolition of the ordinance requiring the test with tuberculin, and the enactment of a law drafted on the lines of that in New York.

Medical Society of the County of New York.—At the one hundred and third annual meeting of this society, held on November 23, the following officers were elected: *President,* H. Seymour Houghton; *First Vice-President,* John E. Weeks; *Second Vice-President,* Joseph Brettauer; *Secretary,* John Van Doren Young; *Assistant Secretary,* J. Milton Mabbott; *Treasurer,* Charles H. Richardson.

The Rockingham County (N. H.) Medical Society held its fourth annual meeting at Portsmouth on November 12. The following officers were elected for the ensuing year: *President,* Dr. A. W. Mitchell of Epping; *Vice-President,* Dr. W. D. Junkins of Portsmouth; *Secretary,* Walter E. Tuttle of Exeter; *Treasurer,* Dr. Alice M. Chesley of Exeter; *Delegate to State Medical Society,* Dr. George H. Guptill of Raymond; *Censor for three years,* Dr. Fred S. Towle of Portsmouth.

The Ohio Valley Medical Association, at its annual meeting at West Baden, Ind., elected the following officers: *President,* Dr. Curran Pope, Louisville; *First Vice-President,* Dr. A. E. Sterne, Indianapolis; *Second Vice-President,* Dr. G. F. Lydston, Chicago; *Third Vice-President,* Dr. Earl Harlan, Cincinnati; *Secretary and Treasurer,* Dr. Benjamin L. W. Floyd, Evansville.

The Worcester County (Mass.) Homeopathic Medical Society held its forty-second annual meeting on November 12, at Worcester, and elected the following officers for the ensuing year: *President,* Dr. Henry I. Klopp of Westboro; *First Vice-President,* Dr. George M. Lapham of Rutland; *Second Vice-President,* Dr. Albert E. Cross; *Secretary and Treasurer,* Dr. Lucy E. Wetherbee; *Auditor,* Dr. John P. Rand; *Librarian,* Dr. Jennie T. Lane; *Censors,* Dr. J. K. Warren and Dr. Carl Crisand, and Dr. E. R. Miller of Leominster.

Obituary Notes.—Dr. John R. Cook of Fairmont, Va., died at his home on November 9, from septicemia due to an operation wound. Dr. Cook was born in 1863, and was graduated from the Jefferson Medical College, Philadelphia, in 1884. He established the Cook Hospital, the first in the vicinity, in 1899, and served as attending physician to the time of his death. He was a member of the American Medical Association, and an honorary member of the Royal Gynecological Society of London.

Dr. Samuel G. Renshaw of New Orleans died on November 9, from injuries due to a fall a few weeks ago, aged 79 years. Dr. Renshaw was graduated from Dartmouth Medical School in 1852, and served as a surgeon in the army under the command of the Emperor Maximilian in Mexico, and later in the United States Army.

Dr. William H. Grafton of Los Angeles, one of the proprietors of the *West Coast Magazine,* died at his home on November 8, aged 80 years. He was graduated from the University of Maryland in 1849, and after two years' service as quarantine officer in Baltimore settled in Iowa, where he practised for over forty years.

Dr. Elihu T. Mendenhall of Newcastle, Ind., died at his home on November 14, after five weeks' illness, aged 64 years. Dr. Mendenhall was graduated from the Ohio Medical College in 1877, and had served for many years as county health officer.

Dr. Carman C. Stokes of Rushsylvania, Ohio, died on November 10, aged 59 years. Dr. Stokes was graduated from the Cincinnati College of Medicine in 1874, was a member of the American Medical Association, and was well known as a chemist and author.

Dr. Charles M. Gravis of Martinsville, Ind., died on November 11. Dr. Gravis was a veteran of the Civil War, having enlisted at its outbreak in the Eighty-ninth Ohio Infantry, and was a prisoner for fourteen months in Libby and Andersonville prisons. After the war he began the study of medicine and was graduated from the Indianapolis Medical College.

Dr. John T. Van Marter, for fifty years a practising physician of New Brunswick, N. J., died at his home in that city on November 20, after several months' illness. Dr. Van Marter was born in 1837, and was graduated from the Medical Department of the University of Pennsylvania in 1855.

Dr. William L. Fleming of New York, died at the Lincoln Hospital on November 20, of acute meningitis, aged 73 years. He was graduated from the New York Homeopathic College in 1873.

Dr. Benjamin A. Ver Nooy of Pulteney, N. Y., died in Penn Yan on November 18, at the age of 35 years. He was a graduate of the Bellevue Hospital Medical College in the class of 1896, and had practised until a year ago in Waldwick, N. J.

Dr. George E. Babbitt of Orange, N. J., died on November 23 of injuries received from being thrown from his buggy. He was born in Madison, N. J., forty-nine years ago and was graduated from the Medical Department of the University of Pennsylvania. He had been in practice in Orange for five years.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

SCIATICA—CRETINISM—WAR ON RODENTS, DANGER OF POISONS—MOUSE CARCINOMA—OBITUARY.

London, November 6, 1908.

Dr. Wilfred Harris discoursed at the Medical Society of London on the diagnosis and treatment of sciatica. He laid down that acute cases might be considered as rheumatic (sometimes gouty) perineuritis of the sheath of the nerve. It might start at the pelvic notch or a little lower and extend down to the middle of the thigh. Two modes of onset were common—(1) preceded by a lumbago or lumbosacral fibrositis; (2) preceded by exposure to wet and cold in the back and thigh, as, *e.g.,* sitting in wet clothes. In acute cases he advised the patient to be kept in bed on a water or air bed, of course with two blankets over the rubber. This alone often relieved and let a patient lie on his back who had been obliged to lie only on the sound side. It was often taught that galvanism should be avoided until after the acute stage, but Dr. Harris thought this was witholding a valuable remedy. A strong current, of course with great care, he approved of, and the effects were increased by sod. salicyl. To prevent adhesions, massage and passive movements of the hip were useful—but only at the right time. Too early, *i. e.,* while the sheath was acutely inflamed, it must do harm. Too late, *i.e.,* after adhesions had become tough, the same might be said. It was a nice point when to begin massage. He usually did so after about a fortnight in bed, when the water mattress might be removed and galvanism given once daily. The indications for the change were disappearance of pain when lying still, ability to lie on the affected side, disappearance or great diminution of tenderness on pressure over the nerve, and increased range of flexion of the hip, keeping the knee straight without causing pain at the back of the buttock. Under such treatment, Dr. Wilfred Harris said, few cases of sciatica would continue along until constant pain and wasting muscles showed that the perineuritis had become interstitial neuritis, invading the nerve bundles and injuring their fibers by the pressure of the inflamed fibrous tissue. Two conditions of the nerve might be relieved by surgery—(1) external adhesions between the sheath and surrounding structures, from the sciatic notch to the middle of the thigh; (2) the toughened and contracted condition of the nerve itself resulting when the cases had gone on to chronic interstitial neuritis. Dr. Harris pronounced nerve stretching, acupuncture, and injections of all kinds useless and unscientific for the treatment of a mixed sensory and motor nerve. Blisters might have more said in their favor, but personally he preferred to do without them. In conclusion he deplored the pessimism of too many. To tell patients they must bear the pain until the disease wore itself out indicated a cynical state of mind which was not justified by modern pathology or therapeutics.

Endemic cretinism in India has been carefully studied by Captain R. McCarrison, I.M.S., Agency Surgeon in Gilgit, and he has communicated to the Medical Section of the Royal Medical Society an analysis of 203 cases comprising all the cretinous inhabitants of the Gilgit and Mastuj districts, extending over about 500 miles of the Himalayan country. There were racial and other differences which he remarks are of importance in any comparison of results. Concerning the association of endemic goiter, cretinism, and deafmutism, there seemed no exception to the general rule, though there were some facts suggestive of the import of the prevalence of goiter. Indeed, Dr. McCarrison is of opinion that the degree to which cretinism is associated with goiter is determined by the time it has prevailed in a district and the variations observable are in direct relation to the prevalence of goiter among the adult population.

Further, cretinism is seldom, if ever, due to the development of goiter in the individual. The thyroid may be an effect—not a cause. He regards defective thyroid function in the mother as the chief factor in producing cretinism. But other debilitating influences on the mother are not altogether to be excluded. Fright, worry, mental depression, and so on were noted in about 40 per cent. of the cases. Alcoholism was practically absent on account of the religion of the people. Syphilis and tuberculosis were also rare. Consanguinity on the contrary seems important. In Gilgit there are a few Syeds, and they, being descendants of Mahomet, cannot marry out of their sect—so that the stock is tainted and inbreeding accentuates the effect. The thyroid defect is then congenital, but may remain latent. Cretinism is the result of the toxins produced by the thyroid defect acting on the developing thyroid of the unborn child. The defect is one of the whole mechanism—thyroid and parathyroids—and the variations observed result from the extent to which the whole or a part of the mechanism is involved.

Sir Victor Horsley regretted that the natives did not like operative measures, as with so much material the advisability of grafting in cretinism might have been decided. A graft of normal human thyroid could be obtained from an adenoma when shelled out and the small portion for a graft could be had without risk. He had done this with success and anyone with a marked case of cretinism under his care should consider the question at the earliest time.

Mr. J. Berry said Captain McCarrison's results confirmed those of Swiss and other observers. He deplored the notion spread abroad of late that the parathyroids were special glands with a distinct function and hoped the work of Dr. David Forsyth had dispelled such a superstition.

Dr. Gossage thought cretinism might be an inherited condition, allied perhaps to hæmophilia.

The war on rodents has begun very vigorously, but there are already indications that it has not been conducted with prudence. Some areas have been practically cleared, but there is little to be gained by working in small localities, for they will soon be reoccupied. The public have been satisfied with restricted operations by dogs, cats, and traps, but that these are inadequate to deal with the trouble has been shown by the Association for the Destruction of Vermin, the members of which by no means advise neglect of such measures. In fact, some of them seem to think that the cat is almost enough, but I have found that this natural enemy, when domesticated, is very neglectful of its duty. I know places where cats are kept and yet mice abound. On one occasion I saw a well-fed cat reposing in front of a fire and a mouse quietly walk over it without disturbing it. It is obvious that if cats or dogs are to be trusted to eradicate vermin they must not be overfed with more agreeable food. Perhaps, too, certain breeds should be preferred.

Bacteriologists have again and again recommended that a virus should be sought which would produce a fatal disease in rodents and in some cases success has attended this plan under the supervision of experts. This, of course, was heard of by the advertising fraternity and rat poison has for some time been sold to the reckless British public, the vendors guaranteeing it to get rid of rats and mice but to be harmless to human beings and domestic animals. The Medical Officer of Health for the city (Dr. Collingridge) questioned this and considered it dangerous that such poisons should be used except under skilled direction or should be freely sold to the public. A case has been investigated by him which fully confirms his view. In a city house where dinner is provided for the employees twelve men became simultaneously attacked with febrile symptoms, vomiting, and diarrhea, colic and collapse. Investigation pointed to infection of the food. The only point in common was that all dined in one room. Further inquiry elicited that a virus poison for mice had been laid about. Under the floor dead mice were found. Dr. Klein found in the excreta of the patients and in the poison bacteria resembling Gaertner's bacillus. It has been shown that injections of such bacteria produce a disease fatal in from two to four days. No doubt vermin can be got rid of in limited areas by various poisons, but not without danger. A virus may destroy an enormous number, but a small percentage will remain to propagate, or immigrants will soon arrive. Interference with nature's arrangements is always risky. We have practically exterminated owls, weasels, etc., and have petted our dogs and cats into lazy gluttons and are now finding out that the rodents are swarming more than ever. It will be more disastrous if we manufacture new diseases by distributing their germs.

Some experiments concerning a possible serum treatment of cancer have been made on mice by Mr. C. E. Walker, assistant director of cancer research at Liverpool University. Considering the reproductive cells and those of malignant growths as having in some sense passed out of coordination with the organism, he asked himself whether the reproductive cells injected in large numbers would have any effect on the whole body. To test this he injected hypodermically several hens every day with a fresh emulsion of cock's

testes. Their combs and wattles grew enormously and other definite changes were produced. As the injection of the cells of an animal into another species might conceivably produce a change in the blood destructive to the alien cells, similar experiments were made on rats with an emulsion of the testes of mice. At the same time rats were injected with an emulsion of a spheroidal-celled carcinoma from mice. This was on the supposition that anything destructive of reproductive cells might also destroy other cells out of somatic coordination. Among mice treated with testis serum the tumors became gangrenous. In others treated with carcinoma serum they dried up and came away. The results with testis serum seemed to Mr. Walker more suggestive than the others on account of the destructive action on cells out of coordination. Other experiments were made to endeavor to find an explanation of the rarity of metastases in tumors caused by grafts in mice. Mr. Walker saw no essential difference in these tumors from those of similar structure in man.

Dr. Rushton Parker thought these researches valuable, but Dr. Blair said they were neither original nor new. It was easy to produce immunization against mouse serum and nothing was in sight as to human malignant growths. Dr. Glynn asked whether the gangrene might not be due to thrombosis or bacterial infection and whether spontaneous cure ever occurred by gangrene.

The death of Dr. James Adam on the 25th ult. at the age of 74 removes a well-known alienist who has filled various offices connected with the insane. He took the Edinburgh double qualification in 1857 with a gold medal and other honors. He added the M.D., St. Andrews, in 1860. He has been head of the female department at Colney Hatch, superintendent at the Caterhorm Asylum and of the Crichton Royal Institute and Counties Asylum at Dumfries. Subsequently he became resident physician and proprietor of the West Malling Asylum. His contributions to the journals were all connected with his specialty and included those on melancholy, catalepsy, self-mutilation by the insane, and pathological research in asylums for the insane.

Dr. Josiah Oliver died on the 24th ult. at Maidstone, where he had practised and taken a leading part in municipal affairs for nearly forty years. He qualified in 1869. After general practice for ten or twelve years he became a member of the Edinburgh College of Physicians. He was made a J.P. in 1883 and was elected Mayor of Maidstone in 1896. At the close of his year of office he received a handsome testimonial from his fellow citizens, who seem to have esteemed him as highly as an upright public man as they did as a medical adviser and friend.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

REMUNERATION FOR TESTING NEW DRUGS—THE OPINIONS OF KURSCHMANN AND EHRLICH ON THE SUBJECT—V. NOORDEN'S PRACTICE IN THE MATTER—THE QUESTION OF SPECIALISTS—OFFICIAL DEFINITION AND REQUIREMENTS.

BERLIN, November 1, 1908.

A VERY interesting question came up for discussion at a recent meeting of the Free Society of Medical Journalists; it was brought forward in the consideration of a report presented by a special committee of the Society, which dealt with the propriety of accepting payment for the examination of new remedies. Dr. Schwalbe of Berlin sent a circular letter of inquiry to fifty-eight heads of institutes and received fifty-three answers from the best-known workers in Germany. These answers were not at all uniform. Thus Kurschmann of Leipsic took a negative stand in the matter; he personally never undertakes an examination of a drug at the request of the manufacturers, nor does he ever allow them to send reprints of papers issued from his clinic together with circulars in praise of their preparations. On the other hand, Fr. v. Müller, A. Frankel, Gaffky, and Ehrlich did not consider it improper to receive payment for experimental work. Ehrlich called special attention to the differences existing between clinical and experimental research in this connection. There exists a great disproportion between the expenditures called forth in all experimental work by the necessity of providing laboratory animals, complicated apparatus, and specially trained assistants and the means provided for the work in German institutes occupied with this branch of medical science. It seems to him, therefore, that any support given by the manufacturers to experimental work can only be considered as of great assistance to the medical profession. It would be very desirable in the future to precede any clinical study of new drugs by much more extensive experimental study of their properties and value than has been the case in the past. The desirability of such study calls forth a careful consideration of all possible means of arranging the relations between physicians and manufacturers so that the aims of both could be properly served.

A number of workers defended the propriety of requesting payment for clinical work in connection with testing the actions and the value of a new drug. Thus von Noorden of Vienna is always well paid for any clinical work requested of him by the manufacturers; all money received by him from this source he diverts to the establishment of free beds in hospitals or toward the promotion of scientific research. One-half of the money is always to be paid when the drugs in question are offered for clinical trial while the rest is to be sent when the resulting articles are published. In this manner a portion of the profits made by the manufacturers in exploitation of new remedies is used for the benefit of the general public.

Most of the speakers on the subject considered only the question of payment for clinical research, and in general agreed that the decision is best left to individual workers in the field; it seemed reasonable to accept some reward for the painstaking work required in the testing of new remedies and such work, of course, would be more often performed if the workers were sure of compensation for their time and effort. The great duty of the professional press consists in taking all proper measures for insuring the appearance of scientific articles only; in this connection no work should be accepted for publication that is not offered to the editors by the author himself or by the Institute at which the research was performed. There is no valid objection to naming the firm which markets the product described nor to the distribution of reprints by the firm with the aim of advertising the uses of the remedy. The manufacturers should also be allowed to acquaint themselves with the contents of any such article before publication and in contracting for the work should have the privilege of not having the paper published if the preparation considered is not brought out on the market or different findings have not been published.

During the past summer the question of medical specialists has been very eagerly discussed in the professional press and in the various meetings of physicians. There is no question that the great mass of the public considers the specialists as much more trustworthy in certain diseases because he has had wider experience in those special fields, than the general practitioner. This attitude of the public is, of course, a potent factor in the increase in the number of specialists which has been witnessed in recent years. In this differentiation of medical work a good many regrettable things have occurred; many specialists, for instance, have assumed this title without having done sufficient special work to equip them for their chosen practice. It is not to be wondered, therefore, that individual voices are heard calling for the establishment of special examinations or at least for the promulgations of some conditions which are to be fulfilled before the title in question may be assumed by a physician.

In July of this year the Ministry of Public Instruction took part in this discussion by the publication of the following order addressed to all the subordinate officials of Prussia: The Minister of Instruction has requested that the scientific deputation give him their opinion in the matter of medical specialists and has received the following answer. The designation "specialist" should only be used after the fulfillment of certain conditions. The following specialties may be considered: Internal Medicine, Surgery, Ophthalmology, Diseases of the Throat, Nose and Ear; Obstetrics and Gynecology, Skin and Venereal Diseases, Nervous and Mental Diseases, and the Diseases of Children. Every specialist should have done a certain amount of extra work in the field to which he wants to devote himself; such work should have consisted in scientific study and practical experience in the special field during a period of time which has proved sufficient by previous experience to enable such a worker to carry on independent work in a special field; as a rule, three years should be considered to be such a period of time. Such special work should be performed in the capacity of an assistant in universities, academies, large hospitals, or in association with well-known specialists; the list of names and places of this character will be made up and published every year. The time and the success of such special work should be attested by a certificate obtained from the physician who acts as the instructor. The scientific deputation has further declared that the whole question of specialties in medicine is a professional one and should be left for the consideration of the various professional organizations.

Such, then, is the opinion of the Ministry in this ques-

tion; now professional societies are to be heard, but in the meantime the various views on the subject are reflected in the medical periodical press. It seems to be the most generally held opinion that any hard-and-fast definitions of the preparation required from specialists should not be promulgated. As opposed to the few dishonest individuals among specialists there stand a great number of self-taught men who enjoy the best of reputations for their knowledge and skill in their chosen fields; yet these men have not enjoyed anything like the prescribed amount of instruction in their work. Moreover, if any physician wants to deceive the public he will probably find the means of doing so under any regulations. Another set of critics point out the fact that the ministerial declaration given above mentions altogether too few special fields of practice; indeed, the number of specialties is not constant, for even now certain professional activities are becoming more and more specialized. It may be concluded that the best way out of the difficulty is to drop the title specialist altogether; the patients should then be apprised of any special attainments of certain physicians by means of personal recommendations from others.

THE RELATION OF THE MEDICAL PROFESSION TO THE ALCOHOL QUESTION.

To the Editor of the Medical Record:

Sir:—The writer is hardly in accord with Dr. Jacobi's criticism of professional writing on alcoholism in the lay press, for it really seems as if the general public is calling on the medical profession to make a more definite statement as to the physical effects on the human body of the moderate use of alcohol than has yet been declared. Nevertheless, it seems as if a medical symposium of opinion of some value could be created, using the medical press as a medium.

It is somewhat remarkable that so general a harmony of opinion among medical men has been arrived at during the past twenty years on many related branches of the subject. There are still, however, opinions held by a few that are fairly twenty-five years behind the age. It is a matter of surprise that, in the face of advanced knowledge as to the possibilities of supporting methods of nourishment, any medical man should make the statement that a radical immediate cutting off of alcoholic beverages would result in race decadence. It is true that there may be a very few individuals who would retrograde or cease to exist when cut off from alcohol; but most persons, if properly nourished at the time of the cutting off of the alcohol, as a rule, would be physically benefited. To be sure the cutting off of the supply would create temporary wide-spread suffering, due to the hunger for alcohol; but there are very few individuals indeed who would not be immediately benefited if intelligently treated, and it is questionable if the world would not be well rid of the few whose existence would be cut short by a public invasion of the individual rights of indulgence.

We all hold together on the advantages of using alcohol under certain conditions of ill health. We all hold that under such conditions the good to be gained from its use overbalances the injury it effects; but we want a general discussion of the following propositions, namely: (1) The habitual use of alcohol in small quantities which to superficial observation does no harm, really does physical damage by inducing a habit of dilatation of the arterioles with secondary results due to throwing undue arterial pressure on various organs. (2) That any individual using alcohol even in small doses is in the grasp of the alcohol habit, and is injured in proportion to the amount ingested and to the regularity of indulgence. (3) Under all ordinary conditions of health any physical advantage due to the pleasure of indulgence or to the nutritive effects of alcohol is far outbalanced by its evil effects, which are not perceived immediately, but are cumulative. (4) That the primary physiological effect of apparent stimulation is only the beginning of paralysis due to the coagulative effect of the alcohol on cell peripheries, and that deepening of the effect to the cell centers reduces vital activity in the cell. (5) That so-called moderation results in the vast majority of cases in indulgence that is measurably immoderate, and usually shortens life, and weakens self-control.

The question that is now before society for its decision is whether society must suffer the consequences of the grossly ignorant and damaging use of alcohol, in order that those who are only slightly hurt by moderate indulgence may be allowed the pleasures of that indulgence; whether this agent is to remain in force as one of the influences for ridding the world of those least fit to survive, or whether this substance, so potent because of its peculiar properties, is to be placed with things too dangerous for general use.

East Orange, N. J. J. M. W. Kitchen, M.D.

Progress of Medical Science.

New York Medical Journal, November 14, 1908.

Adiposis Dolorosa.—T. Klingman defines this affection as a hemopathic condition of unknown cause, occurring in women with neuropathic heredity and characterized by painful fatty swellings occurring in various parts of the body. The condition is preceded or followed by asthenia. Many other symptoms, varying from a slight functional derangement to organic degeneration, are incidental expressions of an inherited unstable nervous system occurring in many other nervous disorders. Treatment is in an unsatisfactory state. No one remedy gives uniform results. A few cases have been relieved and one apparently cured by thyroid extract. Removal of the swellings by operation has proven of great though temporary benefit. The condition is a progressive one. The distinct lesion is an overgrowth of fatty tissue, and the most constant organic lesion is in the thyroid gland. In one case, however, coming to autopsy the gland was normal. The author adds one personal experience. About forty-five cases altogether are on record.

Generalized Xanthoma Planum in a Child.—A. Abrahams reports one case unique in the age of the patient and the general distribution of the lesions. The patient was a three-and-a-half-year old boy of Russian parentage. At the age of two and a half years he had scarlet fever. During the period of desquamation, to quote the boy's father, "small, pin point pimples appeared here and there over the body. The pimples after awhile flattened and became yellow. In a short time more of the same kind appeared and kept on coming," until on the day of presentation the eruption covered every part of the body except the scalp and mucous membranes. The chin, neck, upper and lower extremities, both extensor and flexor surfaces, thorax, abdomen, groins, and gluteal region, including the cleft of the nates, were the seat of hundreds of small and large citron yellow patches, some flat, some slightly raised at the edges, smooth to the touch, and all typical of xanthoma planum, as seen in adults on the upper and lower eyelids. The eyelids and upper parts of both cheeks were free from the lesion, contrary to the usual distribution of the disease. The largest of the patches were found around the nates and anus. A few good sized ones were to be seen on the deltoids; the largest patch was the size of a cent and the smallest that of a lentil. There were no subjective symptoms. There were no constitutional or local disturbances at the time of appearance of the xanthoma. The urine was repeatedly examined with negative results. The child was well nourished and was in the best of health. Objections on the parents' part have thus far prevented the author from excising a portion of skin for microscopical examination.

The Resistant Breathing Tracts.—W. H. FitzGerald makes a plea for nasal breathing, calling attention to the carelessness of most parents in allowing their children to breathe through the mouth, and enumerating some of the evils which may follow in later life unless the faulty method of breathing is rectified by proper intervention. He says, among other things, that when we consider that faulty breathing is largely responsible as well for nearly all so-called catarrhal conditions of the upper breathing tract, for the majority of middle ear difficulties, for a large percentage of eye trouble, to say nothing of innumerable affections of the rest of the economy, that we should warn, not only the medical profession, but also non-medical members of society engaged in one of the most commendable of projects, namely, the attempted obliteration of the white plague—that they are not doing their full duty unless they endeavor to make absolute nasal breathing a universal practice. In so doing they are not only fighting pulmonary tuberculosis along rational lines, but practically every other disease man is heir to as well.

Journal of the American Medical Association, November 14, 1908.

Viscosity of the Blood.—G. W. McCaskey discusses the literature of the viscosity of the blood and describes methods of determining it. His own device is simply testing its ascent in a capillary tube under negative pressure, the tube being standardized with distilled water at a known temperature. The temperature is important, as the viscosity falls about 2 per cent. with each degree of centigrade rise, and if there is a marked change in the room temperature at the time of the test from that of the time of standardization, corrections have to be calculated. The viscosity varies considerably under normal conditions, owing to various causes, among which may be mentioned the injection of large amounts of water or food. The percentage of blood corpuscles is accountable for the greater part of the viscosity, but it is also influenced by substances in the

plasma. It is probable that this is in some way connected with the fibrin. Alcohol markedly increases it at once, and asphyxia influences it more profoundly perhaps than any other known factor. Hemorrhage lowers it and the effect is lasting as opposed to the evanescent lowering from injection of salt solution. In vegetarians, according to Determann and others, the viscosity is materially lower than in meat eaters. McCaskey's conclusions are summed up as follows: "1. The viscosity of the blood is an important physical property dependent on both the corpuscles and the plasma, which furnishes a considerable part of the peripheral resistance to the circulation of the blood. 2. It undergoes considerable fluctuations as a result of physiological changes connected with food, drink, exercise, etc. 3. Under pathological conditions, the changes are much greater and the viscosity may be so much increased, as, for instance, when the blood is charged with carbon dioxid, that the heart will be embarrassed in overcoming it. 4. The viscosity of the blood is actually low in the large majority of cases of chronic Bright's disease owing to existing hydremia, but there is probably an earlier stage with high viscosity. 5. It seems probable that an increased peripheral resistance in the circulation of the blood, due, in part, to increased viscosity, is at least one of the factors in the production of the cardiac hypertrophy of Bright's disease. 6. Venesection greatly lowers the viscosity of the blood by withdrawing its solids and attracting the fluids from the surrounding tissues. 7. Alcohol introduced into the circulation greatly increases viscosity, and in this way interferes with the peripheral circulation and burdens the heart. 8. The approximate determination of the viscosity of the blood as a routine clinical procedure is desirable in nutritional and toxic disorders, and should be made by a method rapid and simple enough to be practicable for routine use. 9. Individual diseases do not change viscosity in any characteristic way except as they incidentally modify the blood. 10. The determination of viscosity should be made promptly before the corpuscles have time to settle, for obvious reasons. The use of hirudin, if it leads to considerable delay, is therefore objectionable unless the homogeneous mixture of plasma and corpuscles is again reproduced. 11. The viscosity of the blood is not altogether dependent on its specific gravity, for in fevers the former may be high and the latter very low."

Pigmentation of the Mouth.—H. G. Anthony enumerates the different forms and, as regards congenital pigmentations, he is convinced, in spite of the negative literature, that the ordinary pigmented mole may occur on the oral mucosa, and that he has seen one such case himself. Occurring there, they would usually be melanotic, and he suggests as likely that the melanosis observed by Roy (*Laryngoscope*, 1907, p. 868) antedating an oral endothelioma was really a mole. Acquired pigmentations may be the result of traumatic hemorrhage, Addison's disease, scleroderma and phthiriasis. He has not observed or found records of them being due to arsenic or lichen planus. The largest number of mouth pigmentations, however, cannot be credited to any of these disorders, and are almost invariably located on the mucous membrance of the lips. They are usually well-defined areas of black pigmentation, and the patients are frequently unaware of their existence. Anthony has never observed them in healthy persons, but has found them on the lips of patients suffering from gastrointestinal intoxication, diabetes, and neurasthenia.

Transplantation of Vessels, Organs, and Limbs.—Alexis Carrel gives an account of the experimental work on animals in auto and heterotransplantation of vessels, organs, etc. He shows that vascular suturing, under aseptic conditions and correctly applied, gives excellent results, but a fault of technique, even very slight, can be followed by obliterative thrombosis. Success depends less on the way of handling the needle or passing the threads, than on a knowledge of the causes determining a deposit of fibrin in the line of anastomosis, and their removal. Occasionally after transplantation of veins as a substitute for arteries, late obliteration may occur, hence this procedure seems to be a little less safe than the direct anastomosis of artery with artery. Carrel finds it possible, however, to preserve the vitality of extirpated arteries in Locke's solution at low temperature for some days or weeks, so that good results can be obtained after transplantation, though marked histological changes take place. Other methods have been less successful. It is not always true, moreover, that the transplanted vessel must be from the same species of animal, but the success is greatest when the species are most closely related. Experiments with transplantation of various whole organs, such as the kidney and spleen, with reestablishment of their circulation by vascular anastomosis, have also been successful and transplanted kidneys have functionated normally. In case of glands like the thyroid, parathyroid and ovaries, the reestablishment of the circulation by anastomosis is hardly necessary, though in case of the ovary it might be advantageous. In heterotransplantation of the intestines the difficulty is to avoid infection which caused the failure of both of Carrel's experiments of this nature. Heterotransplatation of rather extensive anatomical regions such as the ear and scalp, with their artery and vein, has been successfully done in a dog, and Carrel has succeeded in transplanting a leg from one dog to another. The difficulties here are chiefly surgical, and he says if further experiments in this line sufficiently demonstrate that the functions of the transplanted limb are reestablished, it may be permissible to try this operation in a suitable case on man. In a general way, however, it is necessary to emphasize that even a method that gives excellent results on animals must not be directly applied on man. There are marked anatomical and physiological differences between the human tissues and organs and those of the dog and cat, and the methods should be modified accordingly. The experiments he records have been performed within the past two years, and it is too soon to tell what may be their practical value.

Endoaneurysmorrhaphy.—R. Matas analyzes a total of 85 operations by 52 surgeons, up to the present date. The legitimate mortality of the operation itself he finds to be 2.3 per cent.; of secondary hemorrhage, 2.3 per cent.; of gangrene, 4.6 per cent. Eliminating 3 of the gangrene cases in which there was simultaneous injury and ligation of veins or secondary ligature of an artery, the percentage of this accideot is 1.1 only. The total postoperative deaths from all causes was 7, to 78 recoveries. The percentage of relapses, which occurred only in the reconstructive operations (4 in 13, or 28 per cent.) was only 4.7 per cent. to the total. Matas believes that the fundamental principle on which the operation is based, viz., that the endothelial lining of the vascular system which is continued in the aneurysmal sac, is analogous in its pathological behavior to the reactions and reparative processes which occur in the endothelial surfaces of the other serosæ, such as the peritoneum and the pleura, has been absolutely confirmed by the experience in these 85 cases. They have also disproved Scarpa's law that complete obliteration of the vessel is an essential to the cure, which result is also supported by the facts of the suture and repair of arteries. An important point of the technique is the prophylactic hemostasis, which must be made absolute, and the problem increases in complexity and difficulty the higher the operation, and Matas mentions the methods and appliances for this purpose. Experience demonstrates that in all sacciform aneurysms with a single orifice of communication, the closure of this orifice by suture without interfering with the lumen or the capacity of the vessel is to be looked on as obligatory. The indications for the reconstructive operation, however, in fusiform aneurysms with separate orifices of entrance and exit must still be considered *sub judice*. In the vast majority of cases of aneurysm of the extremities the simple obliterative procedure proved satisfactory. It gives a cure with less risk to the distal parts than either the ligature or the method of extirpation. The indications in any given case will not be entirely satisfactory until we have a sure clinical proof of the adequacy of the collateral circulation. Korotkow's method of testing the most peripheral blood pressure may be the solution of the problem.

Ligation of Innominate Artery.—W. Britt Burns reports a case, the ninth with recovery, of ligation of the innominate artery. The patient was a colored man, aged 27, suffering from subclavian aneurysm, the innominate only was tied with a largest sized braided silk ligature in a "granny" knot drawn just tightly enough to approximate the vessel walls but not to crush its coats. The ligature came away fifty-one days after the operation while the wound was being dressed; the recovery was good practically in twenty days. Burns tabulates and reviews the prior operation showing that unless Burrell's case is counted as a recovery, the one he reports is alone in the class of cases where the artery was tied by itself for subclavian aneurysm.

Cardiovascular Prognosis.—H. W. Cook emphasizes the importance of examination of the heart and circulation by life insurance examiners. Cardiovascular diseases are increasing and especially among the individuals who apply for life insurance, and he remarks that examiners are apparently too often satisfied regarding the cardiovascular system when there is no heart murmur and no irregularity or increase of rate in the pulse. Competent examination should practically exclude heart and arterial diseases, apoplexy, and nephritis from the first year's mortality, and should largely eliminate them from the first three years. He gives specifications as to what the examination should be in the family and personal history of the applicant and his physical inspection. He lays stress on the use of instruments, especially the sphygmomanometer, and the importance of urinary examinations. He summarizes, in conclusion, as follows: "The combined cardiovascular dis-

eases constitute the largest element in general mortality, and are even more important elements in insured mortality. The evidence of incipient cardiovascular disease are discoverable in many cases by careful attention to the details of the examination. Greater care and thoroughness in this particular would produce a large saving in insurance mortality, especially during the first five years."

The Lancet, November 7, 1908.

A Case of Thymic Death.—The patient reported by M. S. Smith was a boy of eight months, who died suddenly in a convulsive seizure in his mother's arms. He had always been in good condition and never sick. Rickets, syphilis, and tuberculosis could all be excluded. On removing the ribs and sternum a greatly enlarged thymus gland was exposed. This consisted of two large lobes, each two and a half inches in length, which completely covered the trachea. From the upper part of each lobe a prolongation extended posteriorly. Thus the two lobes and their prolongations very nearly encircled the trachea. The weight of the gland was one ounce (28 1-3 grams). The lymphatic glands of the thoracic and abdominal cavities were all greatly enlarged, especially those of the latter, which formed a solid mass in the mesentery. There was no sign of any caseation, neither were the cervical and inguinal glands markedly enlarged. The brain, the heart, the kidneys, the liver, and the spleen were all normal. There were ecchymoses on the surface of the lungs, which otherwise were healthy. The stomach and the intestines showed no signs of gastroenteritis or of any congestion, but all the lymphoid glands in the walls were very prominent and stood out from the surface of the gut. The tonsils were moderately enlarged and adenoids were present.

The Palliative Treatment of Inoperable Cancer.—H. L. Drage discusses this question, adding certain remarks concerning some of the recent developments in therapeutics considered from the chemical standpoint. He declares that in the use of internal remedies for the purpose indicated it is necessary to make such an alteration in the blood as will increase the power of the human economy to starve the parasitic growth, to check the changes which are the result of the life of a parasite in the body, and to introduce an obstacle in the growth of fresh foci of disease. He claims that it is possible to treat cancer with a varying degree of success by a method which consists in administering such drugs as cinnamic and coumaric acids or their sodium salts, which produce a leucocytosis, especially when they are accompanied by the local treatment of the disease, when this is possible, by such substances as the oleate of copper and the oxide of antimony. The position which leucocytosis occupies with reference to the curative action of these remedies is necessarily a speculative one, and it is more than probable that it is an alteration in the serum which is the factor of the greatest importance. The drug which he uses is the orthocoumarate of sodium in a 22 per cent. solution in water, injecting 25 minims subcutaneously up to thrice weekly. In addition to this he gives either cinnamic aldehyde in doses of one minim in capsules three times daily after meals, or 5 grains of acetylo-coumaric acid (tylmarin) in a similar way. In addition he adds antimony oxide (pulvis antimonialis) in one grain doses with the view of applying a destructive agent to the growths. He has also used plasters containing oleate of copper, an ointment of this remedy with equal parts of thorium oleate; also ovules of the same for insertion in the rectum and vagina.

British Medical Journal, November 7, 1908.

Ophthalmia Neonatorum Treated by Zinc Ions.—H. K. Ramsden describes the recent treatment of a case, claiming that many cases of corneal opacity can be prevented by the method employed. The conjunctiva of the diseased eye was everted and a positive electrode which consisted of some cotton-wool saturated in a 2 per cent. solution of zinc sulphate was applied. The nurse held the negative electrode in the child's hand. The battery employed was an ordinary bichromate battery, which gave twenty volts, and half a milliampere current was passed for three minutes. Twelve hours after the application the inflammation was subsiding and another application was made. Two days later the case was cured. In the author's experience the case ordinarily treated by silver nitrate or protargol applications (twice a day) would have taken fourteen days and would have been an anxious one.

Stomatitis Parasitica.—G. A. Stephens was called to see a child suffering from this affection, the patches on the tongue and cheeks being so thick as to prevent the protrusion of the former. The pain felt by the child was considerable, so he was chloroformed and his mouth cleaned out. The question of causation came up for consideration. The disease is one that is very intimately associated with filth, but in this case the child, aged 2 years, and the only one, had no opportunities of roaming for filth. After much cogitation on the part of the mother, she suddenly remembered that a few days before the attack she had left him on the lawn for a few moments, to find him on her return nibbling a piece of bread that a bird had dropped within grabbing reach of him. She cleaned the mouth as well as she could, and thought no more of the incident until searching for some explanatory cause.

Insufflation in the Newly Born.—W. C. Adams reports the birth of a child by breast presentation. The labor pains had almost ceased from exhaustion, and the extraction of the head was a matter of some difficulty. The child was born apparently asphyxiated, and artificial respiration was begun. At the end of a quarter of an hour there were no voluntary efforts at inspiration, and the body was pale and cold. The author then thought of insufflation, and, taking the rubber tubing off a feeding bottle, succeeded without difficulty in introducing it into the glottis. Placing the other end in his mouth, he inflated the child's chest with his breath. He did this twice, and then, to his extreme gratification, a distinct voluntary inspiration occurred. After repeating this maneuver twice more the breathing of the child became thoroughly established, regular and deep, and the face and limbs began to assume a natural color. The child was shivering with cold. It had now been exposed nearly an hour, entirely naked and wet in a room a little over 60° F. It was given a hot bath and wrapped in warm cotton-wool, but the jaw still chattered. It made no attempt to suck, and could with difficulty be got to swallow a little hot milk and water. The child shivered without intermission for twenty-four hours, and then it died, apparently from cold and exposure. The author says that the great disadvantage of the usual methods of artificial respiration is the inevitable exposure of the body accustomed to a temperature of nearly 100° F. to one which averages 30 to 40° F. lower. The insufflation method can be practised even while the infant is in a warm bath. His general results with insufflation have been satisfactory.

Cancer in Travancore, South India.—W. C. Bentall summarizes his study of cancer in the region indicated, which embraces 1,700 cases collected from various localities. He notes that the age of maximum occurrence is some twenty years younger than in Great Britain. The overwhelming predominance as to site has been on the buccal mucosa. The prevalent habit of chewing the betel nut in India may have a bearing on this point. The female genitals are another favorite seat, as the native women rarely seek medical advice when thus affected. The author describes in detail the histological peculiarities of the buccal growth and adds some points of interest as to his methods of treatment and as to the betel nut chewing habit. The method of chewing in Travancore is usually to take a few bits of areca nut, and placing them in the mouth to chew for half a minute, and then, smearing the betel leaf with slaked lime, to add that. This is said to produce a pleasant, sweet taste, and the increased saliva becomes bright red in color; some swallow this, others spit it out. In about five minutes a portion of the prepared tobacco leaf is added, and the whole is chewed into a bolus, and located in the sulcus between the cheek and the lower jaw. Some keep it there for about a quarter of an hour until it has no taste, and then eject it, while others keep it in for a long time, even up to six hours. If the proportion of lime be increased, there is marked burning sensation and local anesthesia lasting for several hours. If the tobacco be increased there are all the symptoms of nicotine poisoning. Many men with their betel can work hard all day without any food.

Münchener medizinische Wochenschrift, November 3, 1908.

The Virus of Smallpox.—Prowazek and de Baurepaire filtered the virus of smallpox through filters having the closest pores, yet were able to produce with the filtrates lesions in the corneas of rabbits characterized by the presence of Guarnieri corpuscles. Filtration through colloidal membranes seemed to keep the virus out of the filtrates, no inoculation of rabbits being possible after this procedure. Smears of the material retained by the membranes showed the presence of perfectly round bodies smaller than the smallest bacteria; these bodies took the red and azure stains. The blood of smallpox cases seems to contain but little virus for inoculation with it taken from various organs was usually negative; no antibodies could be shown to exist in the blood. These results justify the conclusion that smallpox is an ectodermal disease, and immunity to it depends upon some condition of the skin which can be produced by active disease only. The excitants of smallpox seem to require a symbiotic organism, a streptococcus, to produce the characteristic lesions of the disease; inoculations with the virus in the absence of streptococci were unsuccessful. Complement in the shape of normal serum is likewise required to activate the virus.

Deutsche medizinische Wochenschrift, Oct. 22 and 29, 1908.

Indications for Chondrotomy in Apical Tuberculosis.—Harrass says that the principal indication for chondrotomy is given by the existence of incipient apical tuberculosis in consequence of an advanced ossification of the cartilage of the first rib. Advanced lesions in the lungs and foci in other organs counterindicate surgical interference with the ribs. If the mere shortness of the first rib is thought to favor the progress of a tubercular lesion operation may be undertaken only after respiratory gymnastics have not proved successful in bettering the expansion of the apices. Every operation of this character should be preceded by careful examination with the *x*-rays for the combination of ossification with primary anomalies of the rib cartilage are factors in making the prognosis worse, and in some cases may serve to contraindicate operative treatment. Postoperative treatment should consist in respiratory gymnastics combined with the usual tonic treatment of tuberculosis. The cases for the operation should be carefully selected, for the promise of success from the operation does not apply to each and every tuberculous patient with ossification of rib cartilages.

Cystoscopy and Catheterization of Ureters in Children.—Portner says that diseases of the bladder and of the kidneys are much rarer in children than in adults; they are much harder to diagnose because of the difficulty of interpreting the complaints of young children. Stone of the bladder, however, is more easily diagnosed by clinical observation and the study of the child's complaints than other conditions. Frequently, therefore, the cystoscope and the ureteral catheter must be used, but these instruments must be employed only if absolutely necessary The study of the urinary sediment should point out the best procedure to adopt. No cystoscopic examination should be performed in cases of bladder or kidney complaints that are not accompanied by abnormal urinary findings; separation of the urines is likewise useless in such conditions. Hematuria which forms a part of a hemorrhagic diathesis or is a mere symptom of severe nephritis is likewise not adapted to instrumental examination; mere pyuria that responds to the usual treatment does not require cystoscopic examination. If, however, doubts as to diagnosis still exist after hematuria or pyuria had continued for four weeks the question can and should be solved by the use of the cystoscope or the ureteral catheter. Cystoscopy and catheterization of the ureters is possible in female children after the first year of life; in male children the cystoscope may be introduced after the second year while the catheter cannot be used until the boy is eight years old. Special instruments must be used, the cystoscope being No. 12 in Charrière's scale and the ureteroscope Charrière No. 17. The procedures are not dangerous, but usually require full anesthesia to abolish the bladder reflexes; functional diagnosis of the kidneys may be combined with the separation of the urines by the ureteral catheters. Portner reports a number of illustrative cases in which he used these instruments for the purposes of diagnosis or of treatment of suitable conditions in children.

Vasomotor Trophic Neuroses.—Cassirer classifies under this term acroparesthesia, Raynaud's disease, erythromelalgia, sclerodermy, sclerodactyly, and angioneurotic edema. These conditions usually affect the tips of external organs, for example, the tip of the nose or of the chin, tips of fingers, of toes, and of ears. They are all due to some disturbance in the sympathetic innervation of the parts, and are all functional, in so far as no anatomical changes that could explain the symptoms have been discovered. Their general prognosis is good, as organic disease rarely follows them. Yet their course is obstinate and very chronic, with frequent exacerbations. Acroparesthesia is marked by unpleasant and queer sensations that usually affect the hands and forearms; loss of sensation may also be present in one or two fingers. Its prognosis as to recovery is not very good, but long intermissions are frequent. Prophylaxis consists in avoiding all external injurious factors, such as cold, wet, chemicals, etc. The treatment consists in the application of electricity, of warm compresses, and of gymnastic measures. Raynaud's disease in advanced cases is marked by gangrene of the finger tips; more frequently there is redness, some swelling, and very intense pain. It is usually limited to one or two fingers and occurs in successive attacks. Treatment is symptomatic, the pain often requiring the administration of opiates. Erythromelalgia is marked by redness and pain of the extremities; as a rule, the lower extremities are affected, thus differing from Raynaud's disease. Treatment is likewise symptomatic; elevation of the limbs, cold compresses, etc., may be tried. Angioneurotic edema may appear anywhere in the body and may affect the skin, mucosa, muscles, joints, etc. It is possible that the condition may even affect the meninges. General treatment, with special attention to the diet and the functions of the bowels, promises most relief in this condition. Arsenic and quinine are sometimes quite useful in relieving the edema.

Polycythemia and Blood Pressure.—Möller has made many estimations of blood pressure, together with counts of red blood cells in normal and sick persons, and concludes that there is no direct relation between the number of cells and the height of blood pressure. Increase of pressure does not increase the number of cells in peripheral blood, and polycythemia cannot affect a rise in pressure. The latter must be looked upon as the result of changes in the elasticity of the vessel walls, whether such change be caused by the increase of connective tissue in the larger vessels or by a contraction in the smallest arterioles, due to some toxins circulating in the blood.

French and Italian Journals.

New Method of Diagnosis and Classification of Scolioses of Adolescents.—J. Gourdon classifies scolioses in adolescents by the symptom rotation of the vertebra. This always exists, and precedes the appearance of the lateral deviation; it causes the scoliotic deformities which are most rebellious to therapeutics. Hence it is logical to follow its evolution, know its manifestations, and characterize it so as to establish a useful prognosis. He places the patient standing and then causes him to flex the body to the horizontal line. In dorsal scoliosis if the two sides of the back are on the same plane there is no dorsal scoliosis. A posterior increased elevation of the ribs without deformity of the sides means a benign scoliosis. A posterior costal deformity with the appearance of an obtuse angle is a scoliosis of medium gravity. A posterior deformity of the ribs with an acute angle is a very grave scoliosis. In lumbar scoliosis the patient must be examined standing and in anterior flexion of the trunk. If the two regions at the sides of the lumbar spine are alike there is an absence of scoliosis. If there is a paraspinal projection in the vertical position there is lumbar scoliosis. If in anterior flexion there is a lessening of the subelevation the case has a good prognosis. If it remains it is of medium gravity. If it is exaggerated the prognoss is bad. Scolioses of the first two degrees are curable. Those of the third are not.—*Archives Provinçales de Chirurgie*, No. 4, 1908.

Diffuse Adenoma of the Cervix Uteri.—H. Hartmann and P. Lecéne present a case of diffuse adenoma of the cervix uteri, and discuss its relation to cancer. These growths have a very slow evolution, and during the time that they are growing a cancer would have attained a much greater size than does the adenoma. In the author's case there was an immense ulceration of the cervix, ending abruptly, the growth not extending beyond its boundaries. Neither did it extend deeply into the tissues, being limited by the muscleconnective tissue layer of the cervix. The body of the uterus and the broad ligaments were not involved. The cavity of the cervix was filled with vegetations which consisted of many cavities lined with cylindrical epithelium similar to that lining the mucous glands of the cervix. The growth consisted of degenerated mucous glands apparently included by a basement membrane. The diagnosis of this affection from uterine cancer is not possible by symptoms alone, and only the examination of the growth after removal will serve to perfectly differentiate it from cancer. Its lack of infiltration and the integrity of the fundus and broad ligaments is an important point in diagnosis. The authors believe that these growths are benign, thus differing materially from cancer.—*Annales de Gynecologie et d'Obstetrique*, April, 1908.

Ureterovaginal Fistulæ Following Abdominal Hysterectomy.—Carlos Lepoutre says that ureterovaginal fistulæ are generally found after vaginal hysterectomy, but they occur also after atypical abdominal operations done for large growths, cancerous and fibromatous, and adherent salpyngitis. Here the ureter is so involved in the growth that it is impossible to follow it out and it is cut in the removal of the tumor. This troubles the patient principally by the flow of urine from the vagina which is continuous, day and night, standing or sitting, and is not controlled by the abdominal muscles. But the walls of the ureter become diseased and thickened, the track may become closed and pyonephrosis occur, and the amount of urine diminishes. To the clinical symptoms for diagnosis must be added the results of examination of bladder, vagina, kidneys, and urethra. Lumbar pain and pyonephrosis may be detected by examining the kidney. The orifice in the vagina may be found, and a tampon becomes saturated with urine. Vesicovaginal fistula is excluded by injecting a colored fluid into the bladder which does not appear in the vagina.—*Journal des Sciences Médicales de Lille*, June 6, 1908.

Book Reviews.

Atlas der Pathologischanatomischen Sectionstechnik. Von Prof. Dr. M. Westenhoeffer. Mit 34 Abbildungen. Berlin: Verlag von August Hirschwald, 1908.

This is a pamphlet of fifty pages giving the methods of postmortem examination used by the author. The text is clear and concise, and the illustrations give a good idea of the topographical anatomy of the body as it appears step by step during the autopsy. Histological methods are not included in the scope of the book, nor are the normal weight and size of organs given.

Diseases of Infancy and Childhood. Their Dietetic, Hygienic, and Medical Treatment. A Textbook Designed for Practitioners and Students in Medicine. By Louis Fischer, M.D., Attending Physician to the Willard Parker and Riverside Hospitals of New York City; Attending Pediatrist to the Sydenham Hospital; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, etc., etc.; Fellow of the New York Academy of Medicine. Second Edition. With 303 Illustrations, several in colors, and 27 Full-page Half-tone and color Plates. Philadelphia: F. A. Davis Company, 1908.

The second edition of Dr. Fischer's book is improved by the addition of a new article on Hypertrophic Pyloric Stenosis, by the description of the new methods of diagnosing tuberculosis, and by the elaboration of some other parts of the book. Advantage has been taken of the reissue of the book to remove the offensive legend proclaiming the superiority of the work, but no corrections have been made in the many inelegancies of style that interfere very much with the reader's attention to the subject matter. The fact that a second edition has been called for within six months shows that the volume has found favor with medical readers; in consideration for them the book should have been carefully edited before being reissued.

A Manual of Midwifery. By Thomas Watts Eden, M.D., C.M. (Edin.), F.R.C.P. (Lond.), F.R.C.P. (Edin.); Obstetric Physician with Charge of Out-patients, and Lecturer on Practical Midwifery and Gynecology, Charing Cross Hospital; Physician to Out-patients, Queen Charlotte's Lying-in Hospital; Surgeon to In-patients, Chelsea Hospital for Women; Examiner in Midwifery and Diseases of Women to the University of Oxford, University of Leeds and the Conjoint Board of the Royal College of Physicians and Surgeons With 42 Plates and 236 Illustrations in the Text. Second Edition. Chicago: W. T. Keener & Co., 1908.

In the preface to the first edition of this book Dr. Eden stated that his purpose was to give a concise account of the theory and practice of midwifery; the call for a second edition within two years, at a time when new books on obstetrics appear so often, shows that he has attained his aim to the satisfaction of a wide circle of readers. The book is unusually full of the chapters dealing with the development of the human ovum and the physiology and pathology of the placenta, the original work and wide reading the author has done in this field peculiarly fitting him to deal with these questions. His lucid account of normal pregnancy is followed by the consideration of the phenomena and the management of labor and the puerperium, the facts being presented from the practical standpoint of the practitioner. Sufficient space is then allotted to the care of the newborn child, while the commoner obstetric operations are described in the last part of the book. Throughout the greatest accent is placed upon the necessity of asepsis in all obstetric work and the methods of procuring such asepsis in practical work are given at length. The present issue is enlarged to about fifty pages of text, by a new series of illustrations of the normal and contracted pelvis, and by a full set of plates illustrating the application of forceps. The book is unreservedly recommended to the student of medicine and to the busy practitioner.

The Law in General Practice. Some chapters in everyday Forensic Medicine. By Stanley B. Atkinson, M.A., M.B., B.Sc. of the Inner Temple, Barrister-at-Law; Justice of the Peace for the County of London; Member of the Central Midwives' Board; Hon. Secretary of the Medico-Legal Society (Lond.). London: Henry Frowde, and Hodder & Stoughton, 1908.

This is an uncommonly entertaining volume on an important and much neglected subject. There are eight chapters, entitled, respectively, Practical cautions and precautions; Medical evidence and medical witnesses; Medical certificates and reports; The law of defamation in relation to the medical practitioner; Negligence and malpraxis in medical practice; Some difficult clinical occasions; Cases arising in the coroner's court, and Some limitations of medical evidence. The sixth chapter, on "Some difficult clinical occasions," discusses several topics, such as: Spontaneous and criminal abortion, Anesthesia, Determination of age in the living, Drunkenness, Epilepsy, Good Health, Management of acute mental cases, Pregnancy late in life, Undue influence; Poisoning, Threatened or attempted suicide: Treatment of criminals and their victims. The legal cases cited are English, but the general principles of law which underlie the cases and decisions will, as a rule, apply equally in this country. In a few minor details such as the relations of physicians to the police, the practice in the two countries is slightly different, but these do not detract in the least from the real value of the work. The book is written by one who is conversant with, and has graduated in, both law and medicine, who has moreover a wide acquaintance with general literature and an ample knowledge of human nature; and there is not a chapter in the volume which will not prove interesting and instructive to the general practitioner.

A Manual of Clinical Diagnosis. By James Campbell Todd, Ph.B., M.D. Associate Professor of Pathology, Denver and Gross College of Medicine (University of Denver); Pathologist and Clinical Microscopist to Mercy, St. Anthony's, and the Denver City and County Hospitals. Illustrated. Philadelphia and London: W. B. Saunders Company, 1908.

The aim of the author of this volume, as stated in the preface, is to "present a clear and concise statement of the more important laboratory methods which have clinical value, and a brief guide to the interpretation of results: it is designed for the student and practitioner, not for the trained laboratory worker." The author has fulfilled this purpose most satisfactorily, and the student and practitioner will find in this volume a sufficiently full account of the various examinations they will be required to make, of sputum, gastric contents, urine, blood, feces, etc. The methods given are practical and do not require either complicated and costly apparatus or an unreasonable expenditure of time. The space allotted to the different topics is well proportioned, the tests are well selected, the descriptions are accurate and clearly expressed; the book is well printed and illustrated, and is of convenient size, and can be confidently recommended to the student and practitioner as one of the most useful works on the subject.

Pain. Its Causation and Diagnostic Significance in Internal Diseases. By Dr. Rudolph Schmidt, Assistant in the Clinic of Hofrat von Neusser, Vienna. Translated and Edited by Karl M. Vogel, M.D., Instructor in Pathology, College of Physicians and Surgeons, Columbia University; Clinical Pathologist and Assistant Attending Physician, St. Luke's Hospital; and Hans Zinsser, A.M., M.D., Instructor in Bacteriology, College of Physicians and Surgeons, Columbia University; Assistant Pathologist, St. Luke's Hospital. Philadelphia and London: J. B. Lippincott Company, 1908.

Actuated by the realization of the fact that the young physician is but rarely able to utilize in diagnosis the subjective complaint of pain, so often heard from patients, Dr. Schmidt has analyzed this symptom and has classified its causes and its significance in internal diseases. He first points out the information to be obtained from the patient in order to render the complaint of pain as little vague as possible; such information consists in determining the topography of pain, its time intensity, quality, and the influence of such factors as position, motion, pressure, food, drugs and the exercise of function. Consideration of the topography of various painful sensations closes the general analysis, and the study of specific instances of pain is opened with the description of the painful sensations that can be traced to the nervous system. Organs of motion are then considered, followed by a chapter treating of pain observed in connection with the digestive apparatus. This, the most important chapter of the book, abounds in practical hints for the utilization of the subjective complaints of patients in analyzing their sources. Finally, the urinary system, the spleen, the organs of respiration and of circulation are considered. The book is of value in so far as it fills a deficiency both in medical literature and in the teaching of medicine; its practical worth, however would be much enhanced by condensation and by the substitution of direct statements for the frequent and distracting circumlocutions of the author. The translators have added to the completeness of the book by summarising the researches of Head in regard to the cutaneous areas of tenderness accompanying visceral disease and by reproducing the diagrams of that author giving the areas of referred pain and tenderness.

Society Reports.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Eleventh Annual Meeting, Held at Chicago, Ill., June 1 and 2, 1908.

(Special Report to the MEDICAL RECORD.)

Monday, June 1—First Day.

THE PRESIDENT, DR. JOHN P. SAWYER OF CLEVELAND IN THE CHAIR.

The President's Address.—Dr. SAWYER, in his opening address, first referred to the recent death of Dr. John Dutton Steele of Philadelphia, who was one of the earlier members of the Association, and whose personal qualities and professional attainments had won the highest esteem of his colleagues. The speaker then briefly reviewed the work of the Association during the past year, and called attention to the fact that its membership was composed of surgeons, pathologists, physiologists and internists, and that such a composite membership could not but result in broad discussion, and in an eliminative consideration of the ideas presented.

Ischochymia.— Dr. FRANK HALL MURDOCH of Pittsburg defined ischochymia an an affection characterized by the constant presence of food in the stomach, even in the fasting state. It might be acute or chronic. Whether acute ischochymia, or acute dilatation of the stomach, as it was termed by Boas, Hunter, and others, was due to a paralysis of the gastric muscles, or to a spasmodic contraction, or to both, was as yet undecided. It was usually brought on by some gross error in diet, though it occasionally followed chloroform anesthesia. Out of 64 cases known, 47 proved fatal. Of the total number of cases, 29 followed chloroform anesthesia, and in eleven of these the operation had not involved the abdomen, but was at points remote from it. The chronic form was caused (1) by mechanical obstruction of the pylorus; (2) by absolute or relative weakness of the expulsive forces; in other words, atonic conditions of the muscularis. Usually, in ischochymia resulting from stenosis of the pylorus, only the coarser particles of food were found in the stomach in the morning before the patient had eaten anything, the finer particles and the liquid contents having passed into the intestine. On the other hand, when stagnation of food was due to atony of the gastric musculature, the coarser particles of food would pass through the pylorus, and only a small quantity of the finer particles would be found in the stomach in the morning before the patient had taken any food. In the treatment of ischochymia due to mechanical obstruction of the pylorus, surgical interference was demanded if the obstruction was due to malignant stenosis, to benign stenosis of high degree which would not yield to medical treatment, to adhesions of the pylorus to neighboring organs, to cicatricial bands, or to tumors which by pressure obstructed the outlet of the stomach. Formerly operation was considered necessary in all cases of benign stenosis of the pylorus, of whatever degree, but now we know that such was not the case, for under proper medical treatment, including diet and lavage, many patients entirely recovered.

Dr. G. W. MCCASKEY of Fort Wayne was inclined to question the correctness of the limit of seven hours as the time in which a healthy stomach should empty itself, and beyond which a case should be labeled ischochymia.

Dr. MAX EINHORN of New York agreed with Dr. McCaskey that the name ischochymia should be restricted to those cases in which the stomach had not emptied itself by morning, and that those cases in which food was present six or seven or eight hours after a meal should be regarded as cases of atony of the stomach.

Dr. FRANKLIN W. WHITE of Boston said if we defined ischochymia as a condition in which there was a food stasis of twelve hours or longer, the probabilities were then that we were dealing with an obstructive condition, and most of those cases would eventually go to the surgeon.

Dr. HENRY WALD BETTMANN of Cincinnati said the important point was to determine whether the stomach was able to propel the food through the pylorus in sufficient amount to nourish the patient. The greatest single advance that had been made in the treatment of ischochymia was that of Kussmaul, in 1868, when he introduced the stomach tube into clinical medicine, and he subsequently reported a number of cases of very advanced stenosis of the pylorus which were relieved by gastric lavage.

Dr. ALFRED D. KOHN of Chicago said it had been the experience of many that gastroenterostomy for benign stenosis, so called, was frequently followed by fatal ulcers of the jejunum. In cases where hyperchlorhydria existed, and an immediate operation was absolutely essential, it would be advisable to resort to a preliminary jejunostomy until the urgent symptoms had cleared up.

Dr. JOHN A. LICHTY of Pittsburg said the operation that should be done to relieve this condition was pyloroplasty, and when the surgeons became more familiar with the technique of that operation he believed the death rate following it would be no higher than that of gastroenterostomy.

Dr. J. C. JOHNSON of Atlanta thought there was something distinctive about ischochymia which could not be altogether explained by the degree of stenosis or the degree of impairment of the gastric musculature, and we should always be very guarded in making our diagnosis.

Dr. JOHN P. SAWYER of Cleveland mentioned a case coming under his observation which bore upon the observation of Dr. Einhorn that mechanical obstruction need not be present in connection with ischochymia.

A New Method of Estimating the Permeability of the Pylorus, and an Attempt of Testing the Pancreatic Function Directly.—Dr. MAX EINHORN of New York had beads of different sizes attached to a silk thread and had them swallowed in order to see whether they passed the pylorus or not. In normal conditions they would pass; in stenosis they would remain in the stomach. As the length of the thread in itself was not a sufficient guide to decide whether the bead was in the duodenum or not, we had to look for a different indicator for that purpose. He first used beads coated with mutton tallow; later, beads filled with methylene blue and coated with mutton tallow. As the fat was dissolved mainly in the duodenum, a green or blue color of the urine would show that the bead had already passed the pylorus. This occurred in from three to five hours. He tied another similar bead for control purposes to the thread at a distance of 50 centimeters from the lips. This bead could not pass through the stomach. For the purpose of testing the pancreatic function, Dr. Einhorn had constructed a duodenal bucket, on the same principle as the stomach bucket, but much smaller. This bucket, tied to a long string of braided silk, with a mark at 75 centimeters, was placed in a gelatin capsule and given about one hour after a small meal. It was left in the digestive tract for three hours, and then was slowly withdrawn. It was still better to have the patient swallow the bucket before retiring and withdraw it in the morning in the fasting condition. Usually, the bucket returned full. Its contents might be removed by means of a pipette and placed in a small porcelain dish.

Dr. FENTON B. TURCK of Chicago said that attempts to explore and determine the condition of the stomach and duodenum with the aid of capsules had proved of the greatest service to him in his work.

Dr. G. W. MCCASKEY of Fort Wayne said that in regard to the tests with thymus gland, while a positive result would be of great value, a negative result would be of no value in determining the absence of pancreatic disease. A carcinoma might involve half the pancreas and there would still be enough pancreatic juice to carry on digestion.

An Explanation of the Motor Activities of the Alimentary Canal in Terms of the Mesenteric Reflex.—Dr. Walter B. Cannon of Boston stated that the reflex for the intestine contraction above and relaxation below a stimulated point was also proved true of the stomach and of the lower esophagus. The cardiac and pyloric sphincters obeyed the same reflex. The alimentary canal was therefore a unity, made orderly by the local reflex in the mesenteric plexus. Evidence was at hand indicating a reversal of this reflex in states of increasing or high tonus. About a year ago Dr. Cannon said he showed that the presence of acid in the stomach stimulated the opening of the pylorus, while the presence of acid in the duodenum closed the pylorus and prevented the outflow of food from the stomach. Since that time he had made some observations, the details of which were still unpublished, in regard to the control of the cardiac sphincter of the stomach, and those observations indicated that the cardiac sphincter likewise obeyed this law, namely, that the presence of acid in the stomach normally kept the cardiac sphincter closed during digestion, and that the stimulation below caused the contraction above. The cardiac and pyloric sphincters therefore obeyed the same law as that prevailing in the intestines. This observation he said was not entirely his own. Hirsch, about fifteen years ago, observed that when acid was introduced into the duodenum, there was a cessation of discharge from the stomach. No proof was given, however, that the effect was on the pylorus. Indeed, the result had been attributed to the effect of the acid on the peristaltic movements of the stomach. It was not until the *x*-ray was introduced that we could differentiate between these two factors of gastric discharge.

Plastic Peritonitis.—Dr. G. W. McCaskey of Fort Wayne reported this case in detail, and showed the specimen. The patient was a man about 35 years old who consulted Dr. McCaskey about a year ago on account of persistent vomiting, abdominal pain and general debility. The pain was in the lower half of the abdomen, principally in the right lower quadrant. A diagnosis of appendicitis had been made by a physician in his home town. The vomiting of which he complained was irregular in character; it sometimes occurred after eating, and sometimes without reference to meals, and it had been going on for some months. The vomitus was always of a greenish color; this did not resemble bile, but had the appearance of the pigment produced by *Bacillus pyocyaneus*. The man's temperature remained normal, even perhaps subnormal until just before his death. The pulse was also substantially normal. An analysis of the stomach contents showed a normal amount of hydrochloric acid. The patient was finally turned over to Dr. Miles F. Porter of Fort Wayne for exploratory operation, with the provisional diagnosis of plastic peritonitis. The operation showed the intestines matted together in a peculiar way. It was impossible to unfold them, and as nothing further could be done, the abdomen was closed. The case ended fatally, and the autopsy showed that a slowly progressive peritonitis, probably of long standing, had firmly matted the intestines together. The plastic exudate forming on the peritoneal surfaces had gradually contracted the intestines, longitudinally infolding them close together, and thus obliterating at least three-quarters of the intestine.

Cholecystitis.—Dr. Henry Wald Bettmann of Cincinnati read this paper (see page 923).

Dr. Gustav Futterer of Chicago asked whether anything could be done to destroy or mitigate the effects of the typhoid bacilli within the gall-bladder. Ten years ago he injected typhoid bacilli into the gall-bladder of animals, and then gave them various kinds of medical treatment without any effect whatever on the bacilli. Probably the most logical preparations would be the salicylates. Stadelmann of Berlin, who had studied cholagogues all his life, had come to the conclusion that ox-gall and the salicylates were the best cholagogues, and as a salicylate was at the same time a disinfectant, the combination seemed to be a very good one. Still, Dr. Futterer said he had never seen any benefit from it. The acute symptoms of cholecystitis he had found yielded very quickly to oil of wintergreen, which he preferred to the salicylate of sodium. He knew of only one method in dealing with typhoidal infection of the gall-bladder, and that was to open the gall-bladder, wash it out, and drain it.

Dr. John A. Lichty of Pittsburg asked Dr. Bettmann how he was able to recognize this pre-gallstone period, and how he was able to say that a certain case was or was not one of pure cholecystitis, without the presence of gallstones.

Dr. Jesse S. Myer of St. Louis thought Dr. Bettmann had underestimated, perhaps, the importance of stagnation, not only in the development of the chronicity of a cholecystitis, but also in the formation of gallstones. About 80 or 90 per cent. of gallstone cases were in women, and a large proportion of those met with in the male sex were in old men. There must be some definite reason for this, and the most probable one was that it was due to the stagnation of bile in the gall-bladder as a result of a disturbance of intraabdominal pressure. The speaker said he was convinced that pregnancy was not only a factor in the causation of cholecystitis, but especially in its prolongation.

Dr. Franklin W. White of Boston said that Dr. Bettmann's paper emphasized the fact that prevention was likely to be the only satisfactory medical treatment of gallstones. Naunyn of Strasburg had found no evidence of the dissolving of gallstones by medical treatment excepting in two or three instances out of one thousand. The great difficulty in the way of the preventive treatment lay in making a sufficiently early diagnosis. In the vast majority of cases, gallstones probably remained latent for long periods of time.

Dr. J. C. Johnson of Atlanta said that in the production of gallstones emphasis should be laid on the stagnation of bile. As regarded treatment, he believed that such remedies as phosphate of sodium, oleate of sodium, and olive oil owed their value to their laxative effect on the duodenum, thus increasing the patency of the ducts. Anything which favored muscular relaxation of the parts would favor the passage of the stones.

Dr. Bettmann, in closing, said he thought there was no longer any doubt that cholecystitis was always due to an infection, that gallstones only formed in an infected gall-bladder, and that the causative factor in the majority of instances was the colon bacillus and in the minority of cases the typhoid bacillus. The more virulent forms of infection did not lead to the formation of gallstones, because they destroyed the mucous membrane of the gall-bladder. Cholecystitis, the speaker believed, was too often mistaken for what we termed "spoiled stomach," "acute intestinal catarrh," "appendicitis," and so on, and if in those cases we examined the gallbladder region we would be surprised in how many instances we could actually demonstrate the presence of an enlarged, inflamed and therefore very tender gall-bladder. The mere frequency of acute cholecystitis was proof of the fact that we had overlooked it. His investigations on the subject had led him to believe that it was never latent, and that we could recognize it if we hunted for it. If gallstones were due to cholecystitis, and we were able to recognize the latter, were we not neglecting our patients when we did nothing for them. We knew the cholecystitis preceded the formation of gallstones, and we might prevent their formation by keeping up the flow of bile and resorting to the medical expedients which we knew were successful in reducing inflammatory conditions.

The Behavior of Some Indigestible Carbohydrates in the Alimentary Tract.—Dr. Lafayette B. Mendel of New Haven reviewed the studies conducted by himself in the Sheffield Laboratory of Physiological Chemistry at

Yale University of the digestibility and utilization of various polysaccharide carbohydrates recommended for dietetic purposes in the form of lichens and algae. They were for the most part not altered by the digestive juices or fermentative organisms of the alimentary tract. Such studies of the utilization of these products as had already been completed in the laboratory with which the writer was connected indicated a very unsatisfactory utilization of the constituent carbohydrates, which were scarcely attacked by familiar alimentary enzymes, nor profoundly altered by such bacterial agencies as they might be expected to become subject to in the digestive tract of man. The upshot of the review was the emphasis which it placed upon adequate digestion as a prerequisite for the physiological utilization of carbohydrates, and the preeminent value of a few specific carbohydrates in nutrition. The lessons of the experiment warned against the hasty acceptance of every carbohydrate food product into the category of true nutrients. We must build upon the foundation of actual experiments in metabolism. Many of the modern products doubtless had a deserved place in the dietary in health or disease as food accessories, serving uses quite apart from any direct nutrient function. What was true of the carbohydrate constituents was applicable in many instances to other components. For example, the writer's experience with mushrooms, in which the nitrogen was found to exist largely in the form of unavailable non-protein compounds, taught further caution in drawing inferences respecting the nutrient value of such plant products. Perhaps the fact that so few of the suggested food materials of the kind under consideration had found favor in any general way, despite their widespread distribution in nature, was an almost instinctive expression of their non-nutritive make-up.

The Nervous Influence on the Production of Sugar in the Body.— Dr. J. J. R. MacLeod of Cleveland in this paper, which embraced an exhaustive study of the subject based upon original experimental work, summarized his findings as follows: Stimulation of the great splanchnic nerve caused in dogs intense hyperglykemia, accompanied by glycosuria and diuresis. It was improbable that the mechanism involved was one of vascular disturbance of the liver, for the following reasons: 1. Ligation of the hepatic artery did not produce hyperglykemia. 2. Neither did obstruction of the blood flow in the portal vein. 3. When the hepatic nerves were cut, splanchnic stimulation, although it produced the usual changes in the general blood pressure, was not followed by hyperglykemia. 4. Direct stimulation of the hepatic nerves usually caused hyperglykemia, but no constant change in blood pressure. Atropine did not diminish the hyperglykemia due to splanchnic stimulation.

Tuesday, June 2—Second Day.

Intestinal Sand; One of Its Sources.—Drs. Jesse S. Myer and Jerome E. Cook of St. Louis, in this paper, said the term "intestinal sand" should be applied only to sand-like particles occurring in the feces, and not to larger bodies, such as had been described by the French and English authors. The French, under the title of *sable intestinale,* described bodies ranging from the size of grains of blotting-sand to that of a pigeon's egg. The subject was in a rather confused state, because of the confounding of terms. Mucomembranous colitis was considered by many writers, especially the French, as a causative factor. The gouty diathesis, appendicitis, constipation and "lithogenic intestinal catarrh" as a disease *per se,* had all been suggested as etiological factors. In the authors' opinion these conditions seemed to bear little if any relationship to the phenomenon, the occurrence of the sand in these cases being, in all probability, accidental. The character and composition of the sand described varied greatly, the organic matter, for instance, ranging from 20 to 96 per cent. The distinctions between "true" and "false" intestinal sand did not seem to be well founded. In the case reported in detail by the authors, the intestinal sand proved to be of vegetable origin, and was derived from the banana. In the stem, as well as in the fruit of the banana there were vascular bundles accompanied by milk tubes, symmetrically arranged, and separated from them by one or two layers of parenchymatous cells. These milk tubes consisted of a row of vertical cylindrical cells, one above the other. They contained large, homogeneous, highly refractive resin balls or masses suspended in a fluid very rich in tannin. These resin balls, the contents of the cells, suspended in a fluid rich in tannin, were affected by the secretions of the intestine in a manner similar to the action of ferric chloride (by which they may be artificially detected), hardening the resin and producing an insoluble tannate. The authors stated that the similarity between the sand obtained in their case and that found in a great number of the cases in the literature suggested that the substance in those cases was derived from the same vegetable source as in their own.

Dr. Henry Wald Bettmann of Cincinnati said that about ten years ago, at a meeting in Cincinnati, specimens of intestinal sand similar to the artificial ones shown by Dr. Myer, were exhibited. They were sent to Washington for examination, and were traced, as in this case, to the banana.

Dr. John A. Lichty of Pittsburg said he had noticed that patients who suffered from mucous colitis were apt to pay close attention to their stools, and some of these had reported the presence of sand. He had also found it in the stools of children who had nervous mothers, but hereafter, instead of attributing its presence to the nervous mother, he would be on the lookout for the banana.

Dr. Franklin W. White of Boston said that probably there were other vegetables than the banana that produced sand in the stools—perhaps of a different character.

Dr. Myer, in closing, said in reply to a question that they had never made any experiments with the cooked banana. When one knew of the presence of these grains in the stools, it was not difficult to see them with the naked eye, but they readily escaped observation unless carefully looked for. They appeared as small black granules.

A Comparison of the Guaiac and Benzidin Tests for Invisible Hemorrhage in Diseases of the Digestive Organs.—Dr. Franklin W. White of Boston said that in comparison with a guaiac test, the Schlesinger and Holst modification of the benzidin test was from five to seven times as delicate for blood in watery solutions and gastric contents as the guaiac test, and about twice as delicate for blood in the feces. The chief advantage of the benzidin over the guaiac test was the greater value of a negative result in ruling out hemorrhage, the greater ease and rapidity of its performance, and the greater clearness of the color reaction in the feces.

Dr. Henry Wald Bettmann of Cincinnati took the extra precaution of excluding from the patient's diet all green vegetables for a few days prior to making the test.

Dr. John P. Sawyer of Cleveland said it was not easy to find assistants who could be relied upon to do this work, and the references we found in literature as to whether the benzidin test was negative or positive practically meant nothing unless we knew the men who carried out the work.

Dr. John A. Lichty of Pittsburg said that in cases of suspected gastric ulcer or carcinoma, the test for blood in the feces might prove negative in patients whose mixed diet had been stopped, and where the stomach had been put at rest by restriction to a milk diet. Under such conditions he did not always feel comfortable about the result of the test, and was rather inclined to believe that a positive reaction would have occurred if the hemorrhage had not been checked by diet.

Dr. White in closing said that in green vegetables, the oxidizing ferments were practically destroyed at the time

they passed through the alimentary canal, and he did not think it necessary to exclude them for special examination. He had found that green vegetables, even with the gastric contents, interfered very little with the test, and if we filtered and boiled the contents, we could safely allow them. In making the test, the finger should not be used to close the test-tube when it was shaken; rubber stoppers should preferably be used to avoid a possible positive reaction due to sweat, etc.

Management of Gastric Ulcer.—Dr. J. W. Bell of Minneapolis, in a paper on this subject, said the following conclusions seemed warranted: 1. That an early and complete diagnosis was the first essential in the successful management of gastric ulcer. 2. That all cases of acute gastric ulcer were amenable to proper medical treatment, the only exceptions being cases characterized by uncontrollable hemorrhage and perforation. 3. That all uncomplicated cases of chronic gastric ulcer were amenable to proper medical treatment and should be so treated. 4. That chronic indurated ulcers of long standing, involving especially the pyloric portion of the stomach, including their complications and sequela, frequently demanded surgical interference. 5. That the end results following gastroenterostomy for the relief of chronic ulcer were not satisfactory. 6. That the ideal surgical treatment of chronic indurated ulcer was excision in some form.

Dr. Jesse S. Myer of St. Louis said he had obtained his best results during the first week with the use of some form of soluble carhohydrate, and of late he had been using a prepared flour made of peas, lentils, and barley; these were partially dextrinized, and evidently formed no solid mass in the stomach. This food showed the finest possible division. It was first given in a perfectly liquid state, about the same consistency as milk, and then the quantity of flour added to it was gradually increased. Later on, one might add a little milk, and then gradually bring the patient up to the use of milk in the second week, and in the course of time add other foodstuffs.

Dr. J. C. Johnson of Atlanta said that in some cases in which the milk was badly borne, one might use one-third limewater and two-thirds milk, to which he added half a teaspoonful of bismuth and bicarbonate of sodium.

Dr. Gustav Futterer of Chicago said that in the treatment of ulcer cases we should not lose sight of the fact that they were anemic, and became more so after hemorrhage. Anemia played a prominent part in gastric ulcer, and in the treatment of these cases he considered it of the utmost importance to attempt at once to bring up the hemaglobin; if we did not do that, we delayed the healing of the ulcer, we prolonged the period of danger of hemorrhage and perforation, and later on of carcinoma. Rectal feeding the speaker regarded as unsatisfactory, even under the most favorable conditions.

Dr. Fenton B. Turck of Chicago referred to Lenhartz' method of treating gastric ulcer, and said that the use of meat in these cases, as recommended by him, had been of unqualified benefit. Meat was especially indicated because it was quickly digested, particularly when it was first treated by hydrolyzation. Discussing the question of operation for gastric ulcer, Dr. Turck called attention to the fact that Moynihan, in his recent writings, discouraged the idea of operating in the presence of hemorrhage, and personally he had become more and more convinced of the inadvisability of operating in the face of severe gastric bleeding.

Dr. Franklin W. White of Boston said he agreed entirely with Dr. Turck in regard to the question of hemorrhage and operation. In Boston they no longed advised surgical interference in acute gastric ulcer with dangerous hemorrhage, first, because the surgeons had found it difficult or impossible to locate the ulcer within a reasonable length of time; second, because almost every operation of this kind had thus far proved fatal.

Dr. John P. Sawyer of Cleveland said that in the treatment of acute gastric ulcer, he believed it advisable to give the stomach a short period of rest, and rely upon rectal feeding. In spite of what had been said, he still believed in the advantage of a certain period of complete physiological rest.

Dr. J. W. Bell of Minneapolis, in closing, said he agreed with Dr. Sawyer in regard to the advisability of giving the stomach at least a short period of rest after the occurrence of hemorrhage, especially in the management of acute gastric ulcer. The length of that period should depend on the nature of the case.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, May 18, 1908.

The President, Dr. Robert T. Morris, in the Chair.

Observations on a Case of Cancer of the Mouth.—Dr. C. Am Ende presented a man, 64 years old, who had been referred to him by the President, Dr. Robert T. Morris, and at whose request the case was shown. The man gave a history of having received an injury to the mouth about two years ago. This was immediately cauterized and then treated by various methods, but it failed to heal, and about a year later a whitish speck developed on the inner aspect of the cheek and gradually increased in size. The patient was treated by various physicians without resulting benefit, and he stated that he was refused treatment at the New York Skin and Cancer Hospital. When Dr. Am Ende first saw him, on December 29, 1907, there presented on the inside of the cheek an erosion somewhat larger than a silver dollar, deeper anteriorly than posteriorly, and covered by a firmly adherent, whitish, necrotic mass. There was a similar line of necrosis along the edge of the gum, which was inflamed and swollen. Removal of this necrotic tissue revealed an eroded, bleeding surface. One of the glands in the submaxillary region was enlarged and indurated and firmly adherent. Scrapings from the eroded surface were submitted to Dr. F. M. Jeffries, who pronounced them carcinomatous. The treatment, besides some bland local applications, consisted of exposure to the *x*-ray, twice weekly, first through the mouth and afterwards from outside the cheek. The internal treatment consisted of a teaspoonful of thyroidal fluid extract, three times daily, and thiosinamin, two grains daily, dissolved in the thyroidal extract. In addition to this the patient received one grain of thiosinamin hypodermically three times a week. Under this treatment the excruciating pain from which the patient had suffered soon subsided, and the local conditions rapidly improved. The erosion on the gum healed in about a month, and that involving the cheek was almost completely healed, although the new mucous membrane was not yet normal in appearance. The indurated gland in the neck was also considerably smaller. Dr. Am Ende, in reply to a question, said that injections of thiosinamin solution, in his hands, had not produced any appreciable pain; he was inclined to attribute such pain to the solvent rather than to the thiosinamin itself.

Remarks on the Ultraviolet Ray, High-frequency Currents, and Tabes.—Dr. Henry G. Piffard said that the papers and discussion that made up the symposium on progressive locomotor ataxia at the meeting of the Association in March had convinced him that there was still a great deal of misconception or lack of information among members of the medical profession in regard to certain radiological principles. For example, many were to-day using what they regarded as ultraviolet rays, and exploiting the therapeutic value of this agent, when as a matter of fact they were employing something entirely different. The ultraviolet rays belonged to the invisible rays of the spectrum; they became visible only through certain media, and their proportion was increased in certain kinds of light. Their penetrability through certain substances was limited: thus, the glass walls of a tube constituted a very

serious obstacle to their exit, and in spite of the fact that a certain writer had published an article entitled "Locomotor Ataxia Successfully Treated with Ultraviolet Rays," it was doubtful that they penetrated even through the entire thickness of the skin, and that these very superficially acting rays should penetrate the skin, the fascia, the protecting cartilaginous and bony walls of the vertebral canal, and influence the tissues of the spinal cord was to him utterly unbelievable. There were certain substances, however, such as quartz, water, ice, and rock salt, through which the ultraviolet rays readily passed, and it was well known that other substances, if exposed to the rays, would respond by the development of a luminosity and of a color quite different from that which they ordinarily possessed. To this condition the name fluorescence had been applied, and the use of such substances was one of the means adopted to render the presence of the ultraviolet rays manifest. Foremost among them was fluorescin; they also included various kinds of minerals, especially willemite and some of the calcites. The fluorescent quality of certain substances could also be demonstrated by other means than the ultra violet rays, such as the *x*-rays. Fluorescin, on the contrary, while extremely fluorescent under the action of the ultraviolet rays, failed to respond to the *x*-rays, and Dr. Piffard said he did not know of a single fluid substance that would fluoresce under the *x*-rays, while there were a good many that would fluoresce under the ultraviolet rays. The ultraviolet rays from a spark high tension electric were accompanied by still another class of radiations, which were distinct from both the *x*-rays and the ultraviolet rays; they had been called the Piffard rays, but thus far he had been unable to classify them. They could be demonstrated by means of the electroscope, and both physically and physiologically they were more active than the ultraviolet rays. They represented a form of radiation which we did not yet understand. In discussing high frequency currents, regarding which there seemed to be a great deal of misapprehension, Dr. Piffard said it was to d'Arsonval that we owed the introduction of high potential and high frequency currents into clinical medicine, and that in this country particularly attempts had been made to confuse the mind of the profession by giving the name of high frequency to currents which bore no physical relationship to them. They were originally developed out of some experiments made by Tesla, who was really one of the first to produce high frequency currents, while d'Arsonval was the first to utilize them. To produce such a current required something more than the mere terminals of a static machine or coil. The d'Arsonval high frequency currents were three in number, namely, the derived current or "shunt" current; the "autoconduction," and the "autocondensation" current. The essential features connected with the production of these currents were: (1) a suitable capacity, either Leyden jars or a flat condenser; (2) a solenoid (d'Arsonval) or a spiral (Piffard). If a static machine was employed as the source of high tension energy, the large jars were put in place, and the ends of the solenoid or spiral were connected to the outer armatures of the jars. After describing in detail the method of developing the current, the speaker said it had been quite extensively employed as a therapeutic measure, either for the purpose of affecting the general system, or to produce local changes only. The intensity of the current was under absolute control, and the effect, locally, might vary from a slight temporary congestion to absolute necrosis, which might be produced in a few seconds. Malignant or semimalignant lesions of the skin, epithelioma, lupus, lupus erythematosus, and sarcoma when of small size and conveniently located, had been destroyed in very many instances by the caustic spark from a metallic electrode connected to one terminal of a coil transformer, the other terminal being grounded or connected to the person of the patient. The little operation was exceedingly painful for the moment, but it lasted but two or three seconds at the utmost. There were many reports in confirmation of this treatment, chiefly from France, where it was first used by Rivière of Paris about seven or eight years ago. In concluding his remarks, Dr. Piffard said he would like to ask of the neurologists present what distinction they made between tabes and pseudotabes, to which reference had been made at the March meeting of the Association? In spite of painstaking investigation, he had been unable to find two neurologists who agreed as to the symptom-complex upon which the diagnosis of tabes dorsalis should be made. All agreed that it was unnecessary that all the symptoms should be present. Some argued that the Argyll-Robertson pupil should be present; others that it might be absent, and the same was true of the Babinski phenomenon and of the loss or diminution of the tendon reflex. It had appealed to him, the speaker said, very much as did the popular distinction made between the mushroom and the toadstool: if you ate it and lived, it was a mushroom, while if you died, it was a toadstool. In referring to the use of potassium iodide, Dr. Piffard said that while his experience with the use of the drug in tabes was limited, he had used it extensively in syphilis and had come to the conclusion that it should never be used in early syphilis and only rarely in late syphilis, of which tabes was now generally regarded as a manifestation.

Dr. Leonard Weber said the fulgurating process of dealing with cancers by the high frequency spark, which was first taken up as an adjuvant to surgery by de Keating-Hart of Marseilles, was now quite extensively tried at Munich and Heidelberg, where the operator worked in conjunction with the surgeon and applied the method to cancers of even large size, particularly those of the breast. The cancer was first thoroughly excised, and immediately following this, and with the patient still under complete narcosis, the high frequency d'Arsonval current was applied to the exposed tissues, until disintegration or necrosis of the surface was accomplished. This process usually gave rise to a decided reaction, with considerable edema and superficial tissue necrosis, together with a free flow of serum, followed by good healing. During any extensive cancer operation, with the more or less prolonged handling of the tissues entailed thereby, there was always danger of the cancer cells finding their way into the lymphatics or open veins, thus increasing the likelihood of metastases, and it was the claim of Hart and others that by the destructive action of the high frequency current the danger of metastases was largely avoided. The results thus far seemed to be very encouraging, and the treatment had recently been adopted at the Cancer Clinic at Heidelberg by Prof. Czerny, whose reputation for caution and conservatism was well known. Coming to tabes, Dr. Weber said that while he did not wish to pose as an expert on that subject, quite a number of cases had come under his observation, and during the years 1890 to 1894, at the Virchow Laboratory in Berlin, he had examined many hundreds of cross-sections of tabetic spinal cords in which the sclerotic process was well marked. These had shown, as was well recognized, that in a classical case of tabes, with all the characteristic symptoms, the nerve matter was replaced by connective tissue, which was distributed in wavy lines, and was not always confined to the posterior columns, the wasting disease having its origin in the posterior roots, as we now know. Marie and Guyon have tried to show that the virus of tabes—we did not know what it was and it was certainly not the *Spirochæta pallida* or its primary toxins—first affected the minute arteries and lymph spaces of the leptomeninges and thence interfering with the nutrition of the posterior roots and the posterior columns. There was first an atrophy of nerve-matter of ganglion fiber, followed by proliferation of connective tissue with its dire results. A sharp distinction must always be drawn between a classical case of tabes and one of *syphilis tabetica*, and it was the cases of latent

syphilis or syphilis of the spinal system that were favorably affected by mercury and potassium iodide. Upon a case of classical tabes these remedies had no effect, and the speaker said he could not recall a single case in which specific treatment had been of any avail whatsoever. The same was true of every other form of treatment, excepting the palliative effect of the electric current, according to Erb's method, hydrotherapeutic measures, and the Frenkel exercises. During the past three months, Dr. Weber said, he had been experimenting with a preparation of thiosinamin, which had been used these last ten years with some success for the purpose of dissolving cicatricial tissue. More recently it had been recommended as an adjuvant in the treatment of old strictures of the urethra, and personally the speaker thought he had seen some good results from it in three cases of urethral stricture in which he had resorted to it hypodermically. It then occurred to him that it might also prove of service in at least retarding the onward march of tabes, and he had tried it in three classical cases of at least five or ten years' standing. In two of these he had not as yet noticed any effect from the medication, but in the third the lightning-like pains from which the patient had suffered for five years disappeared after the sixth injection of 30 minims each. It was perhaps reasonable and justifiable, Dr. Weber said, to give this method of treatment a more extended trial in classical cases of tabes.

Diseases Conveyed by Insects—Dr. John B. Huber, in this paper, first discussed the common house fly. The tubercle bacillus, he said, was unquestionably distributed by flies, and it was equally true that flies helped greatly to swell the infant death rate. The infant mortality was greatest in fly time. There were few more congenial culture media for bacteria than milk, especially amidst the uncleanliness which obtained in the homes of many poor people. This fluid readily became contaminated with the excreta of flies, and with the noxious matter clinging to their feet. Tuberculosis was thus in some measure contracted by children, as was also dysentery and diarrhea. Typhoid fever was certainly disseminated by flies, although there were, of course, other sources of infection. Flies polluted the food and drink by means of the excreta which they carried from dungheaps, manure pits, and the like. They bred almost exclusively in fecal matter. They certainly disseminated cholera, and cases of tetanus seemed to have originated through their agency. Dr. Daniel D. Jackson, in the course of his work in behalf of the Merchants' Association of New York, in his report made the statement that the fly captured along the river front carried in its mouth and on its legs 100,000 fecal bacteria. The fly had been behind the large packing boxes down by the wharf, and was on his way to the nearest milk pitcher. We had long looked upon the house fly as a sort of necessary nuisance; a kind of scavanger which people must put up with who would persist in uncleanly habits. It was only recently, however, that we had come to look upon it as a dangerous pest. Dr. Jackson computed that in New York City it was the occasion of some 50,000 cases of sickness, of some 650 deaths from typhoid, and 7,000 deaths from diarrhea. We looked upon typhoid as an autumnal fever. If we counted back two months from the fall rise in typhoid deaths to the time when the disease was contracted, it would correspond exactly to the curve of prevalence of flies and to the curve of rise in deaths from diarrheal diseases of both children and adults. It was therefore erroneous to attribute these diseases to hot weather alone. Climatic conditions might predispose by reducing the vitality, but they were not the essential cause; temperature did not produce the specific germ—the casual agent—which invariably accompanied the disease. The activity of the house fly was in proportion to the temperature, and the times when this insect was most active corresponded exactly with the time of contraction of diarrhea and of typhoid fever. The body louse, it would seem, had possibilities of disease propagation beyond the pruritus and the local lesions it occasioned. An epidemic of relapsing fever had been related by Mackie in which the *Pediculus corporis* seemed a causative factor, and it was possibly also a factor in spreading typhoid fever. Among other disease-conveying insects considered in Dr. Huber's paper was the bedbug, which seemed to be associated with epidemics of smallpox. Tubercle bacilli had been found in the blood of the bedbug, and Metchnikoff believed that this insect formed an intermediate host, or at least an agent, for conveying intermittent fever, a disease very common in some parts of Russia.

Mr. Daniel D. Jackson, Director of Laboratories for the Department of Water Supply, said that during the Spanish war the fact was well demonstrated that flies took an active part in the dissemination of typhoid fever. His investigation had shown that of the cases of typhoid fever occurring in New York, about 30 per cent. were brought in from outside, and that the majority of all cases were due to the transmission of the disease through the medium of flies. In many sections of the city, the waterfront was strewn with fecal matter, and during the fly season these pests traveled back and forth from the wharves to the nearby residences, and thus they were a prolific source, not only of typhoid fever, but also of intestinal disorders in children. It could be demonstrated by a study of the statistics of the Health Department that deaths from these causes were most frequent in localities where filth and flies were most abundant.

The President, Dr. Robert T. Morris, said there was no doubt that many diseases were carried by insects, and he was glad to see that the subject was receiving the attention it did. In his surgical work he not infrequently saw phlegmonous lesions resulting from the bite of a flea or bedbug. If the streptococci and straphylococci were so readily transported by insects, there was no doubt that this might also be true of other bacteria. During one of his visits to the North, Dr. Morris said, he had gained a bit of information in connection with this subject which perhaps indicated that nature gave some compensation for what she did, and that the companionship of some of these insects was not always an unmixed evil. He had endeavored, during his travels, to instill some elements of cleanliness into his guides, particularly in regard to the body lice, with which they were infested, and he was told that the presence of these insects was a sign of good health. There seemed to be some evidence that body lice departed in the face of certain illnesses.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held March 17, 1908.

Dr. Herbert S. Carter in the Chair.

Cardiac Complications in Pulmonary Tuberculosis.—Dr. Lawrason Brown of Saranac Lake read this paper. He said that the position of the heart in patients with pulmonary tuberculosis depended directly upon the pathological changes that had taken place in the lungs, and the displacement of the heart was usually more pronounced when the right lung was affected, for the displacement was more often associated with contraction of one lung. When an extensive cavity formation had occurred on the right, when a pneumothorax or an effusion occurred upon the left side, when the right lung was the seat of fibrosis consecutive to pulmonary tuberculosis, or, as some affirmed, to pleurisy, the heart might be found entirely upon the right side. Meyer of Hoboken had three cases of dextrocardia, all in fibroid phthisis, two of which occurred suddenly. Pulmonary tuberculosis was probably by far the most fre-

quent cause of non-congenital dextrocardia, but this usually developed only when the left lung was slightly affected and was not bound down by pleuritic adhesions. Since Laennec announced that the heart was small in pulmonary tuberculosis many famous authorities had argued for and against this belief. Post-mortem observations were not entirely satisfactory for the solution of this problem, for some affirmed that changes in the heart could not be detected at necropsy, but surely the musculature was much more accurately measured. Dilatation of the heart occurred far less frequently than would be supposed, and, as was to be expected, late in the disease. The area of cardiac dullness was rarely changed in 1,289 patients at the Adirondack Cottage Sanatorium unless some valvular disease was present; in fact, all murmurs were classed as functional when there was no change in the area of cardiac dullness and when no definite cardiac symptoms were present. In 55 patients absolute cardiac dullness was noted as absent. A study of the hearts of these 1,289 patients showed that 65 per cent. presented slight variations from normal, while for the various stages of the figures were: Incipient, 63.5 per cent., moderately advanced, 64 per cent., and far advanced, 79 per cent. (only 24 cases). Functional murmurs were present in 6 per cent. of these 1,289 patients. Reduplication of the heart sounds had been rarely noted in the 1,289 cases. Irregularity of the heart action and the skip of the beat was infrequent in the early stages. The pulse in tuberculosis was a very valuable guide both for prognosis and in the regulation of exercise. Heart disease developing during pulmonary tuberculosis might be found in the order of frequency, in the pericardium, the endocardium, or the myocardium. Changes in the myocardium were not infrequent at autopsy but difficult to diagnose clinically. They were very rarely tuberculous in nature and consisted in fatty degeneration, fragmentatio myocardia, as well as hypertrophy of the muscle nuclei, brown induration, and interstitial myocarditis. Tuberculosis of the myocardium occurred about once in 1,000 tuberculous autopsies. It had little clinical significance and was practically never diagnosed except post mortem. The pericardium was said to be more frequently attacked in tuberculosis than the endocardium or the myocardium. In 1,300 patients at the Adirondack Cottage Sanatorium no symptoms suggesting pericardial involvement occurred except once. Tuberculosis ranked next to rheumatism in the etiology of pericarditis. Clinically endocarditis was found associated with pulmonary tuberculosis much more frequently than pericarditis, but at autopsy it was less frequent. In pulmonary tuberculosis it might be due to secondary organisms or to the tubercle bacillus. A history of rheumatism in tuberculous patients who presented signs of endocarditis was very common. He said he had no recollection of endocarditis developing in a patient with pulmonary tuberculosis. Thrombi of the right ventricle were rarely if ever diagnosed ante mortem. The great frequency of pulmonary tuberculosis made it probable that, other things being equal, a large number of patients with heart disease should have also pulmonary tuberculosis. In over 3,000 patients who had been closely followed for a number of years he had yet to see an instance where undoubted valvular disease developed in a patient with pulmonary tuberculosis. Mitral insufficiency was certainly the most frequent cardiac lesion in pulmonary tuberculosis. Stenosis of the mitral valve, far less frequent than insufficiency, had long been looked upon as antagonistic to pulmonary tuberculosis. Patients with mitral stenosis often did remarkably well. Aortic insufficiency was much rarer than many older authorities stated. In the 1,300 cases this lesion occurred twice. He had seen no instances of aortic stenosis. Pulmonary stenosis was rare. In summarizing, Dr. Brown said that pulmonary stenosis was always the primary disease, mitral insufficiency and aortic insufficiency usually the secondary. The most frequent cardiac lesion secondary to pulmonary tuberculosis in patients up and about was mitral stenosis. Pulmonary tuberculosis occurred more frequently in patients with pulmonary stenosis than in any other form of cardiac disease. Mitral insufficiency was associated with pulmonary tuberculosis more often than any other form of valvular disease, but aortic insufficiency was not very much less frequent. Aortic stenosis was rarely associated with pulmonary tuberculosis and pulmonary stenosis was infrequent in pulmonary tuberculosis. Involvement of several valves simultaneously was rare in these cases.

The Cerebral Complications of Ulcerative Endocarditis.—Dr. T. B. Futcher of Baltimore read this paper. During the past year he had under his personal care two very interesting cases of cerebral embolism complicating acute ulcerative endocarditis, and the subject matter of his paper was based chiefly on a summary of the main features presented by these cases, together with a brief analysis of the cases of cerebral embolism complicating acute or ulcerative endocarditis that had occurred in the wards of the Johns Hopkins Hospital since its opening in 1889. So far as he was aware, the only other cerebral complication of ulcerative or malignant endocarditis that occurred was a suppurative meningitis. The first case reported was of unusual interest owing to the rarity of the symptom complex. There was a condition of embolic or thrombotic obstruction of the posterior inferior cerebellar artery. Only about seven cases of this nature had been reported in the literature. As a result of the obstruction of this vessel the field of softening was always situated in the dorsal and lateral aspect of the medulla and always the same structures were more or less involved. These were as follows: (1) The lateral part of the reticular formation. (2) The descending root of the fifth nerve and its nucleus. (3) Gower's ventrolateral ascending tract. (4) The direct cerebellar tract. (5) The inferior cerebellar peduncle and the fibers going to it. The second case he reported was one which illustrated the type of cerebral lesion and group of nervous symptoms usually seen in embolism of heart disease, namely, blocking of one or other middle cerebral artery with a hemiplegia of the opposite side. The heart and brain were shown in this case.

The Clinical Features of Myocardial Disease.—Dr. Alfred Stengel of Philadelphia spoke on this subject. He said that every one must admit that there were many cases of myocardial disease that could not be recognized during life, and came to us as autopsical surprises. Again there were cases which, after the most painstaking care in making the examination, seemed to be cases of myocardial disease, but at autopsy were found not to be cases of myocardial disease at all. Notwithstanding these facts, a large proportion of the cases of myocardial disease was recognizable during life. In discussing the clinical aspects of myocardial disease he considered the question from two points of view: (1) of the heart itself and (2) of the individual pathological lesion. In regard to the first point, ever since Da Costa's and other papers had appeared the term "weak heart" had become a part of medical parlance. The condition of weakened heart might be due to a variety of causes, and was an expression of functional derangement. Weakening of the heart, or failure of the heart power, or chronic insufficiency of the heart, or hyposystolism, showed itself, in the first place, by symptoms more or less referable to the heart itself. These were often so vague that mistakes in

diagnosis were perhaps commonly made. The subjective symptoms were early expressions of this weakening of the heart muscle. As some put it, the myocardium began to resent the ordinary strains of life. He recalled the case of a man, sixty years old, who had curious attacks of pain referred always to the pyloric end of the stomach; the attacks usually came on in the middle of the night. Very hot water by mouth relieved him of these attacks, and he had accustomed himself to taking water at a very high temperature. After some study of this case he came to the conclusion that these attacks were primarily due to the condition of the myocardium. After careful observation and with but little medicine, this gentleman attained a better state of health. He was recently in the city and fell in with a friend of his, a physician, to whom he told his symptoms. This friend had surgical proclivities and urged him to have his gall-bladder explored at once. He consulted Dr. Janeway, who told him his trouble was situated more "northerly than the diaphragm." This gentleman kept his gall-bladder. These cardiac symptoms were referred to the pyloric end of the stomach; more commonly, however, oppression and weight were the earliest symptoms of myocardial disease. After the preliminary stages have been passed through, the patients began to show evidences of failing circulation. This was the mechanical result of failing heart muscle, when visceral manifestations occurred. Of the visceral manifestations hepatic symptoms were the most common. Enlargement or congestion of the liver often took place and might exist for a long time before evidences of failing compensation developed. Other peripheral lesions, such as occurred in valvular diseases, occurred in myocardial diseases, but were late in appearance. When one considered the failing circulation in the periphery in the form of cyanosis, or edema, or dropsical conditions, it was a fact that they occurred later in cases of myocardial disease than in valvular disease. Aside from the circulatory symptoms there were cases of myocardial disease in which the only symptoms were general in nature, such as nutritional and neurotic. He said he was convinced that nutritional and nervous symptoms and disorders were the earliest expressions in myocardial disease in many cases. Evidences of the cardiac condition might underlie failures in nutrition. He reported two cases of congenital defects accompanied by cyanosis, and said that there were many cases of myocardial disease accompanied with bad nutrition. The nutrition in cardiac disease was certainly to be studied and when interfered with in many cases first directed attention to the cardiac disease. With regard to the nervous manifestations, a neurasthenic condition had in many cases a cardiovascular basis for its persistence. There were a number of myocardial diseases which should be separated. First, he wished to consider myocarditis, pure and simple. Myocarditis had its origin in infectious diseases, or rheumatic fever, or some of the infections of later life. Myocarditis might also result from severe strains occurring in early life. Second, he wished to consider myocardial disease which was associated with sclerosis of the coronary vessels. Third, he wished to consider the degenerative conditions of the myocardium, such as fatty heart, and the fibroid changes which were associated with abdominal diseases. Another important condition to consider was syphilis of the heart muscle. Then there were a variety of other conditions, such as cardiac lesions following simple hypertrophy of the heart, or hypertrophies associated with nervous conditions, or in excessive alcohol drinkers, etc. In simple, or pure chronic myocarditis, there were the same symptoms that were said to be significant of a weakened heart in general. Often after typhoid fever there occurred a bradycardia; this was due to a myocardial weakness, an irregularity of the heart following an infection. The physical signs in myocarditis, pure and simple, were often distinct. The heart might reach to a great size. Quain had described the changes occurring in such hearts. In myocarditis there might be a notable enlargement of the heart. In many cases, of course, there was associated an hypertrophy of the muscle. In many cases of chronic myocarditis he said he had found an enlarged heart with inadequate apex impulse, as well as an inadequate wrist pulse. In the absence of fat about the heart, or pericardial effusions, or aortic stenosis, one usually considered a heart with a feeble impulse one that was significant of primary or chronic myocarditis. On the other hand, there was a type of cases in which the reverse of things occurred. Here the heart was enlarged, but instead of a feeble impulse there was a strong impulse. This was pointed out as being evidence that the heart muscle fibers were in a relaxed condition and gave a "slapping impulse" and there was a weakened condition of the heart muscle. There was much slack to be taken up, so to speak. With regard to the heart sounds, in pure chronic myocarditis, in the average case there would be prolonged vibrating first sound, which easily became "murmurish." Again, there was a group of cases associaed with sclerosis; these were associated with angina and gave paroxysms of asthma. These attacks did not occur spontaneously. The effect of exercise on the heart in developing an attack was the same as the effect of exercise of the leg muscles in developing cramps and weaknesses of the legs. The physical signs of myocardial disease associated with coronary sclerosis were not distinguishable from those occurring in myocarditis. Cases of idiopathic hypertrophy of the heart occurring in beer drinkers, in athletic persons, and other forms of chronic myocarditis resulting from prolonged overstrain, he believed could be recognized only by the general cardiac symptoms. When one studied cases of pure degeneration of the heart, this would be found to be one of the most difficult fields in diagnosis. A diagnosis of fatty degeneration of the heart, except as a conjectural diagnosis, was impossible. There was another form of degeneration of the heart he said he wished to allude to, *i.e.* a degeneration, fibrous in character, occurring in cases of fibroid tumors of the uterus and adnexa. A number of cases of sudden death had occurred after a myomectomy because of this condition of the heart muscle. There was considerable enlargement of the heart muscle associated with syphilitic disease of the heart. Dr. Stengel then took up the physiological consideration of cardiac action. Disturbance of heart rhythm might occur in various ways. There might be disturbances of rhythmicity; this was best shown in persons who were not particularly ill. Irregularity of the heart might occur when there were disturbances in conductivity of impulses from the venous sinus of the auricle, or when there were disturbances in contractility of the heart muscle. Two types of irregularity might be recognized. First, that type in which a beat of the heart occurred: then before the regular interval the second beat, followed by a long interpause. Second, that type in which a beat of the heart came at a time removed by twice the average space. This was the so-called extrasystolic space with compensatory pause. These extrasystolic spaces originated in the ventricle itself. In heart block the want of correlation between the auricle and ventricle did not necessarily depend upon any block in conductivity. There might be a partial block due to functional conditions. It had been shown that digitalis could produce disturbances of conductivity in the bundle, and so produce disturbances in rhythm. In the same category belonged toxic conditions and reflex disturbances, perhaps indirectly influencing the

cardiac mechanism. In conclusion he said that a distinct effort should be made to diagnose cases of either pure myocarditis, or pure myocardial degeneration, or even myocardial degeneration in association with arteriosclerosis.

Dr. W. Gilman Thompson, referring to Dr. Brown's remarks about the malposition of the heart taking place in the course of tuberculosis, said it was interesting to see how much malposition of this organ could exist without any special functional disturbances. A few years ago an interesting series of experiments were made at Bellevue by the late Dr. H. P. Loomis, producing an artificial pneumothorax with nitrogen gas in order to arrest disease in portions of the lung by compression. Nitrogen gas was used because it was not absorbed for a long time. When introduced on the left side Dr. Thompson had seen the heart move over to the opposite side in the course of twenty minutes or more and without producing any special disturbances or discomfort to the patient, and without the production of any dyspnea. In tuberculosis, when the displacement occurred, it was a slower process and gave rise to very little disturbance. With regard to heart disease and tuberculosis, he said there was a distinct relationship between cause and effect. Although many statistics appeared, he thought they should tell more about the patients and the possibility of the cardiac lesion antedating the tuberculous process. The statistics at Bellevue Hospital showed many more instances of heart disease in association with tuberculosis; these patients had been subjected to deprivations, were alcoholic, or syphilitic, and there were many other underlying factors which weakened the resisting powers of the patient, and so they acquired tuberculosis more readily. Dr. Thompson said he was particularly interested in Dr. Stengel's classification of the varieties of myocarditis. This was a very pertinent subject and one of the most difficult problems before them presented itself when called to see and diagnose an early myocarditis in a patient who had not been previously subjected to examination. Many patients came with an irregular heart, or with symptoms, subjective or objective, and the physician would be asked to decide the severity of it. There were seldom clinical symptoms which might not be simulated by toxic conditions in the early state. When there was an advanced arteriosclerosis the diagnosis was more easily established. But it was difficult to diagnose early myocardial changes, and to discriminate between a true myocarditis and toxic conditions. In the latter the cause might be due to too much alcohol, too much tobacco, or to autointoxication. A diagnostic factor was the improvement which followed the regulation of the habits of life in such cases. Another diagnostic factor was the accompanying phenomenon of thickening of the arterial walls in the presence or absence of nephritis or other diseases. But even in a very careful study of these cases one was often led astray. The age of the patient might be considered an aid. Bradycardia might result from a neuritis of the vagus, or from other causes. This was a matter of clinical debate and was not one of actual demonstration.

Dr. Alexander Lambert said he was particularly interested in Dr. Stengel's remarks. He believed that they could tell the cardiac condition by the sounds of the heart to a certain extent. In the hearts of those who had suffered from acute rheumatism or acute diseases like diphtheria, or other infectious diseases, he believed they would discover this gallop rhythm, and patients with such a form of myocarditis would have hearts going on to brown atrophy or other fibroid changes. In any severe illness he advised against considering subjective or objective symptoms, but they should listen to the heart and see if any myocardial changes existed. Test with the ear and see whether on any extra exertion the heart could stand the strain, and whether the patient was comfortable or not. But if after extra exertion there was distress, shortness in breathing, etc., then one must decide that there was a myocardial change which followed an acute infectious disease. In looking over the reports of more than 125 autopsies at Bellevue Hospital, he had not found a single instance where a normal heart was found in an alcoholic. Degeneration predominated in the great majority of the cases. The young silent heart was a good heart.

Dr. Henry Koplik said that diseases of the heart in adults differed very strikingly from diseases of the heart in children. The management of diseases of the heart in children seemed to be a field of work in itself. It was a rare thing to see a child suffering from myocarditis, pure and simple, such as was seen in the adult. Myocarditis was sharply divided in children into those instances complicating or immediately following acute infectious diseases of the heart. Syphilis, alcoholism, and arteriosclerosis were not met with in children as they were in adults. The heart symptoms following acute infectious diseases, such as were mentioned by Dr. Stengel, if present in children would be most serious. For instance, in diphtheria, swelling of the liver, pain in the stomach, vomiting, etc., made the condition a very severe one to deal with. In children the myocardial condition was a serious one. Dr. Stengel had mentioned swelling of the liver, which might exist for a long time, and yet the patient be comfortable; but in children this would make them face a very serious situation. Chronic myocarditis in children with symptoms referable to the liver was always serious. The nutritional disturbances mentioned by Dr. Stengel as occurring in adults must be a very rare condition in children.

Dr. Morris Manges presented specimens showing an acute ulcerative endocarditis and hemorrhage into the brain. Headache played the most prominent part in the case, and it was very natural to assume the presence of a pachymeningitis with hemorrhages. The patient was found one morning in coma. The left pupil was the size of a pin point, while the right pupil was dilated. There was a right-sided palsy and lack of tactile sense. At the base of the brain was found an enormous hemorrhage extending as far back as the cord and as far forward as the chiasm. The cut section showed the hemorrhage to be in the island of Reil and the right lateral vantricle was filled with clot. Two hemorrhages were demonstrated; the greater was in the island of Reil; this worked its way through the Sylvian fissure up to the middle line.

Dr. L. F. Bishop said a very important fact had not been mentioned by the speakers, that there were many symptoms that in the past were supposed to be due to myocardial disease, but in the light of studies of hundreds of cases were now known to be due to peripheral disease with reflex symptoms referable to the heart. A study of the peripheral circulation would often free the heart from any implication of myocarditis.

Dr. T. B. Futcher said that he knew of no instances of hemorrhage occurring in connection with ulcerative endocarditis, such as occurred in the case described by Dr. Manges.

Dr. Lawrason Brown said that among 1,300 cases there were but six of valvular disease, four mitral and two aortic insufficiency. In five cases the cardiac condition unquestionably antedated the pulmonary. There was nothing that led him to believe the tuberculous infection had anything to do with the production of the cardiac lesions. Five or six cases sent to the sanatorium with the diagnosis of pulmonary disease were really cardiac disease.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Aids to Tropical Medicine. By Gilbert E. Brooke, M.A., Cantab., L.R.C.P., Edin., D.P.H., F.R.G.S., 16mo, 163 pages, cloth; illustrated; $1.00 net. William Wood & Co., New York.

Aids to Ophthalmology. By N. Bishop Harman, M.A., M.B., Cantab., F.R.C.S., Eng. 16mo, 165 pages, cloth; illustrated; $1.00 net. New York: William Wood & Co.

A Textbook of Nervous Diseases and Psychiatry. By Charles L. Dana, A.M., M.D., LL.D. 8vo, 782 pages, cloth; illustrated; $5.00 net. New York: William Wood & Co.

Venoms, Venomous Animals, and Antivenomous Serum Therapeutics. By A. Calmette, M.D. 8vo, 403 pages, illustrated; cloth; $5.00 net. New York: William Wood & Co.

Operative Midwifery. By J. M. Munro Kerr, M.B., C.M., Glas. 8vo, 705 pages, cloth; illustrated; $6.00. New York: William Wood & Co.

Handbook of Help for Persons Suffering from Pulmonary Tuberculosis. Department of Health, City of New York. 32mo, 62 pages, paper. New York: The J. W. Pratt Co.

Report from Pathological Department, Central Ind. Hosp. for Insane. 8vo, 292 pages, cloth; illustrated. Indianapolis, Ind.: Wm. B. Burford.

High Frequency Currents. By Frederick Finch Strong, M.D. 8vo., 282 pages; cloth; illustrated; $3.00. New York: Rebman Company.

The Campaign Against Tuberculosis in the United States. By Philip P. Jacobs. 8vo, 467 pages; cloth. Charities Publication Committee, New York.

Pathogenic Micro-Organisms, Including Bacteria and Protozoa. By William Hallock Park, M.D. 8vo, 642 pages; cloth; illustrated. Lea & Febiger, Philadelphia, Pa.

Therapeutics: Its Principles and Practice. By Horatio C. Wood, M.D., LL.D. 8vo, 778 pages; cloth; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

An Alabama Student, and Other Biographical Essays. By William Osler, M.D., F.R.S. 8vo, 333 pages; cloth; illustrated. Oxford University Press, American Branch, New York.

Genito-Urinary Diseases and Syphilis. By Edgar G. Ballenger, M.D. 8vo, 276 pages; cloth; illustrated. E. W. Allen & Co., Atlanta, Ga.

A Manual of Clinical Diagnosis. By James Campbell Todd, Ph.B., M.D. 12mo, 319 pages; leather; illustrated; $2.00 net. W. B. Saunders Company, Philadelphia, Pa.

Surgery of the Ureter. By Benjamin Merrill Ricketts, Ph.B., M.D., LL.D. 12mo, 244 pages; cloth. Cincinnati, Ohio.

Operative Surgery. By Warren Stone Bickham, M.D., Phar.M. 8vo, 1206 pages; cloth; illustrated; $6.50 net. W. B. Saunders Company, Philadelphia, Pa.

The Age of Mental Virility. By W. A. Newman Dorland. 12mo, 229 pages; cloth. The Century Co., New York.

Laboratory Guide for Histology. By Irving Hardesty, A.B., Ph.D. 8vo, 194 pages; cloth; illustrated; $1.50. P. Blakiston's Sons Co., Philadelphia.

Untersuchungen über Zichorie. Von Dr. Ferdinand Hueppe. 8vo, 37 pages; paper; 1 mark. Verlag Von August Hirschwald, Berlin, Germany.

Spectacles and Eyeglasses. By R. J. Phillips, M.D. 8vo, 91 pages; cloth; illustrated; $1.00 net. P. Blakiston's Sons Co., Philadelphia.

Psychiatrische Diagnostik. Von. Prof. Dr. Raecke. 12mo, 146 pages; cloth; illustrated; 3 marks. Verlag von August Hirschwald, Berlin, Germany.

Erdsalzarmut und Entartung. Von Hofart Dr. Med. C. Röse. 8vo, 156 pages; paper; illustrated; price M.2.40. Verlag von Julius Springer, Berlin, Germany.

Einfache Hülfsmittel zur Ausführung Bakteriologischer Untersuchungen. Von. Dr. R. Abel und Dr. M. Ficker. 16mo, 57 pages; cloth. Curt Kabitzsch (A. Stuber's Verlag).

The Writings of Sir William Broadbent. Edited by Walter Broadbent, M.D., M.R.C.P. 8vo, 444 pages; cloth. Oxford University Press, American Branch, New York.

A Common-Sense View of the Mind Cure. By Laura M. Westall. 12mo, 124 pages; cloth; illustrated; 75 cents net. Funk & Wagnalls Company, New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 21, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	499	148
Diphtheria	361	28
Measles	172	4
Scarlet Fever	157	5
Smallpox	—	—
Varicella	153	—
Typhoid Fever	66	6
Whooping Cough	38	2
Cerebrospinal Meningitis	6	5
Malarial Fever	—	—
Totals	1452	198

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending November 20, 1908:

SMALLPOX—UNITED STATES.

		Cases.	Deaths.
Arkansas, Sulphur Rock	Aug. 25–Nov. 9	14	..
California, Cedarville	July 18–Nov. 6	5	..
San Francisco	Oct. 15–31	19	..
District of Columbia, Washington	Oct. 24–31	7	..
Illinois, Springfield	Oct. 22–29	2	..
Indiana, Elkhart	Oct. 24–31	3	..
Lafayette	Oct. 26–Nov. 2	4	..
Terre Haute	Oct. 31–Nov. 7	1	..
Kansas, Topeka	Oct. 18–24	1	..
Kentucky, Covington	Oct. 24–Nov. 7	2	..
Maine, Canadian Border	Nov. 8	12	
Montana, Butte	Oct. 20–27	4	
Ohio, Cincinnati	Oct. 23–30	1	..
Tennessee, Nashville	Oct. 24–31	1	
Stanton and vicinity	Sept. 10–Nov. 9	21	..
Washington, Spokane	Oct. 24–31	3	..
Tacoma	Oct. 18–25	1	
Wisconsin, Manitowoc	Oct. 24–31	2	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Sept. 19–Oct. 3	5	1

SMALLPOX—FOREIGN.

Arabia, Aden	Oct. 12–19	..	15
Ceylon, Colombo	Sept. 19–Oct. 3	38	10
India, Bombay	Oct. 6–13	..	2
Calcutta	Sept. 12–26	..	4
Indo-China, Saigon	Sept. 19–26	2	
Italy, General	Oct. 23–29	14	
Naples	Oct. 17–24	4	
Mexico, Veracruz	Oct. 24	1	
Peru, Lima	Oct. 19	8 cases in the lazaretto	
Russia, Moscow	Oct. 10–17	9	2
St. Petersburg	Sept. 26–Oct. 10	14	4
Spain, Valencia	Oct. 17–24	2	
Vigo	Oct. 17–24	..	1
Zanzibar, Zanzibar	Sept. 14–21	..	1

YELLOW FEVER.

Brazil, Menacs	Sept. 26–Oct. 3	..	2
Ecuador, Guayaquil	Oct. 3–10	..	1
Mexico, Veracruz	Oct. 27	1	..

CHOLERA—INSULAR.

Philippine Islands, Manila	Sept. 19–26	314	184
	Sept. 26–Oct. 3	67	33
Provinces	Sept. 19–26	1,122	745
	Sept. 26–Oct. 3	1,666	977

CHOLERA—FOREIGN.

Ceylon, Colombo	Sept. 19–26	2	..
China, Shanghai	Oct. 13–	..	Present.
India, Calcutta	Sept. 12–26	..	13
Rangoon	Sept. 26–Oct. 3	..	5
Indo-China, Cholen	Sept. 19–26	7	7
Japan, Moji	Oct. 22	..	Present.
Russia, St. Petersburg	Oct. 27–Nov. 2	142	80

PLAGUE.

Brazil, Maranhao, State	Oct. 20	..	Present.
Chile, Iquique	Oct. 6	1 case in the lazaretto	
Ecuador, Guayaquil	Oct. 3–10	..	1
India, General	Sept. 19–26	3,033	2,162
Bombay	Oct. 3–13	..	10
Calcutta	Sept. 12–26	..	12
Rangoon	Sept. 26–Oct. 3	..	2
Indo-China, Cholen	Sept. 19–26	9	8
Saigon	Sept. 19–26	12	9
Peru, General	Sept. 29–Oct. 7	28	16
Callao	Sept. 29–Oct. 7	1	1

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Original Articles.

OVERCOMING THE PREDISPOSITION TO TUBERCULOSIS AND THE DANGER FROM INFECTION DURING CHILDHOOD.*

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NEW YORK.

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THAT there may be occasionally a direct bacillary transmission from the tuberculous parent to the child has been demonstrated sufficiently to permit of no further dispute. Yet the number of such cases is insignificant compared with the frequency with which a predisposition to tuberculosis in particular, and to other diseases in general, is transmitted to the offspring of a tuberculous mother or father. That this predisposition leads so frequently to a tuberculous disease can, of course, be easily accounted for by the many chances the child has of a post-natal infection as a result of the tuberculous environment it is forced to live in. The exposure to infection is, of course, greatest when the mother is tuberculous.

In the second portion of this paper we shall enter more fully into the details of exposure to post-natal infection during childhood. For the present we will devote our attention to overcoming the predisposition inherited from a tuberculous parent.

In what does this predisposition consist? It is a general enfeebled condition without a distinct pathological lesion, all the organs possessing perhaps less than the normal resisting power to the invasion of any disease. I believe the words physiological poverty are more than any others explicit of the condition of a child with a predisposition to tuberculosis and other diseases inherited from father or mother.

The child of a tuberculous mother, conceived and born while the mother is suffering with pulmonary tuberculosis in the advanced stages, has, of course, less chances for life and health than in cases where conception takes place in the incipient stage of the mother's disease. When both parents are tuberculous at the time of the conception of the child, the offspring is naturally more strongly predisposed to contracting tuberculosis. The predisposition is usually least marked in the earlier years of childhood when the mother was healthy and only the father tuberculous at the time of conception.

But whoever may be the tuberculous parent, father or mother, or whether the progenitors have been in the earlier or later stages of the disease, the overcoming of the predisposition to tuberculosis in infancy and childhood must begin with the child in utero. The mother who fears the transmission of a tuberculous predisposition to her child must throughout the child-bearing period live in the best possible hygienic environment, in the purest air obtainable, and, from the earliest recognition of her condition, refrain from the use of constricting garments. She should breathe deeply and often; in fact, she should take regular breathing exercises until the desire for deep breathing becomes natural with her. The kind of breathing exercises which a pregnant woman can take without any fear of harm in her condition, but which on the contrary will benefit her, are the following: She takes a deep inhalation and during this act raises her shoulders, rolls them backward and holds the breath for three or five seconds while in this position (Fig. 9). Then she exhales while moving the shoulders forward and downward. This exercise, which she can take from three to five times every half hour, she should, of course, practise in pure air, preferably near the open window or when outdoors.

While we will return to the subject of respiratory exercises later on, it might be interesting to note here the benefit which the lung of the mother of the future child will derive from deep breathing. Under ordinary conditions we never inhale or exhale more than about 500 c.c. of air, which represents the tidal volume, or tidal air. When we inhale deeply, we are able to take in 1,500 c.c. of air (complemental volume or complemental air), and about the equal amount of supplemental or reserved air can be expelled by making the expiratory exercises corresponding in effort to the inspiratory exercises. It must be evident that not only the respiratory, but also the circulatory system, in fact the whole organism, can be but benefited by such practise of deep breathing.

The living and the sleeping room of the pregnant woman should always be well ventilated and at least one window should be kept open in the bedroom even in cold weather. While it is hard to demonstrate that the fear so many people have of night air is indirectly responsible for a good deal of tuberculosis, I nevertheless believe this to be the case. Some people will sleep in a small bedroom, often several individuals together, with windows tightly closed, breathing the same air over and over again, and thus poisoning themselves with the toxic products of their own and others' exhalations.

It is difficult to write on the subject of tuberculosis of childhood without touching upon the social problem. How can the pregnant woman, obliged to labor in a factory, or workshop, often until the last few hours before her confinement, carry out the hygienic instructions just given which she should do in order to bear a child vigorous and strong with sufficient natural resisting power never to contract tuberculosis?

*Read before Section IV. of the International Congress on Tuberculosis; "Tuberculosis in Children; Etiology, Prevention and Treatment," A. Jacobi, M.D., LL.D., president, Washington, D. C., October 1, 1908.

There should be a law prohibiting work in unsanitary, dusty and badly ventilated environments for all people, but particularly for women and children. The pregnant woman should be obliged to cease work in a factory or workshop two months before her confinement and not be permitted to reenter until one month after her confinement and her complete restoration to health.

A typical description of such conditions where pregnant women work in factories until the very last moment can be found in Mr. John Spargo's book, "The Bitter Cry of the Children." Unfortunately, poverty compels them not infrequently to adopt most pitiful means to hide their condition so that they may not be discharged. Perhaps they do not fear so much the few weeks of absence which their condition demands. What they mostly fear is permanent discharge—"losing the job"—and then being obliged to hunt for another. But, as Mr. Spargo very tersely puts it, "the consequences are too serious alike to mother and child to justify legislative neglect."

That there is also a field for the exercise of the greatest humanitarian consideration on the part of the employer must be evident, and the philanthropists who will create an institution destined to succor during a few months after childbirth any family depending also upon the mother's earning, can rest assured that many a life will thereby be saved.

The newly born child is as much in need of pure air as the grown up person, and while in early infant life the system requires more warmth, the air the child is to breathe must be pure, free from dust and other impurities. The lying-in room and nursery should be well ventilated and their temperature well regulated. The atmosphere in such rooms should be warm enough, but never be too hot nor too dry.

As the young child grows, it should gradually become accustomed to cooler air. The habit of enveloping the child's face in a thick veil when it is taken out for an airing is absurd, and if veiling is used at all, it should be thin, permitting the air to have access to the face. As the child grows up attention should be paid to its breathing. It should be noted whether it breathes through the nose as it should, or whether the nose seems obstructed and it breathes with open mouth. It must be remembered that mouth breathing in children is a predisposing cause to frequent colds, to bronchitis and similar affections, all of which in many instances must be considered forerunners of consumption. Mouth breathing in children is caused, as a rule, by certain growths in the throat (adenoid vegetations) and sometimes by enlarged tonsils, or by polypi in the nose. Besides the deleterious influence on the child's respiratory system, adenoid vegetation may also result in difficulty of hearing, consequent impairment of the intellect and even in actual deformities of the jaw. Adenoids and all other obstructions to free breathing should be promptly removed by timely operations.

When a child, because of its delicate constitution, is susceptible to frequent colds so that one may hesitate to take it much outdoors, it should be borne in mind that fresh, pure air really does not give colds, and what are commonly known as colds are often an infectious disease due to a specific microorganism which fastens itself more readily on a delicate system. To overcome such so-called susceptibility to colds, one should resort to the judicious use of cold water.

From the tenth to the twelfth month one should accustom the child gradually to cold baths. The best time to begin is after its daily warm bath. Rub the child a few times with the hands dipped in cold water, and then wipe it rapidly. By and by one may begin with cold sponging, and later with a little douche. In the use of cold water it is absolutely necessary that the reaction should follow rapidly. This reaction, as is well known, is manifested by a pleasant warmth perceived by the child, and is made visible externally by a reddish appearance of the skin. Whenever cold water is applied to the skin one will notice at first a certain whiteness or pallor, which is caused by the contraction of the external blood-vessels. The return of the blood to the external surface causes the reddening of the skin. Whenever reaction is lacking or tardy, the advice of the physician should be sought.

Of course, it goes without saying that a child should always be properly dressed. In order that its lungs may develop to the fullest extent it must not be hindered by restricting garments, particularly not by tight neckwear (constricting collars and bands). Furthermore, it must be remembered that to dress the neck too warmly lessens the power to resist taking cold when there happens to be a change in the atmosphere. The less one is accustomed to bundle up the neck, the more freely will he breathe and the less will he be likely to take cold.

When a girl develops into a young woman, one should bear in mind that the tightly laced corset is one of the most injurious garments which can be worn. Not only is free and natural breathing interfered with by this article of dress, but indigestion and disturbances in the circulation follow excessively tight lacing. Anemia, or poverty of blood, so often observed in young girls, can very frequently be ascribed to this unnatural mode of dress, which does not permit either a free circulation or sufficient oxygenation of the blood.

I reproduce here three pictures, better to illustrate the result of excessive lacing. Figure 1 shows the

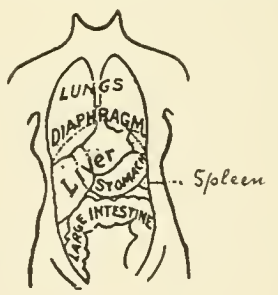

Fig. 1.

situation of the organs in chest and abdomen in a normal thorax. Figure 2 shows lungs, liver and intestines as they appear in a thorax constricted by wearing a tightly laced corset for a number of

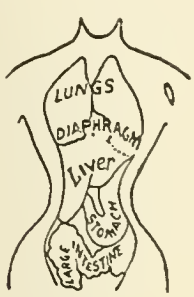

Fig. 2.

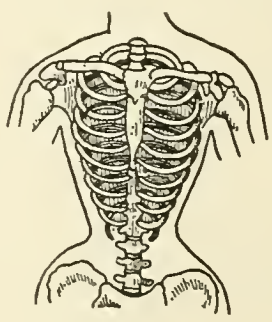

Fig. 3.

years. Figure 3 shows the skeleton of a chest deformed by tight lacing.

As soon as the intelligence of the growing child

will permit, it should be taught to breathe deeply, and later on be taught to take the following breathing exercises, which it should learn to love as the average boy or girl loves general gymnastics: In front of the open window, or out of doors, it should assume the position of the military "attention," heels together, body erect, and hands on the sides. With the mouth closed it takes a deep inspiration (that is, breathing in all the air possible), and while doing so raises the arms to a horizontal position (Fig. 4), remains thus holding the air inhaled for from four to five seconds, and while exhaling (breathing out) brings the arms down to the original position. The act of exhaling, or expiration, should be a little more rapid than the act of inspiration.

Fig. 4.—Exercise A.

The act of inhalation occupies about four, the act of exhalation about three seconds, and as has already been said, the act of retention of the air about five seconds. The child should be taught to count mentally during these three acts so as to be systematic about holding the air. One can give two upward and two downward movements of the wrist joints counting four, and on the fifth second lower the arms and begin to exhale.

When the first exercise (A) is thoroughly mastered one may begin with the second exercise (B). One places the arms one above the other, in front of the chest, giving the hands a position as though wanting to tear open the chest (Fig. 5).

Fig. 5.—Exercise B.

Then hands, arms, and shoulders make a backward movement (the fingers remaining bent) while one takes a deep inhalation, counting again four by tapping the chest four times with both hands, and at the fifth second one starts to exhale, bringing the hands and forearms into the position from which they started. This exercise has the advantage that it can be taken in the sitting position, or even when lying down on the back.

The third exercise (C) consists in raising the arms from the sides to the horizontal and then above the head (Fig. 6), taking a deep inhalation

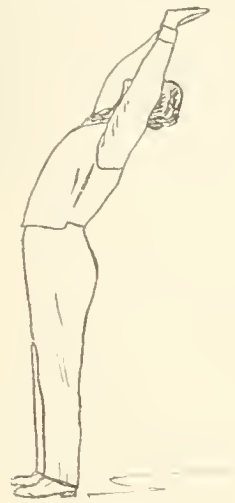

Fig. 6.—Exercise C.

during this act; then bending backward as far as one can and remaining in that position four seconds while retaining the air, counting the seconds by moving the hands alternately, twice forward and twice backward, and on the fifth second one exhales gradually while resuming the original position. During this exercise it should be borne in mind that when the arms are raised until the hands join, one should not bring the arms close to the head, but rather form a circle above the head by bending the arms outward enough so that the meeting of the index fingers and thumbs form a triangle.

The fourth exercise (D) is for the purpose of bringing the abdominal muscles also into play, or in other words, combining abdominal and chest breathing. To this end one assumes an erect position, like the beginning of all the exercises, with the hands meeting in front, with the little fingers and the edge of the palms touching the abdominal muscles (Fig. 7). While taking a deep inspiration raise

Fig. 7.—Exercise D.

the diaphragm, concentrating all attention on this act, and while doing so move the joined hands upward, sliding them along the thorax up to the chin, then turning them and continue to raise them until they are above the head, like Fig. 6. Bend backward

during the four seconds while retaining the air and then exhale lowering the arms gradually to the horizontal and to the original position of "attention."

The fifth breathing or respiratory exercise (E), which may also be called a dry swim, requires more strength and endurance. It should not be undertaken until the others have been practised regularly several times a day for a few weeks, and until an evident improvement in breathing and general well-being has been observed. One takes the usual military position of "attention" and then stretches the arms out as if in the act of swimming (Fig. 8),

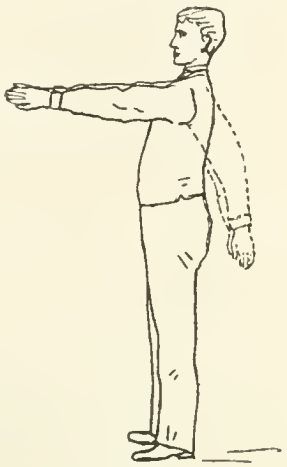

Fig. 8.—Exercise E.

the backs of the hands touching each other. During the inspiration one moves the arms outward until they finally meet behind the back; remaining in this position for the usual four seconds, counting by moving the hands while retaining the air, and on the fifth exhale bringing the arms forward again, ready to start for another swim; or if this is the end of the dry swim, the arms return to the original position of "attention." This somewhat difficult exercise can be facilitated and be made more effective by rising on the toes during the act of inhalation and descending during the act of expiration.

It will be seen that with the aid of these five respiratory exercises every muscle of the body, from the nostrils down to the toes, is put into play. The face alone is at rest and can serve as an indicator that the exercises are properly done, for it must be borne in mind that they must be taken

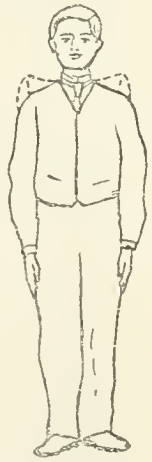

Fig. 9.—Exercise F.

with the muscular system relaxed and all unnecessary contraction of the muscles or tremor-like movements must be avoided.

Of course, when out of doors one cannot always take these exercises with the movement of the arms without attracting attention. Under such conditions one assumes quietly a position similar to "attention," raises the shoulders, making a rotary backward movement during the act of inhaling (Fig. 9); remain in this position holding the breath for four seconds, and then exhales while moving the shoulders forward and downward, assuming again the normal position. This exercise (F) can be easily taken while walking, sitting, or riding in the open air.

Young girls and boys, and especially those who are predisposed to consumption, often acquire a habit of stooping. To overcome this, the following exercise (G) is to be recommended. The child make his best effort to stand straight, places his hands on his hips with the thumbs in front and then bends slowly backward as far as he can during the act of inhaling (Fig. 10). He remains in

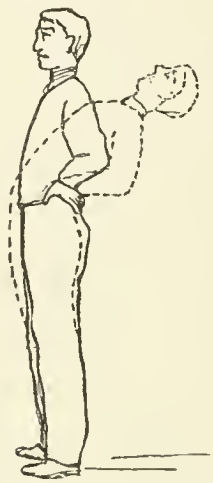

Fig. 10.—Exercise G.

this position from four to five seconds while holding the breath, and then rises again somewhat more rapidly during the act of exhalation, assuming the original position with hands on hips.

The following general rule concerning breathing exercises should always be remembered. Commence with the easier exercises (A), and do not begin with the more difficult ones until the former are completely mastered. Take from four to six respiratory exercises (one of A, B, C, D, E, or F), or when outdoors simply exercise F, four to six times every half hour or hour, or at least four to six times a day and on rising in the morning and retiring at night. Continue this practice until deep breathing has become a natural habit. These exercises should always be taken in an atmosphere as fresh and as free from dust as possible. Never take these breathing exercises when tired, and never continue so long as to become tired.

These exercises are, of course, destined for children who are not as yet tuberculous, and they should be taught gradually and according to the strength, development, and understanding of the child. It must be evident that these exercises, which I believe are of incalculable benefit as a means of helping a child to overcome a tuberculous predisposition, are not indicated in all cases. They can do harm if the child is very delicate and not judiciously advised and guided in the gradual development of its physique in general. They will never be harmful in the healthy child if not overdone. Children as a rule take kindly to these exercises, and their love for fresh, pure air and distaste for foul air becomes very strongly developed. There should be no fear that in so-called flat-chested children these exercises can do harm. It is in these

very cases that breathing exercises are indicated, for it must be remembered that in young children the bony structure yields to the pressure exercised from within. Thus with the aid of such respiratory exercises a flat or hollow-chested child can develop into a strong broad-chested man or woman.

It is for all these reasons that I plead to make breathing exercises a regular and frequent practice in all schools, so as to develop all the children's chests and bodies in general and make their systems as resistant as possible to the bacillus of tuberculosis. As will be seen from the careful study of the movements described in these exercises, all the muscles of the body are exercised, and without any violence.

As an additional means of developing the lungs of children, particularly in school children, we cannot too strongly recommend the frequent practice of singing and recitation in the open air. Many careful observers have noticed the value of such exercises, but particularly Barth, in Koslin (Germany). He has made a careful study of the effects of singing on the action of the lungs and heart, on diseases of the heart, on the pulmonary circulation, on the blood, on the vocal apparatus, the upper air-passages, the ear, the general health, the development of the chest, on metabolism, and on the activity of the digestive organs, and has come to the conclusion that singing is one of the exercises most conducive to health. Considering the fact that it can be practised everywhere (where the air is pure) or at any time, without apparatus, it should be much more cultivated than it actually is. The German military authorities, who have the reputation for instituting all exercises which tend to invigorate the soldier, have of late years encouraged singing during marches of all troops. Visits to zoological gardens, botanizing tours, geological excursions, and mountain climbing should form an important part of the curriculum throughout school life. They will tend to develop the pupils' physique and strengthen their resisting power to the invasion of the tubercle bacilli. These outdoor instructions should not be limited to the summer season only.

Besides the above described exercises there is one more which the older child particularly, after having learned all the other movements, can add to his means of developing his chest by taking in the greatest possible amount of pure, fresh air. To this end he takes exercise H, which is accomplished in the following way: He takes the usual position of "attention," then inhales deeply, rolling the shoulders upward and backward, holding the air for four seconds, as in exercise F (Fig. 9), and on the fifth second exhales all he possibly can, resuming again the original position, but before again inhaling makes a second expiratory effort while turning his arms outward (movement of supination) and pressing the inner side of the upper arms against the chest (Fig. 11). He thus, so to speak, squeezes out all the air there is left in the lungs. A vacuum, or emptiness, in the lungs is created and the patient involuntarily takes a very deep inhalation, and after that assuming the ordinary quiet position of "attention."

To show the value of this exercise let me again repeat here that during ordinary inhalation and exhalation, that is to say, quiet respiration, the amount of tidal air inhaled is only 500 c.c., the volume which can be inhaled by the first exercise is 1,500 c.c., and the volume which can be exhaled by this exercise is about 1,300 c.c. When now by the second expiratory effort, aided by the supination of the arms and pressure against the chest, 500 c.c. more of reserved or residual air can be expelled, the value of this exercise taken before going to work, at recess, and on return from work, or whenever one is environed with fresh, pure air, must be evident.

The fact that in the majority of cases the tuberculous process begins at the apices (summits of the lungs) has been explained by the supposed bad inspiratory function of this part of the lungs. Now, I agree in this respect with Hanau* and consider the almost universally adopted statement of the deficient inspiratory function of the apices erroneous. On the contrary, these portions of the lungs inspire excellently well, almost too well, for dust and all sorts of microorganisms enter there most easily and are found in large quantities in careful postmortem examinations. What is faulty is the expiratory function of the apices. A thorough exhalation followed by a forced expiratory effort, as just described, is, to my mind, the only possible way to improve this defect and prevent stagnation and congestion, which, as is well known, form excellent media for the development of bacilli.

If it would need any argument to prove the value of a well developed chest and deep frequent respiration of good, pure air, we could refer the doubters

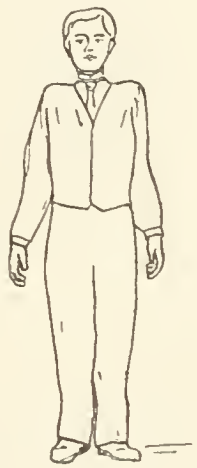

Fig. 11.—Exercise H.

to the statistics which prove that mountaineers all have deep, well developed chests and are the most immune to tuberculosis of all people. While, of course, it must be taken into consideration that the mountaineers live as a rule in less crowded regions, there is no doubt that their wonderful chest development is one of the principal reasons of their relative immunity from tuberculosis. In the mountaineers it is the physiological effect on the human body of high altitudes. The circulation is slower, often below the normal in those living constantly in the mountains, and their breathing is deeper, the inspiration longer and the expiration more complete.

That through proper breathing of outdoor air and good, sensible training, proper and regular feeding a child from tuberculous parentage needs never to develop tuberculosis must be evident. However, this is not merely a matter of belief with me, but has become an absolute conviction based on experience. I began my medical career over twenty years ago in Southern California in the city of Los Angeles. It was at that time a small city inhabited by a great many consumptives who had come there hoping that the climate would restore them to health. I was privileged to treat a goodly

*Hanau, A., Zurich: "Beitrage zur Pathologie der Lungenkrankheiten," *Zeitschr. f. klinische Medizin*, XII., 1887.

number of these patients. Some got well, some improved, and some died; but what was most interesting to me was the following observations: A number of patients brought their little children with them and some had children after their arrival as consumptive invalids in Southern California. That these parents transmitted to their children a predisposition to tuberculosis was evident. I merely practised the principles which I have just given, and it was my privilege to see many of the children develop into good, strong, healthy men and women.

In order to give the child the greatest possible opportunity to breathe fresh, pure air, and the best chances for physical development, other things must, of course, be done besides teaching the child to breathe properly. First, the child must have more years of play. A child should not go to school before its eighth year. Throughout its child life it should have more hours of sleep than most children have, and child labor should, of course, be done away with as incompatible with the solution of the tuberculosis problem. There should be more playgrounds. Every roof of a tenement house should be transformed into a playground. With the help of a good, strong wire fencing and awnings such a roof garden could be utilized the greater part of the year and for children of all ages.

Children's school farms, such as are conducted in New York under the admirable directorship of Mrs. Henry Parsons, should be multiplied by all large and small cities. Such a farm, particularly when located in a congested district, does both preventive and constructive work. The child predisposed to tuberculosis, when it has an opportunity to spend the greater part of the day doing gardening work, learns to love outdoor life and outdoor pursuits which, of course, is of the greatest advantage to its future physical welfare.

Outdoor games and temperate athletic sports should be encouraged not only in colleges, but in children's schools everywhere, and outdoor games and light sports should not be limited to the male sex alone, particularly not during adolescent life.

After the child has gone through school, and even when it has seemingly overcome its predisposition, it is well to bear in mind the possibility of a relapse into such a condition through an unwise choice of profession or calling. An occupation or profession demanding a sedentary life and exposing the individual to the inhalation of vitiated air and much organic and inorganic dust, is unsuited for anyone who is or was once predisposed to tuberculosis.

Concerning the prevention of post-natal infection, we must, of course, first think of the infection from tuberculous milk. To this end we must first prohibit the tuberculous mother from nursing her child, and secondly, see to it that the artificially fed child is provided with milk absolutely pure and absolutely free from tuberculous germs and other pathogenic microorganisms.

I will not enter here into the discussion of which method, wholesale sterilization or dairy supervision and milk inspection, is the most secure. In individual cases it would seem that proper sterilization is the safest method of rendering the milk germ-free. It goes without saying, of course, that under such circumstances a healthy wetnurse is the ideal for a child which has come into the world physiologically impoverished.

The most frequent sources of post-natal infection are perhaps the following: The consumptive mother or nurse caresses the child and kisses it on the mouth; she carries the child on her arms, coughs over it, and a drop infection from a bacilliferous spray ensues. She prepares the food, testing it to judge its temperature and flavor through the same rubber nipple or with the same spoon the child uses, and thus unconsciously conveys the germs of her disease from her own mouth to that of the child. Later on the child will play on the floor of the room, and should there be a consumptive in the family, who from carelessness or ignorance is not careful in the disposal of his expectoration, the child is indeed likely to be infected. The little one while playing on the floor may with great facility inhale the bacilli floating with the dust in the air and can thus acquire tuberculosis by inhalation, the full development of which may only take place in later years when the origin will not be thought of. Again, the little child touches everything it can take hold of, infecting its fingers thoroughly, and by putting them in its mouth tuberculosis by ingestion may result and gradually develop into consumption of the bowels. Lastly, should the child's nails be neglected it may scratch itself with the infected fingers, and thus inoculate its system with the disease. Tuberculosis of the skin, or lupus, may result from such an unfortunate accident.

To prevent these infections during childhood is certainly possible by taking the following precautions: Not only should consumptives be religiously careful with their expectoration, but they should associate as little as possible with young children, and stay away from playrooms and playgrounds. We repeat that to kiss children on the mouth should never be allowed, and the little ones should be taught never to kiss nor be kissed by strangers. They should be kissed by their own friends and relatives as little as possible, and then only on the cheeks. The floor on which the child plays should be kept scrupulously clean. Fixed carpets in such a place are an abomination; they only serve as dust and dirt collectors, and not infrequently harbor the germs of contagious diseases. The hands and nails of little children should be kept as clean as possible.

Expectorating on playgrounds should be considered a grave offense and should be punished accordingly. These playgrounds should be kept clean, as free from dust as possible, and strewn daily with clean sand or gravel.

At school the child may contract an ingestion tuberculosis from partaking of half-eaten fruit from its tuberculous fellow pupils, or by the exchange of bean-blowers, musical mouth instruments, or chewing gum.

Inoculation of the child with tuberculosis, even if it is not predisposed, happens in rare instances through ritual circumcision. I have been able to collect about twenty authentic cases; but the surgical literature of all countries, where Israelites practise this rite in the orthodox way, continue to contain reports now and then of cases of tuberculous infection through this mode of circumcision. The tuberculous inoculation following this operation manifests itself first as a local disease of the genital organs, whence it becomes generalized in a great number of cases. The operation of circumcision, when skilfully and carefully performed, is in itself trifling, but the sucking of the prepuce afterwards makes it dangerous, for it is evident that if the operating rabbi should be consumptive, inoculation becomes very possible. Since it will be difficult to stop this practice by a simple protest on the part of physicians, and as the law cannot interfere with the free exercise of a religious rite, I should suggest as a remedy that only such persons should be allowed to perform circumcision as have shown the

necessary skill before a medical board of examiners, and that every time they are called upon to perform the rite, they should submit themselves to a medical examination. Only when bearing a certificate from a regular physician, stating the absolute freedom from specific diseases, should they be allowed to perform ritual circumcision. Another reliable measure against the possibility of inoculating the child, when the parents insist upon the orthodox method of circumcision, is suction by the aid of a glass tube, as practised in France and Germany.

I feel it a duty to mention here another source of exposure of the non-tuberculous child to tuberculous infection to which benevolent societies and municipalities should pay attention with a view to avoiding it. There is in some cities a custom of giving the infant foundlings who do not improve in hospitals, to homes in the country. There those children are taken care of by families who are of good repute but in moderate circumstances. The authorities who send babies there, as a rule, never ask who is going to take care of the baby. In many instances an invalid who not infrequently is tuberculous is entrusted with this caretaking Rarely is he intelligent or overconscientious, and thus that he will give tuberculosis to the little child in his care is almost inevitable.

I cannot conclude this too meager treatise on so important a subject without mentioning here a purely philanthrophic scheme intended to overcome the predisposition which a child may have inherited from its tuberculous parents. My late and much regretted teacher, Professor Grancher, of Paris, inaugurated some years ago, by his own and Mme. Grancher's magnificent gift of several hundred thousand francs, a movement which he called "l'Œuvre de preservation de l'enfance contre la tuberculose." As the name indicates, it means to protect the children from becoming tuberculous. This society, through its agents, selects children from tuberculous parents and, with their consent, takes the children to homes in the country where they are carefully supervised and watched by the society's agents. The very best of food and outdoor life and good home hygiene is secured for the children and the society's reports for the last few years certainly show that the work is truly a work of preservation of life and gaining of health and strength which is after all the best immunity against tuberculosis.

It is to be sincerely hoped that Grancher's work may find emulators in this country and all over the world. It should be the rule in private, dispensary and hospital practice to insist upon the examination of all children of tuberculous parents.

The examination for tuberculosis or tuberculous predisposition of all children entering public, parochial or private schools and the periodical reexamination for tuberculosis should also be made a feature of an intelligent and thorough tuberculosis campaign. It is only by such means that the predisposed child can be easily discovered. The more attention we pay to avoiding tuberculous infection during childhood, the more carefully we study the early recognition of a condition predisposing the child to consumption, the more we direct our energy and whatever skill and knowledge we may possess to this end, and the more we interest philanthropic friends in the cause of overcoming this tuberculous predisposition, the greater are our chances for ultimately eradicating the disease in the adult and thus becoming complete masters of the great white plague.

TRUE NEURASTHENIA—ITS NATURE AND TREATMENT.*

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THERE is a true and false neurasthenia, as there is a true and false malaria or a true and false neuralgia.

The term neurasthenia is a convenient refuge in diagnosis. It is easy for the physician and most satisfactory to that large class of patients who eat too much, exercise too little, and who are simply poisoned by the unassimilated products of digestion. These people are pleased with a diagnosis which touches the nerves rather than the bowels and liver and having been duly certified to as neurasthenic ever after with a conscious air allude to themselves as the victims of nervous exhaustion. While protesting against the too indiscriminate diagnosis of neurasthenia, I am yet a firm believer in the propriety of classifying under this head a great family of symptoms. True neurasthenia is of perennial interest, for of all so-called functional diseases, it is to my mind one of the most important, because of its power to wreck completely the life of a man, the persistency of its symptoms, and the frequent futility of methods adopted for its relief, due mainly to mistaken ideas as to its nature and course. Volumes have been written about it, and if it be asked why still further discuss the subject, I reply, that until the profession at large have a truer appreciation of the reality of this condition, and get a better understanding of its philosophy, it will always deserve the freest discussion.

I have known patients to consult physician after physician without receiving any satisfactory diagnosis or advice, getting the first glimpse of the truth through a book picked up in the office of some physician or a stray issue of a medical journal. Or if told that he has neurasthenia it is in a flippant offhand way as if it was a thing to be lightly spoken of, to be taken as a half joke, instead of a reality so terrible as not infrequently to impel the unfortunate victim to choose for himself social ostracism.

One of the astonishing things in connection with neurasthenia is the infinite variety of symptoms of which patients complain. The sum total of these symptoms are by no means to be found in any individual case, but they exist, and he who comes in contact with, and studies many neurasthenics, will become familiar with them all.

Many years ago when Beard was issuing those remarkable articles which have become classic and which became and still are the inspiration of all investigations along this line, a distinguished physician remarked to me that according to Beard, if a man did but yawn or sneeze, or eructate a little wind, he had neurasthenia. And yet it is not difficult to reconcile one's self to these varied symptoms, and the explanation seems simple enough, in consideration of the probable pathology of the disease. The rapidity with which nervous force is exhausted makes possible an infinite variety of symptoms, since this exhaustion is not confined to any one center of organic or functional life, but may simultaneously or in succession influence remote centers of motor, sensitive, and emotional activity. Symptoms such as insomnia, mental depression, morbid fears, general motor enfeeblement, gastrointestinal atony, and impotence are very frequent, and many, if not all of

*Read before the Medical Association of the Greater City of New York October 19, 1908.

them may be combined in the same person. It is most important to distinguish between hereditary and acquired neurasthenia.

While a very considerable number of cases are found where the most careful inquiry fails to find any special ancestral nervous defect; yet in the majority of cases there is an undoubted hereditary tendency. Severe and prolonged mental and physical distress, acting on a nervous system endowed with normal strength, is not readily influenced to its permanent detriment; on the other hand, irritations absurdly slight, may powerfully influence nerve tracts inherently weak from any cause. The forbears of the hereditary neurasthenic may have been quite free from neurasthenia as we now understand it, but it will be found that there is a history of one or more of many neuropathic conditions such as epilepsy, hysteria, alcoholism, insanity, etc.

Indeed, when there exists a strong nervous heredity, neurasthenia may develop absolutely without any apparent exciting cause, and what is exceedingly rare in acquired neurasthenia may develop even at puberty. One seldom, if ever, sees a case of neurasthenia before the age of 25 where the heredity is good. It takes years of evil indulgence to wreck the nervous system in a strong person, and therefore most men with acquired neurasthenia are considerably older. Neurotic instability of the hereditary type is therefore the most important and frequent factor in considering the etiology and prognosis of neurasthenia. In the organic psychoses we see this hereditary instability playing an equally important part. Embolisms and thromboses of slight character and small tumors may occasion mental alienation of the most pronounced type, while in stronger physical conditions tumors of considerable size, and areas of softening may influence the mind but slightly. The effect of alcohol in different people is largely a question of nervous stability. With some, perceptible stimulation is excited only after a large amount, while with others the effects of the smallest dose becomes quickly apparent. The same susceptibility of the neurasthenic is noted in the use of various drugs.

Hysterical women are often spoken of as neurasthenic. Hysteria is not neurasthenia, and one meets with true neurasthenia in women far less frequently than in men.

Hysteria is a kindred condition but by no means the same condition, and one interesting differential point between neurasthenia in man and hysteria in woman is the difference in the degree of susceptibility to stimulation. A typical neurasthenic is as a rule more than ordinarily susceptible to alcohol, while an hysterical woman can usually greatly exceed the normal amount without perceptibly feeling its effects. Hysteria in women is undoubtedly often caused by uterine disease, but it is not probable that the nervous system in these cases is influenced in the same way as is the nervous system of man by sexual excesses. The work of the gynecologist is most important and valuable, and perhaps indispensable in many of these cases, but it is coming to be more and more understood that many cases of slight uterine and periuterine disorders in the young and unmarried should not be subjected to local treatment. Very many cases of disordered menstruation and uterine and ovarian pains are due mostly to causes that are constitutional and general, and local treatment can be of little avail.

On the contrary when the mind of the patient is constantly directed to the generative organs by the treatment of unimportant local conditions, it is conceivable that by a sort of autosuggestion the whole nervous system is made to suffer. On the other hand, with the graver forms of uterine disease we seldom see associated this peculiar instability of the nervous system that we call hysteria. The symptoms of neurasthenia and the exciting causes of these symptoms are too many to enumerate in a brief article. Of the causative factors—one only, and that the most important, do I wish to emphasize. I refer to sexual excesses—especially among the unmarried. Men who are married and are faithful to the vows of marriage rarely tend to excess in the long run. But with both married and unmarried who habitually indulge in irregular sexual relations the case is widely different. In the marriage relation as time goes on, the tendency more and more is to satisfy only a normal call of nature. He, however, whose relations are with strange women, changing from one to the other as caprice and passion dictate, enters into a realm of psychic excitation to which he must ultimately succumb.

Naturally, it is among the hereditarily weak that such excesses work the greatest havoc, and although the nervous system of the hereditarily strong is often a veritable fortress against the assaults of the most excessive dissipation, yet, sooner or later nature's reprisals are inevitable. "The mills of the gods grind slowly—but they grind exceed fine."

In regard to what is termed traumatic neurasthenia, I am more and more of the opinion that it is not a special neurosis distinct from the ordinary form of neurasthenia. In a way, all neurasthenia is traumatic. Profound mental disturbance, or the physical abuse of function, are just as surely blows as are physical strokes.

The one overmastering symptom, of symptoms innumerable, associated with the neurasthenic state, is morbid fear. What is rudimentary and natural in the healthy man, becomes in the neurasthenic, abnormal and monumental. Little by little because of his feeble powers of resistance, these fears dominate his life, gradually destroying the results of years of health and education.

And in the same way as one seldom sees hysteria associated with serious uterine disease, so one seldom encounters neurasthenia with its morbid fears in those suffering from grave organic disease. These phobias in their peculiar manifestation are pathognomonic, and it would be impossible for a malingerer to deceive long one thoroughly familiar with neurasthenic cases.

Agoraphobia (fear of open places), claustrophobia (fear of narrow, closed places), mysophobia (fear of contamination), monophobia (fear of being alone), anthropophobia (a generic term including fear of society) and gynephobia (fear of women) are only a few of the numerous phobias that to the uninitiated appear simply ridiculous, but to the unhappy victim are of fearful consequence, destroying both happiness and hope.

Treatment.—Shall a neurasthenic work or rest? Many a neurasthenic has been made worse by the rest cure, and again others have suffered by a continuance of work. In no condition is there more need of an intelligent differentiation. If there is cerebral excitement associated with physical exhaustion—rest is imperatively demanded. Rest is also to be recommended in cases of the myelasthenic type. For cases of the lithemic type—hearty eaters, who suffer from autoinfection, and whose frequent irritability and unreasonable outbursts of temper differentiates their case from the mild melancholy of the neurasthenic of an entirely different type, work and activity and plenty of it is oftentimes the saving grace.

Drugs.—Success in treatment frequently follows very little active medication, and yet at times judicious drugging is distinctly called for. While the patient is undergoing the slower process of encouragement and physical methods of treatment, it is good judgment at times and in certain cases to soothe and sustain a weak and erratic nervous system by such drugs as seem best fitted to the case in hand. In those cases where occasional medication seems to be demanded, some one of the various bromides including the bromide of zinc, either alone or in combination with belladonna—cannabis indica, etc., according to individual idiosyncrasies, serve a useful purpose.

Physical Therapeutics.—Of all physical methods of treatment I place the electrical first and regard it of the most positive value in the treatment of neurasthenia. Others and perhaps the majority do not regard it so highly, but those who would look with disfavor upon it have not, I fancy, taken off their coat, as it were, and given it a thorough and systematic trial. I have done this for many years and in a very large number of cases and my experience teaches me that no single remedy quite equals electricity. I say single remedy, yet it is really many remedies in one, for so numerous are its manifestations and so varied are its physical and physiological effects, that for all practical purposes we may say that we have many kinds of electricity.

What is lacking, therefore, most frequently to make good use of this great agent is the power of intelligent differentiation. An anomaly about a neurasthenic is that generally he appears to be well nourished. His functions are often well performed and his appetite excellent. Yet with all this we find him with a nervous system so eratic and unstable that the slightest influence is sufficient so to disturb the vasomotor equilibrium as to cause general nervous disturbance as manifested in the quickly flushed face, perspiring hands, dizziness and perverted vision.

As its name implies, neurasthenia is a disease of exhaustion and therefore of impaired nutrition, and electrization, not in one form alone, but in many forms, aids powerfully in the restoration of perverted cellular nutrition.

Phototherapy.—The influence of light and heat I have often found useful in neurasthenic cases. Fundamentally the principles on which are based the therapeutics of light and heat are very much the same as govern the application of other physical methods of treatment, and in the toxemias and the toxic neuroses the therapeutic value of light energy is beyond question. Both the incandescent and the electric arc light are valuable—the latter perhaps more than the former, since in addition to its calorific and luminous effects it imparts chemical activities of a distinctive character.

Mental Therapeutics.—While neurasthenia is no imaginary disease and no appeal to the imagination alone will overcome the profound loss of nerve tone characteristic of it, or rearrange the delicate fibrillary connection of the neurons that may have been disturbed by the constant impact of physical forces, yet mental therapeutics is without doubt an important factor in many cases. I hold that if a physician has not time or inclination to do more than drug his patient or give him the ordinary office advice and treatment, he is not quite fitted to take charge of many a case of neurasthenia. To a certain extent he should associate with his patient and by his personal presence and encouragement reinforce his feeble and wavering will.

Let me illustrate. It is quite unnecessary to tell anyone who is familiar with such cases that gynephobia (fear of women) is one of the most unnerving and distressing of all the phobias. In a patient who thus suffered to the last degree, who avoided all female society, and if he chanced to meet a lady acquaintance face to face in the street became almost paralyzed, I determined as usual on a direct method of attack. I suggested that he go with me to a department store and buy something of a saleswoman. He replied that it was impossible, but agreed to go. We walked from counter to counter, the patient suffering undeniable and uncontrollable perturbation, as evidenced by his clenched and perspiring hands, flushed and perspiring face. He finally accomplished his purpose, although avoiding the eye of the saleswoman, and then with a sigh and sense of relief, turned and asked if he had not done well. Alone and unaided he could not possibly have accomplished his purpose.

This patient is now fairly well, and I attribute his recovery as much to the personal influence that steadied his morale as to any other method of procedure. In every way the physician should treat his patient with respectful and sympathetic consideration, and while recognizing his infirmities assure him in no uncertain tone that he is by no means incurable. This he can honestly do, for in the observation of hundreds of these sufferers I have seldom met a case that I have kept track of that did not finally respond to time and treatment.

616 Madison Avenue.

THE ULTRAVIOLET RAY AND HIGH FREQUENCY CURRENTS IN NEURASTHENIA.*

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The ultraviolet light is present in sunlight, but only in small amount, because the greater part of this chemically and physiologically active radiation is absorbed by the dust and vapors in passing through the earth's atmosphere. This may partly account for the greater tendency to sunburn and to injury to the eyes resulting from overexposure to the reflected light upon mountain snow fields which are above the densest part of the atmosphere. It may also partly account for the benefit experienced by neurasthenic patients at mountain sanatoria like St. Moritz. The ultraviolet ray is produced electrically in much greater concentration than it is convenient to obtain it from natural sources. When produced by electricity its use in neurasthenia may be divided into two separate methods. First—it may form part of the combined heat and light radiation applied in local or general electric light baths; and, second—it may form according to the author's view the essential factor in several different applications of high frequency currents.

The arc light is richer in ultraviolet rays than the incandescent light and hence is preferable when practicable. The incandescent light is so much easier to handle that it is often selected for this purpose. The effect of electric light baths is due only in part to the ultraviolet rays, all of which are absorbed by the skin, producing a general tonic effect, but without a direct action upon any vital organ. More active agents in the effect of electric light baths are the visible rays, some of which penetrate considerable thicknesses of tissue and stimulate the processes of metabolism in the blood and lymph as well as in the solid tissues.

Another and perhaps the most active factor is

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that of radiant heat—an agent which with light, air, food, and water is essential to animal and vegetable life. It is a mistake to suppose that the air in the electric light bath need be at an uncomfortably high temperature. The room or cabinet may be freely ventilated without impairing the beneficial effect of the radiant heat and without materially lengthening the time required to produce the characteristic physiological effects of profuse perspiration and dilatation of superficial capillaries. Such an application eliminates some of the products of auto-intoxication so commonly present in neurasthenia. It is followed by refreshing sleep, and this effect may be favored by such additional applications as a cold bath or massage.

We come now to the ultraviolet ray in connection with high frequency currents. The oxygen of the air may be changed into ozone; a very unstable and, therefore, chemically a very active form. This change is most readily produced by the passage of electric sparks through the air, but only in the presence of the ultraviolet ray. Accordingly, we find that the richest production of ozone occurs in connection with electric discharges which generate the greatest quantity of ultraviolet ray. Leyden jars charged by a static machine or by an induction coil form part of the apparatus designed to give high frequency discharges which are wonderfully efficient in this regard. Glass vacuum electrodes are employed for applying these discharges directly to the surface of the body, and the odor of ozone may sometimes be detected the following day. The effect is heightened if the electrode is held at a little distance from the surface and thousands of tiny violet-colored sparks traverse the air covering the skin. This intensification is also obtained if the glass vacuum electrode is applied over thin clothing.

The ozone generated in this way penetrates the tissues and produces an effect upon the solids and liquids which make up the body. This effect is the usual one of nascent oxygen, viz., to increase the rapidity and favor completeness of oxidation. In some cases nitrogenous substances are incompletely oxidized and are found in the urine as an excess of uric acid and the same irritant substance is deposited in the region of nerves and joints. Ozonization of the tissues by high frequency currents and the ultraviolet ray favors complete oxidation and the elimination of nitrogenous substances as urea.

Autointoxication by other products of imperfect metabolism is relieved by the same application, not perhaps so much by a direct oxidation as by a stimulant effect upon the tissues which results in normal activity.

The ozonizing effect of the application of vacuum electrodes is practically the same, no matter what particular form of high tension generator is used to excite it. To this extent the static machine, the Rhumkorff coil, the Tesla transformer, and the d'Arsonval and Oudin high frequency apparatus produce similar results.

It is necessary to apply the glass vacuum electrode over a considerable part, one-fourth if practicable, of the surface of the body in order to obtain the full benefit of this effect of the treatment. And this should include the portion affected by any local symptoms; the precordia in cases of palpitation or cardiac neurosis; the abdomen in cases of dyspepsia and constipation; the spine or different nerves in case of neuralgia.

Another part of the effect from glass vacuum electrodes is dependent upon the nature of the electric current which excites the tube. High electrical tensions are obtained by connecting the glass vacuum electrode with one pole of an induction coil or with one pole of a static machine, but their discharges have not the peculiar oscillatory character observed in the high tension discharges from high frequency apparatus such as a Tesla transformer or a d'Arsonval transformer or an Oudin resonator. Comparatively low tension discharges with considerable volume, 200 milliamperes and over, may be obtained by connecting the glass vacuum electrode with the d'Arsonval or the Oudin high frequency adjusted for that purpose.

The higher tension discharges are especially useful in cases of neurasthenia with low arterial tension and the low tension high frequency discharges are a specific in cases of neurasthenia with high arterial tension. A shower of high tension sparks from a glass vacuum electrode passed rapidly along the spine is excellent in atonic cases.

In some cases of neurasthenia with high arterial tension which the author has treated by high frequency currents the blood pressure has been persistently so high as to lead to grave and threatening secondary lesions. The treatment has been by means of the d'Arsonal or Oudin high frequency, but low tension discharges applied partly by means of the autocondensation couch and partly by means of glass vacuum electrodes. The latter are applied along the spine and over the abdomen with a current of over 200 milliamperes passing through the electrode. This current is registered by a hot wire milliamperemeter and is many times greater than could be borne except for the oscillatory character of the current. Up to a certain point alternating currents produce more and more powerful effects as the alternations are increased in rapidity and the 110 volts electric light current with 60 alternations per second produces dangerous effects. More than 5,000 alternations per second rob the current of its power to produce muscular contraction and reduce the sensation to a minimum. High frequency currents have millions of oscillations per second and the nerves of motion and sensation cannot respond to them at all. The absence of a motor and a sensory effect is obtained when a direct contact is made with a metallic electrode of large size or when the high frequency current acts by induction or condensation without any charged conductor touching the body or being near enough to send sparks or a perceptible effluve to the body. This is true in spite of the fact that the d'Arsonval current has a tension of several thousand volts and an intensity of 200 to 400 or more milliamperes. The same current will give a shower of tiny sparks from a vacuum electrode held near the surface, but this changes the character of the effect produced and is more suitable for cases without high arterial tension. Even with the glass vacuum electrode held in close contact with the skin the large milliamperage results in an amount of warmth which may become uncomfortable if the electrode is held in one place for any length of time. This is prevented by moving the electrode slowly over the surface, and the latter should be thickly sprinkled with talcum powder to enable the electrode to glide smoothly over the skin. Without this precaution the perspiration excited by the application causes the electrode to stick to the surface and to pass from one portion to another by a series of jerks accompanied by disagreeable sparking.

The neurasthenic cases referred to the author for this kind of treatment have usually had some definite nervous, circulatory reproductive or alimentary disturbance, and the results have often been little less than magical.

I have endeavored to make it plain that there are several forms in which the high frequency currents

may be applied with and without the use of vacuum electrodes; and especially that the use of vacuum electrodes gives results dependent upon the exact form of high frequency current transmitted by them.

What is equally important is that other forms of electricity than the high frequency currents may be transmitted by them, with the same production of violet colored light but with radically different physiological and therapeutic effects.

One or two cases in which good results have been obtained may be of interest.

Case I.—Mrs. C., a delicate little old lady referred to me by Dr. Rushmore, had had as a most prominent symptom very severe pains in the sciatic, anterior crural, and spinal regions. She had been practically confined to the house for two years. After some fruitless inquiries at the hospital where the patient's husband is one of the trustees, he came to me, asking whether there were any possible injuries resulting from treatment and whether there was any probability of sufficient benefit to pay for the pain produced by getting into a carriage and coming to my office. I was able to encourage him in regard to both questions, and the patient came for treatment that same afternoon. Only the vacuum electrodes were used and the weakest current possible from one pole of the Oudin resonator. Application lasted 7 or 8 minutes and was made through one thickness of underclothing. I think that the term "magical" may be fairly applied to the result. The patient was able to go to one of the large retail stores after the second treatment, this having been the first time she had been inside a shop in 7 months; and after the fourth treatment she went to her son's wedding in Worcester, Mass. After the seventh treatment not a pain or ache remained. Although it is three or four years, there has never been a return.

Case II.—Mr. S., 65 years old, was referred to me by Dr. Albert H. Ely. In his case the symptoms of neurasthenia were added to those of arterial sclerosis with its usual subjective and objective symptoms including the most annoying one of hemianopsia. The treatment consisted in autocondensation by means of the autocondensation pads connected with the high-frequency apparatus which I will show in a few minutes, and the application of vacuum electrodes to the temples, where the greatest throbbing headache was felt, and to the anterior cardiac region where pain of a very severe character was almost constantly felt. The vacuum electrode was connected with one pole of the Oudin resonator and the current was of low voltage, but of as great amperage as the patient could bear. The sphygmomanometer showed a progressive reduction from 190 mm. to 140 mm. The treatment was given for several weeks one spring, and also the following autumn, and has not been required for the last year. There was marked benefit in regard to every subject of symptom. The feeling of profound mental depression disappeared and the patient became able to enjoy his favorite recreation of bridge-whist. The loss of vision in one half of the retina did not, of course, yield to the treatment. The headache disappeared simultaneously with the return of the normal appearance of the blood-vessels of the face. The cardiac pain and the palpitation also disappered.

These are only two examples selected from a large number of cases, among which were several cases of a purely neurotic type treated with equally good results.

59 West Forty-sixth Street.

THE CARE OF THE MOUTH DURING INFANCY AND CHILDHOOD.*

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A great deal could be written about the care of the mouth during infancy and childhood, if one were to review all the pathological conditions which are liable to occur in the oral cavity and discuss their treatment. I shall, however, not bore you with etiological, pathological, and therapeutic facts, which you are all acquainted with, but rather view the subject from a prophylactic point of view and try to point out the importance of certain hygienic measures and attempt to show the value of conservative treatment which, so far as the mouth is concerned, has not been accorded that station in medical science of which it is deserving.

Altogether, the hygiene of the mouth has been a sadly neglected factor and it is only of very recent date that the importance of a clean healthy mouth has begun to be realized. Thus since about a year the medical school inspectors not only examine the children's eyes, ears, throats, and noses, they also look at their teeth and report their findings to the health authorities who notify the children's parents and demand a visit not only to the physician, but also to the dentist.

Such action has borne good fruit already, as the reports showing the results of the treatment of tuberculous glands in children give better statistics than before dental inspection was practiced.

Stomatologically, infancy and childhood can be divided into various periods according to tooth eruption; thus we get: (1) The period beginning at birth and terminating with the eruption of the first temporary teeth about the 6th month. (2) The period of eruption of the temporary teeth, which begins about the 6th month and ends at about the completion of the 2d year. (3) The interval between primary and secondary dentition, namely from about the 2d to 6th year. (4) The period of eruption of the permanent, and exfoliation of the primary teeth, not including, however, the eruption of the 3d molars or wisdom teeth, as these come through during adolescence and sometimes not until later, in fact they may erupt at any time after the 15th and 16th year; that would end the last period about the 13th year, when the permanent eye teeth have made their appearance.

From the dental point of view these different periods are: (1) A toothless period, (2) a period of dentition, (3) a period of rest, (4) a second period of dentition.

However, the whole epoch from birth until the 13th year, and as a matter of fact, before and after that, the period is one of tooth formation and development, for the developmental history of teeth begins about the 7th week of embryonal life and does not terminate until the completion of about the 21st year.

The proper care of the mouth during these periods will not only insure a healthy buccal cavity and comfort to the little folks, but will remove the etiological factors of many pathological conditions of infancy and childhood, some of which may reflect lifelong upon the individual.

What are the lesions which occur in the buccal cavity and what measures constitute that which collectively can be termed the care of the mouth? To review individually all pathological conditions liable

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to involve and emanate from the portal of the alimentary tract would take us too far, but all can be classed as traceable (1) to traumatism and infection, (2) to diseased constitutional states or faulty nutrition, and (3) to abnormal development.

If these factors be removed, buccal disease and its

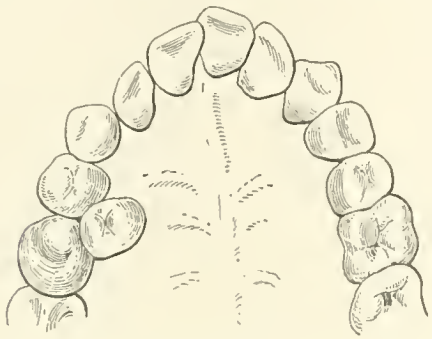

Fig. 1.—Radiograph showing the eruption of a bicuspid inside of the dental arch.

sequelæ will be greatly reduced; this would mean the establishment, as far as possible, of oral asepsis, the treatment of systemic disease, the modification of improper nutrition, and the correction if possible of developmental faults.

Little is to be said about the care of the mouth of the infant during the first 6 months. Different men have expressed different views on the usefulness of cleansing the infantile mouth. The mouth, like the rest of the alimentary tract at birth, or rather up to birth, is presumably sterile, but with the drawing of the first breath and the emission of the first cry, there are introduced into the mouth many species of microorganisms.

Certain localities of the buccal mucous membrane are especially prone to injury and subsequent infection. These are the mucous lining covering the hamular process of the palate bone and those light-colored bodies on both sides of the median line, designated as epithelial pearls of Epstein. If traumatic lesions are produced here and these become infected, the resulting ulcers which Parrot termed "plaques pterygoidennes," or which are better known as Bednar's apthæ, may become quite troublesome. This has caused many authors to abandon infantile mouth sterilization, as it is claimed that the normal buccal secretions are fully able to protect the mouth. Mikulicz and Kummel in their work on "Disease of the Mouth," say: "Experience in Maternity hospitals, quoting Epstein, Fisch, von Engel, and Baum, have shown that palatal ulcers are observed only in infants whose mouths are cleansed. If the buccal cavity is not cleansed, buccal ulcers are not observed." Ritter of Berlin, in his work on "Diseases of the Mouth and Teeth," states that: "It is of the utmost importance that the attention of mothers be directed to the careful washing of the buccal cavity of infants from birth on, and if this be observed, most of the so-called diseases of dentition will be avoided—especially among the poorer class of patients. The buccal lavage is best done by means of absorbent cotton or a very soft sponge." Koplik says: "The mouth of the breastfed infant especially should not be frequently washed. If the breast nipple is kept scrupulously clean, sprue and stomatitis will be avoided." Kilmer says: "An infant's mouth should be cleansed before and after every nursing, be it from breast or bottle." Holt advocates mouth sterilization as a prophylactic against sprue, etc.

The different authorities expressing varying views have all valid reasons for their individual practice, but summing up all, I am inclined to urge mouth sterilization, especially in children who are fed artificially. There is practically no danger of mouth infection in healthy, breastfed infants, brought up in hygienic surroundings, if the mother washes the breast nipples before and after nursing. The artificially-fed baby, however, is at a disadvantage, as its very food is but a substitute for mother's milk, and bottles, nipples, and pacifiers, unless scrupulously clean, may constitute a formidable danger.

The word *careful* as applied to the washing of the infantile mouth, should be emphasized. It is better to leave the mouth alone than to introduce roughly a finger, which is never aseptic and may wound the buccal mucous membrane. In fact, a finger should never be introduced into the child's mouth, but a swab made of cotton on an applicator or a piece of wood. This used gently will not hurt the mouth. It does not appeal to me that it can be of benefit to the child to permit remnants of starchy and other foods to decompose in the buccal cavity and be swallowed. The buccal toilet is not for the purpose of cleansing the mouth so much, as the normal secretions will probably take care of a normal oral bacterial flora. The septic materials found in the buccal cavity as the result of bacterial action upon foodstuffs and other things introduced into the infantile mouth, which have no place there, are swallowed and may become the factors of gastro-intestinal disturbances.

The mouth will not suffer unless traumatized, but the gastrointestinal tract may. Therefore, I believe careful buccal lavage, in all artificially-fed children at least, is a necessity and if done carefully will be of no harm. I advocate an alkaline antiseptic tablet, dissolved in water or saline solution as a wash for infants.

The use or nonuse of pacifiers has been the subject of considerable discussion. Some men claim that the so-called "fruitless sucking" is harmful to the child, others oppose this view. The fact remains that pacifiers are kept even less clean than nipples. I have seen a baby's pacifier on a dusty mantlepiece, in the bed wet with urine, on the floor, in brother's trousers pockets, and in other places which were far from clean; for this reason a pacifier becomes a danger. There are, however, other reasons which cause me to look with disfavor upon these "pipes of peace." I contend that the pacifier may become the first source of mouth breathing and lay the foundation of the thumb-sucking habit.

A very pernicious custom of grave danger to a

Fig. 2.—Radiograph of a boy of about 10 years of age, who has cut his permanent teeth as well as his sixth year molar; he has *in situ* his temporary eye teeth and the temporary molars.

child is the habit of the nurse moistening the nipple or pacifier with her own lips before giving it to the child. Sometimes a stranger is asked to mind the child for a short time, and indulging in this common practice may cause luetic or other infection of the infant's mouth if there be abrasions in the child's

mouth or about its lips. Too much stress cannot be laid upon this point.

If an infant has a cleft palate or hare lip, or both, the care of the mouth becomes an even more important factor. Fortunately, however, these malformations are rare, and in many cases do not inter-

Fig. 3.—The arrow points to the temporary cuspid.

Fig. 3.—Radiograph of a jaw wherein the permanent bicuspids are in position; the temporary eye tooth is about to be exfoliated, its permanent successor is about to erupt.

fere with the taking of nourishment of the child Brophy of Chicago advocates a very early operation, that is, when the infant is a few weeks old Brown of Milwaukee, and others, wait until the child is 3 years or older. A hare lip is better operated upon early, as the scars and deformed lip resulting will be less visible. A staphylarrhaphy, however, is indicated in very young infants only when the cleft interferes with nutrition that there obtains the danger of starvation, otherwise I would deem it more advisable to postpone the operation until a little later.

Primary dentition brings us to the second period.

A great deal has been written about dentition and some of the concomitant conditions. Older writers spoke of teething diarrhea, teething convulsions, teething coughs, and in fact there are few diseased states which have not at one time or another been brought in relationship with the eruption of the teeth. Some have advised to lance the gums freely to help the teeth come through, others advised the opposite.

Dentition is a physiological process, but if there are severe symptoms attending, they may be brought on by the eruption of the teeth, as the period of dentition is one of great physiological activity and growth, but this only constitutes the last drop in the bucket which causes the overflow, and the real cause is always some other underlying abnormal or pathological condition, as the symptoms vary in different cases and we have not even a temperature chart characteristic of dentition.

It may be of interest to quote Prof. R. Parreidt of Leipzig from a paper "Upon the Influence of Primary Dentition Upon the Infantile Organism." He writes as follows: In a holy book of the ancient Indians, dating from the 17th century B. C., there is found an incantation addressed to the milk teeth, to spare the body of the infant. Archigenes advocated the local appliances of harebrain and dog's milk, Paulus of Aegina old herrings, meat, etc. Also the rubbing of the gingivæ with hard substances was practised, the nurse beginning to rub the gums from the 3d month on. Mesue used hard bacon, rings, and other articles. which we know to be employed in the nursery even now.

These processes, although exposing to the danger of infection, are not as bad as the notorious scarification of the gum.

Hunter boasted of having used the lancet 10 to 20 times during the eruption of one tooth. Hurlock, in 1742, incised the gums of children 10 days old, and to carry this nonsense to extremes lacerated the gum tissue after all the primary teeth had erupted to protect the child against eruptions and other diseases. A great deal could be written about the various absurd methods of treating dentition symptoms; however, time and space forbid it.

To illustrate the care of the mouth during dentition, I should like to frame a set of "Don'ts."

Don't rub the teeth through, as this will only open an avenue of possible infection, particularly as the resistance of the little body is somewhat lowered during this state.

Don't rub the gums (as a rule), for the abovementioned reason, and especially if the erupting tooth is well covered, the incised wound will heal up very rapidly and the operative procedure has to be repeated.

Don't poke dirty fingers into the child's mouth to find out if the tooth is through, but keep the mouth clean. Most of the attending symptoms of difficult dentition can be avoided by carefully looking after the digestive apparatus.

After the first teeth have made their appearance, many begin to modify the infant's diet, giving the child other food than milk. A soft tooth brush should now be used, but particular care must be exercised to use a brush which does not lose its bristles. The mouth should be washed after every feeding and before retiring. A mild antiseptic like liquor antisepticus diluted, to which a little bicarbonate of sodium is added to make it alkaline, can be used, or an alkaline antiseptic tablet, dissolved in water. If a child is under medical care and takes medicine of any kind, the mouth should be washed, so as to neutralize any acid drug given and to cultivate the habit for the future. Regular dental inspection should be instituted from the time that all temporary teeth are fully erupted.

The care of the mouth consists first in keeping the mouth clean; that means to remove by means of a brush, floss silk, and tooth pick any particles of food. The mouth should be washed after every meal and the teeth brushed. It is most important, however, to brush the teeth before retiring, for otherwise there remain in the mouth remnants of food, etc., over night, a period of about ten hours, during which time, in normal conditions, little or no saliva is secreted and fermentation goes on without disturbance, which prepares the path for dental caries.

If dental caries is established, the early filling by proper dental care, which can be obtained by regular dental examination, in order to avoid untimely extraction, is important.

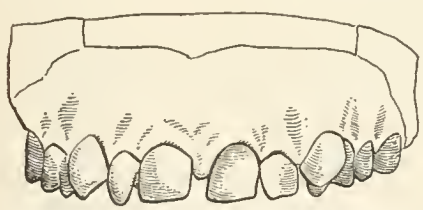

Fig. 4.—A deformed jaw, produced by the too early extraction of the temporary eye teeth; this patient could not shut her mouth, she was a mouth breather, and had hypertrophied tonsils and adenoids.

The belief that the first or milk teeth can be extracted at random, inasmuch as they are replaced by the permanent teeth, is erroneous, as dental irregularities are thus produced which may alter the shape of the dental arches so as not only to be unsightly but to induce abnormal breathing. It is almost

more important to retain the temporary teeth until certain periods, than it is to retain the permanent denture intact, as the latter can be replaced by artificial organs. The functions of the temporary teeth are not only to assist in buccal digestion, but also to assist in the development and shaping of the jaws

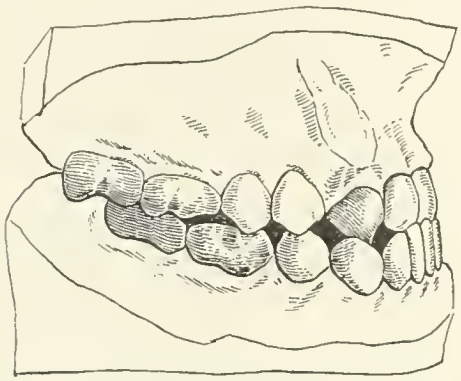

Fig. 5.—An irregularity, produced by the too early extraction of a temporary eye tooth; the upper arch is too small for the lower jaw.

or dental arches proper. The permanent teeth are larger in size and number than the first or temporary dental organs and, therefore, require more room, which is created by the enlargement of the dental arches. This enlargement is brought about by the eruption of the permanent molars behind the temporary teeth. By the eruption of the permanent molars, the temporary teeth are, so to say, pushed forward and the dental arches are lengthened anteroposteriorly. If one of the temporary molars is extracted prematurely, the erupting permanent molar will exert its pushing influence only upon the teeth posterior to the gap made by the extraction and not only will the anterior temporary teeth not be affected by the wedging of the erupting permanent tooth, but the bicuspid which was to take the place of the external temporary molar may erupt inside or outside the dental arch. (Fig. 1.)

The next temporary tooth to be exfoliated is the first molar, to be followed by the eruption of the first permanent bicuspid. This is followed by the shedding of the second temporary molar, whose place is taken by the second permanent bicuspid tooth. After these are in position the temporary eye tooth will be shed and its place be taken by the permanent canine. If for some reason the temporary eye tooth be extracted too early, the permanent bicuspids being nearer the gum than the permanent eye tooth, the bicuspid may come down (the temporary molars being shed) and, advancing towards the blank space created by the extraction of the temporary canine, leave no room for the permanent eye tooth, which coming down will erupt outside of the dental arch and what is popularly known as a buck tooth is the result. This condition also determines a small arch and a facial deformity results, which frequently is the cause of the institution of mouth breathing.

Just as it is wrong to extract the temporary teeth too early, it will be an error to retain them beyond a certain period. Sometimes temporary teeth are retained longer than their normal period, brought about by the failure of root absorption, which is produced by a dead pulp or other conditions. In such cases the permanent tooth is deflected in its course and will erupt either inside or outside of the arch.

The thumb, tongue, or lip sucking habits frequently found among children also deserve mentioning here, as these practices are the cause of malformations which also induce not only faulty articulation with resulting inefficient mastication, but are often the cause of incorrect breathing (mouth-breathing) with its sequelæ.

Fortunately thumb-sucking is usually broken before much damage is done, as these habits rarely cause displacement of the temporary teeth. If, however, the practice is kept up the upper front teeth (incisors and cuspids) are always pushed outward and to one side, according as the thumb of the right and left hand is used. The lower teeth, however, from the pressure of the back of the thumb are crowded back. The pernicious habit of biting the lower lip, or pressing the occlusal edges of the upper incisors against its outer surface, has a tendency to move the upper central incisor teeth forward, thus lessening their natural resistance to the narrowing of the lateral halves of the arch. This is shown in Fig. 7.

The habit of resting the tongue between the upper and lower teeth will produce the effect shown in Fig. 8.

Careful dental inspection and examination are necessary to avoid such irregularities. Irregularities produced by the untimely extraction of teeth take months of treatment for reduction. A temporary tooth should never be extracted prior to its period of exfoliation only if its presence in the mouth is harmful and its pathological state cannot be overcome.

No intelligent physician will tolerate a focus of infection anywhere. Tuberculous glands are excised most promptly. The mouth, however, which is a perfect breeding ground for microorganisms, offering heat and moisture and endless nutrient material for the development of a bacterial flora, extraordinary in number and variety, the mouth, which is the most abused part of our anatomy, being constantly irritated, stabbed, cut, torn, and otherwise injured, is absolutely, or almost, ignored. Purulent conditions are permitted to exist here without care for years and microorganisms are allowed to gain entrance to the system by inhalation, swallowing, and through abrasions of the mouth and through necrosed tooth pulps.

I shall submit only a few facts and let you make your own deductions. During my service at the German Hospital Dispensary, I saw during one month 22 children with enlarged glands; all of these had badly decayed teeth.

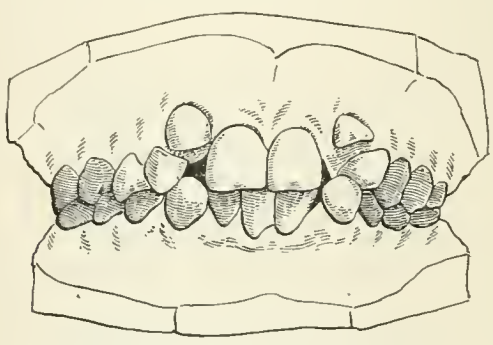

Fig. 6.—Deformity showing the result of too early extraction of the deciduous incisors (Angle).

Case I.—Breast-fed child. Age 5 years, had had only measles. Left side of face was swollen, toothache. Lower temporary molars were badly broken down, the pulps being septic; the gingivæ were inflamed. The tongue presented markings of lingua geographica. Cervical glands were enlarged and painful to the touch. The anterior pillars of the fauces were slightly reddened. Temperature, 100.1°. A diagnosis was made of buccal infection from septic teeth and absolute neglect of oral hygi-

ene. Treatment consisted in the extraction of badly decayed septic teeth, mouth wash of liquor antisepticus, and a laxative magnesium sulphate.

Case II.—Breast-fed child, age 5 years. Right side of face swollen, no previous disease. Several badly broken down septic temporary lower molars.

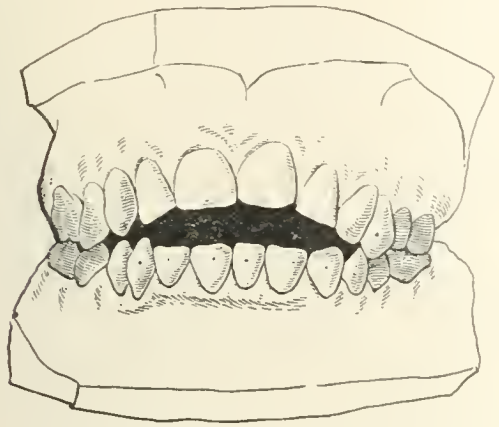

Fig. 7.—Deformity produced by biting lower lip and pressing occlusal edges of upper teeth against outer surface of lower lips.

Ulcer below the lower right gingival border in the molar region. Cervical glands enlarged on right side. Bacteriological examination of pus from gingival ulcers shows a pure culture of Vincent's spirilla. Diagnosis: Buccal Vincent's angina due to infection from septic teeth. Treatment: Extraction of decayed teeth, mouth wash of bichloride of mercury 1:10,000 in saturated sodium boric acid; mild laxative. Gingivitis and ulcer cleared up in 5 days and the glands were reduced in 10 days.

Looking up the literature, I find that Odenthal of Bonn has investigated the relationship between chronic enlargement of the cervical glands and dental caries. He examined 987 children, 429 had carious teeth and of these 424, or 99 per cent., had glandular swelling. Hoppe of Leipzig examined 269 cases and found in 73.9 per cent. glandular swellings, in nearly all instances associated with carious teeth. Sexton, who examined the teeth and ears of the inmates of a large charitable institution, they being almost exclusively within the age of second dentition, found that over 6 per cent. were suffering from otitis media purulenta. In 30 children there were frequent attacks of earache; in some cases there were earache and toothache simultaneously. In many cases, he writes, where inflammation cannot be directly traced to dental irritation as its cause, it is certainly aggravated by the latter and a cure is seemingly impossible until the dental irritation is removed.

Dench writes that it is quite possible that carious teeth may cause middle-ear inflammation, either directly by the introduction of germs into the tympanum through the Eustachian tube or indirectly through the nose.

Mouth breathing, as is well known, is a very potent and common contributary cause of phthisis, and in many cases this pernicious habit is formed as the results of carious teeth in early life. An exposed nerve or tender gum, or a dental periostitis renders mastication painful and the child is afraid to close its jaws, and not only acquires the habit of bolting its food, but also to avoid painful contact of the teeth, keeps them open sufficiently to part the lips and commences to breathe through the aperture thus formed. Mouth breathing will also be produced by dental irregularities as previously shown. Thumb-sucking is also productive of this pernicious habit. It is hardly necessary to point out the deleterious results of mouth breathing; too much is not said, if it is stated that the upper half of the head does not develop properly in mouthbreathers. The upper respiratory apparatus also becomes predisposed to disease, as well as the faucial and Lushka's tonsils. The part played by oral sepsis in enlarging the tonsils will itself favor this dangerous habit.

Whatever may be said in regard to specific septic infection, taking place through the mouth and teeth, there is no doubt as to the existence of secondary anemia, associated with lowered vitality and great foulness of the whole alimentary tract resulting directly from buccal infection. In such cases not only is there local absorption of toxins through the mucous membrane of the mouth and the alveoli of the teeth, but the infection with staphylococci is a continuous process throughout the alimentary canal. Just as the remedy for chlorosis is said to consist in the cleansing of the lower end of the intestine, so it may be claimed that the cleansing of the mouth is of equal importance. It is a safe aphorism: Look after the ends of the alimentary canal and the middle will look after itself.

All that has been said in reference to the part played by oral sepsis in the production of phthisis in adults, may be repeated with greater emphasis in the case of children. They are more susceptible to diseases of the respiratory organs and of tuberculosis in particular. In 586 children examined during an outbreak of diphtheria, in London, 458 showed signs of buccal disease, ranging from simple hyperemia of the mucous membrane of the mouth and throat, to hypertrophy of the tonsils with adenoids, etc.; 88 per cent. of the children had carious teeth.

A great deal of indisputable evidence has been gathered to show the connection between oral sepsis and general infection. Pedley in his book, "Diseases of Children's Teeth," quotes among many others the following cases supplied by Dr. Wainwright, House Surgeon at the Evelina Hospital, London:

Mary Banton, 7½ years old; stomatitis and diarrhea of 5 weeks' standing; nearly all the teeth were carious and very foul. Four were removed and a mouthwash of permanganate of potassium was ordered and was also used with a toothbrush. The mouth became clean and diarrhea ceased in a week.

Carolina Willcocks, 3 years old; extreme stomatitis and diarrhea with great emaciation. Pus oozing from all of the teeth which were carious. They

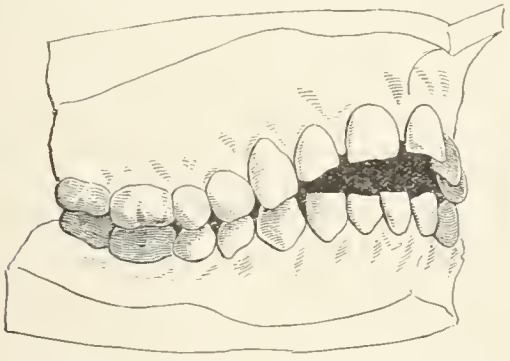

Fig. 8.—Deformity produced by continually thrusting the tongue between the teeth, and thumb sucking (after Angle).

were removed. The child became quite well at once, grew fat, and is still so, though toothless.

Ellen Burns, aged 6½; bronchopneumonia and diarrhea. Three lower molars were removed opening up an abscess cavity. The diarrhea ceased and in four weeks the child's weight increased from 2 stones 3 lbs., to 3 stones 4½ lbs.

Many other cases could be cited. The diarrhea in all these cases was of the same nature. About three motions each day, which were frothy and intensely offensive. In most cases the offensive character disappeared for some days before the diarrhea ceased.

The effects of swallowing quantities of putrid material are often associated with other symptoms besides disturbances of the alimentary canal.

The toxins are taken up by the lymphatics of the stomach and intestines and pass into the blood stream. Headache, nausea, and vomiting may follow, sometimes accompanied by a rise of temperature, showing the symptoms of sapremia (due to the absorption of chemical substances and in no sense of the word an infective condition).

In view of all this, why is it that the mouth is not cared for in the manner necessary to reduce the oral sepsis and its sequelæ? The reasons are that the busy general practitioner does not realize the importance of oral hygiene, the lack of knowledge of parents and guardians regarding these matters; and the remedy which will overcome these conditions is collaboration of the general practitioner, the specialist, and the parents. The first step I think has been taken, in that the Board of Health has the mouths of children examined, now let the family physician take up this work and the results will be of inestimable value to humanity at large.

The care of the mouth can be outlined in one sentence, namely, "Keep the mouth clean," which means: (1) To reduce oral sepsis as much as possible; (2) to render the buccal cavity alkaline; (3) to reduce dental caries, to avoid this as much as possible by frequent oral examinations and early filling; (4) to reduce inflammatory conditions and remove their local and systemic causes; (5) to avoid the untimely extraction of teeth; (6) to induce normal bodily functions to establish and maintain a physiological balance.

This applies to adults as well as to children, but the earlier it is instituted the better the results. Another factor important to the reduction of dental caries and its sequelæ, namely, the proper development and calcification of the teeth, is the rational mode of living of the mother during pregnancy and the rational feeding of the infant and child.

A very important step towards the reduction of buccal sepsis and its innumerable sequelæ would be the appointment of a stomatologist on every hospital staff whose duty it would be not only to attend to emergency cases (as it is in a few hospitals), but also to make his regular rounds and create and maintain clean, healthy mouths. I believe it is of great importance that a patient who is to be operated upon, whether the operation be a laparotomy or any other surgical procedure, should not only, as is customary, have his bowels cleansed, but the other end of the tube, his mouth, should also be rendered as clean as possible.

The first step necessary would be an elimination of inflammatory processes and suppurative foci which exist so frequently. We all know what an ideal incubator, abundant in material favoring the production of sepsis, the mouth is. How many patients confined to bed with typhoid fever and other diseases of long duration have their mouths cleansed? How many sanatoria for the treatment of tuberculosis have a regularly attending dentist? This is not dentistry, but prophylactic medicine and, after all, the greatest triumph of medical science is not the curing, but the prevention of disease.

150 East Seventy-fourth Street.

SPECIAL PROVISIONS FOR MANAGEMENT OF CERTAIN FORMS OF MENTAL DISORDER.*

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The fundamental and at the same time imperative indication in management of mental cases is *isolation*. The reason of it lies chiefly in the necessity of removing the affected individual from his usual surroundings where the delusional conceptions and faulty interpretations originated. By this method any cause that is apt to revive and accentuate the already developed delusions is thereby removed and the patient whose mental operations are disturbed and who is therefore incapable of appreciating fully the reality of things, can be properly taken care of. Isolation is the essential therapeutic principle in mental diseases.

The varieties of cases with mental deviation from normal are legion. The question is whether all cases should be treated uniformly with respect to isolation or not. Otherwise speaking, should all cases of mental disorder be indiscriminately committed to special asylums for the insane?

During a very long time an asylum was considered as the sole means of treatment of lunatics who were gathered there pêle-mêle. Gradually a necessity had arisen for division and subdivision of the institution in separated quarters for various types of insanity. Continuous study and clinical observation in mental diseases led to a further discrimination of forms of psychic disorders and in the light of our present knowledge of the causes, course, and prognosis a question naturally arises: "Are we justified or is it beneficial to direct all cases with mental derangements to special insane institutions?"

Commitment of a patient to an asylum is accompanied by certain inconveniences. Independently of a request made and signed by a member of the family, the law requires a medical document certified by a public officer. These formalities have been found necessary in order to avoid arbitrary commitments, but they have the inconvenience of stamping the patient in the eyes of the community with a neuropathic stigma of an hereditary nature. In the present state of our ideas and customs such a condition is bound to have its effect upon the patient's future social life and interfere with his obtaining a position for his livelihood. The unfortunate victim of an accidental delirium or of another curable mental disturbance of brief duration, committed to an insane asylum, may in the future be disqualified socially.

Although nowadays physicians and the laity are sufficiently enlightened on the subject of psychiatry as to consider a lunatic a diseased person but not as one possessed by "the devil," yet the humane ideas of Pinel and Esquirol concerning insanity are far from being understood by all. The prejudice existing in regard to commitment is still in full vigor. An individual once treated in an asylum, even for a very short period and though fully recovered, is branded as an unsafe person and will meet with great obstacles in his life. Since such views exist and it is beyond our power to alter the prevailing prejudice, it is our solemn duty to endeavor at

*Read by invitation at the meeting of the Pennsylvania State Medical Society, Cambridge Springs, September, 1908.

least to ameliorate the existing condition in an indirect way. Apart from purely sentimental consideration of the question, let us see if our scientific knowledge of mental disorders will enable us to find some means for obviating the necessity of committing all persons suffering from mental derangements.

It is a common occurrence to witness episodic attacks of delirium or confusion in the course of infectious diseases, such as pneumonia, grippe, typhoid fever, etc. Confusional or delirious states are also observed in uremia, in the puerperium, also immediately or shortly after surgical operations. Acute morphine or cocaine poisoning and acute alcoholic intoxication of short duration are accompanied by confusion, delirium, or else stupor. An epileptic seizure may be followed by a delirious state which is transitory in character. An hysterical paroxysm may be accompanied or preceded by delirium with hallucinations and illusions.

Should all these mental disorders which are essentially temporary in nature and most frequently recoverable without the least tendency to permanency—be a sufficient reason for commitment of individuals thus afflicted to asylums and thereby place the latter and their families in difficult positions?

When we turn our attention to the true classical psychoses, we will also find certain forms for which asylum treatment is equally unjustifiable.

While melancholia with its pronounced mental depression, delusions, and evident tendencies to suicide, should be treated in special institutions, there are nevertheless varieties and subvarieties of the same affection to which forceful commitment would be injurious. In fact these milder forms are by far more numerous than the typical form. There are a great many individuals who in their life pass through a number of mild attacks of genuine depression characteristic of melancholia and repeatedly recover. Should such individuals be placed in insane asylums, the surroundings of the latter will doubtless have a deleterious effect on their mental condition. Having sufficient amount of reasoning power they will be worried over their confinement among the insane and over the fact that the laity views insanity from a very prejudiced standpoint.

Very frequently an attack of delirium is taken for mania and the patient is hurried to an insane institution. Paretics in the early stage, when only neurasthenoid symptoms are present, should not be placed in such an institution. It is well known, speaking generally, that the sooner the diagnosis is made and the earlier the general treatment is instituted, the later the second stage will make its appearance. The same remarks can be made in reference to dementia præcox. The numberless cases of mild dementia observed in senility or in cerebral softening are equally not subjects for lunatic asylums.

There is a series of mental cases by far larger than the true forms of insanity, which belong to the so-called "borderland cases." They are composed of all varieties of obsessions, doubts, phobias, of cases with deficient inhibition, as for example kleptomania, of the hypochondriacs who are walking pathological museums, of the large number of neuropaths who episodically exhibit peculiar psychic manifestations of an unclassifiable nature.

Are we justified in advising commitment of such individuals? The rich among them seek relief in private sanatoria for nervous diseases, but what about the less fortunate psychopaths? Should they not be given analogous facilities and escape the insane asylum?

This brief discussion is sufficient, I believe, to indicate the urgent advisability of a careful discrimination among the overwhelming multitude of mental disorders with reference to the method of management.

The insane asylums, as they are organized at the present time, are suitable for incurable psychic infirmities, but do not meet the material or moral requirements of recoverable maladies. This truth was recognized even by Esquirol. There are two ways to remedy the existing state of affairs. One is either to create special asylums for the acutely insane or else to divide the existing institutions into departments for acute and chronic insane. The other remedy is to create either special hospitals or special services in the already existing general hospitals.

As to the first, it doubtless presents considerable conveniences from the standpoint of treatment, but it does not remove the above-mentioned substantial objection, viz., the stigma which accompanies every individual who even once in his life had been placed in an asylum.

Special hospitals for the acutely insane or recoverable cases of insanity present grave objections as they are and always will be considered by the laity as analogous to the old asylums for the insane. Alienists of distinction in France, Germany, Switzerland, England, Denmark, and the United States, solicitous about the proper treatment of the acutely insane, moved by justifiable expectations of curing such individuals, penetrated by the sense of justice due to them and their relatives in abstaining from commitment, have initiated a propaganda for the creation of special services in the general hospitals. The benefit derived from such an organization is manifold.

If a patient in a surgical or medical service of a hospital suddenly develops a delirium with or without hallucinations, he will be certainly a source of great disturbance to his fellow patients. If he remains in the same service, all sorts of measures will have to be taken to restrain him. These measures are not without danger. The usual means of coercion, such as the straight jacket, are decidedly injurious to acutely agitated and delirious patients, as for example alcoholics, cardiac, pneumonic, or typhoid cases. He will then be immediately transferred to the special psychopathic service supplied with a sufficient number of attendants and nurses, and be treated without forced restraint until recovery follows. When the latter takes place, he will be returned to the service from which he came. If an individual irrespective of any organic visceral lesion should develop suddenly a confusional state with or without delusions, the nature of which can be appreciated only after a prolonged observation, the special service in question will undoubtedly be of enormous help under the circumstances. When after a reasonable period of observation, the diagnosis is definitely established and the patient is recognized to be incurable and dangerous, commitment to an asylum is advisable. In case improvement is noticeable, the treatment will be continued, and finally, when recovery takes place, the patient is discharged with the thought that he was treated in a general hospital. He will encounter no difficulties in obtaining a position.

Enormous benefit will be derived by those melancholiacs whose chief symptom is only various degrees of mental depression. Besides the purely moral effect from being kept away from an asylum,

the therapeutic applications will be followed by the most favorable results. We know from experience that when an appropriate treatment is given in such cases upon early manifestations of the disease, the improvement may be rapid and tendency to extreme despondency and consequently to suicide may not develop.

If we consider legions of the neuropaths with their various obsessions and impulses, a special isolation service in a general hospital instead of an asylum may bring the greatest amount of good. Such patients must be isolated and treated vigorously by hygienic and dietetic measures which can be applied only in a well organized service.

Every practicing neurologist is well aware of the fact that the suggestion alone of an institution, be it even a private one, to this class of patients is repulsive. The name sanatorium is identified by them with an insane asylum. Having sufficient intellect to reason, they believe themselves affected in their mental faculties and therefore view with horror the placing in special institutions. When placed there forcibly, they naturally abandon themselves to progressive self-analysis with the most disastrous results. Being naturally inclined to mental disturbances by reason of their peculiar make-up, they will be placed in the most unfavorable conditions when sent to special institutions. Their "borderland condition" may thus be overstepped. When on the other hand the doors of general hospitals are open to them with all the appliances, medical and surgical, known to every lay person, no objection from our special patients will ever confront us and the greatest facilities will be then offered to us to accomplish a great amount of good for those unfortunate victims. We all know from experience that when patients of that character are given complete or partial rest in bed, the rules of intelligent hygiene and dietetics strictly observed, regularity of life maintained, all sources of irritation and annoyance removed; finally when these patients come in daily contact with intelligent nurses and attendants who are especially trained in the manner of handling and speaking to them, and with all this a continuous, kind, and skillful suggestion on the part of the physician in charge—when all these means are at our command, our patients, speaking generally, improve rapidly. This is a daily observation with our wealthy patients. If this is the case with rich people, does not the community owe a similar debt to the less fortunate hypochondriacs and neuropaths who crowd our offices and dispensaries for months and years without appreciable results?

The creation of special wards in general hospitals will necessarily involve an economic problem, but when we consider the enormous expense of the crowded asylums with very little or hardly any result, so far as the treatment is concerned, and therefore an aggravation of the mental condition of some patients and consequently an increase in the insane population; when all this is considered, I say, the economic objection loses ground.

The special service under discussion will require no special arrangement distinguishing it from other services of the general hospital, except an increase in the personnel and a separate hydrotherapeutic outfit. A sufficient number of nurses and attendants is necessary and they must be especially trained in management of various nervous and mental disorders.

So far the interest and welfare of the patients have been considered. There is also another great advantage in creating special psychopathic wards in general hospitals. I mean from an educational standpoint.

The study of mental diseases, generally speaking, has been neglected or ignored by the average man. It is true that the treatment of patients with chronic delusional ideas is not the province of the general practitioner, but the latter *volens nolens* will meet cases with acute delirium developing in the course of toxiinfectious or other diseases for the management of which he was primarily called upon. It is essential for him to be able to discriminate between an ordinary accidental delirium which is only transitory and temporary and a beginning delusional state which is to become systematized and prolonged. It is essential for him to distinguish between a delirious or confusional state caused by a cardiac or renal condition and a similar state in a beginning genuine psychosis. It is also highly practical to be able to distinguish a case of a neurasthenia or hypochondria from melancholia and their intermediary stages. Errors due to a confusion of these various mental states are continuously being repeated. The responsibility of committing patients to insane asylums is enormous and errors caused by want of elementary knowledge of psychiatry are not infrequent. Special services when created in general hospitals will give resident physicians an excellent opportunity to observe and study various mental disorders and their treatment under the guidance of their expert chief. It is true that courses in psychiatry are now given in the majority of the medical schools, but no teaching will ever take the place of an active participation which internes attached to a service are obliged to take. Whoever became interested in mentally affected persons knows that one must live in their atmosphere to be able to understand them.

These few considerations permit us to draw the following conclusions.

The greatest advantages would accrue to both patients and the community if ordinary hospitals would undertake to treat mental disorders. By these means a certain group of acute mental diseases and some other mental disorders would be placed under the same conditions as other maladies in which so much progress has been accomplished from a scientific and a therapeutic standpoint. The principles of scientific prophylaxis cover a large field: they can bear fruit also in mental and nervous disorders, when the patient and neurologist are placed under favorable conditions. Finally the most important feature in the new service I am pleading for lies in the demonstration of the truth that insanity is a disease, which is not repugnant nor to be ashamed of and which develops like any other malady.

Foreign Bodies in the Eye.—Mr. Bishop Harman says that the after-treatment of an eye from which we have removed a foreign body will be varied, as we consider sepsis likely or unlikely. If sepsis seems unlikely, we may merely cover up the eye with a soft pad and bandage and let the patient go, with the caution to return if the eye be red next day. If there be much abrasion of the cornea, we should instil atropine as a further means of putting the eye at rest. Should we deem the injury septic, it is our duty to sterilize the wound, and that we can readily accomplish by touching it with pure carbolic acid. This may sound drastic treatment, but it is painless and efficient; the acid anesthetizes the part, and can be applied so as to reach only the point to which it is applied. Cocaine should be instilled. The lids should be held well open, and the tears sopped up with a pledget of wool held in the lower fornix; then, after drying the cornea by touching it with a piece of filter paper, press the sharpened end of a wooden match soaked in the acid into the wound, and gently move the point over the whole area of the abrasion. The part on which the acid has acted will turn white, but the discoloration is transient; the next day, in a successful case, no sign may be detected of the application.—*The Clinical Journal.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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HEREDITY AND DISEASE.

THE question as to whether disease is transmissible from parents to children is a fascinating subject of study, and one which is by no means definitely settled. Few ordinary persons will be found to deny that mental traits and characteristics are handed down from parents to their offspring, and the matter of the amount of influence that disease exerts upon the next generation has not been finally decided. At one time the belief was more or less common that certain diseases passed on from father or mother to son or daughter. Now that view has been greatly modified, and the current theory seems to be that no disease can be directly transmitted, but that there are maladies to which, if parents suffer therefrom, their children are likely to be susceptible; that, in fact, an individual may inherit a distinct susceptibility to a disease, or at least a weakened power of resistance to it. Furthermore, there would appear undoubtedly to be some diseases which transmit manifest traces to a succeeding generation, a legacy of ill, which it is difficult to explain without embracing the theory of heredity of disease to some extent.

In the Harveian Oration delivered recently before the Royal College of Physicians of London, Dr. J. A. Ormerod took as the subject for his address "Heredity in Relation to Disease." Naturally it is not easy to say anything new on such a subject, and Dr. Ormerod made no original remarks but stated in a plain common-sense manner the opinion of probably the majority of scientific men. Learned authorities such as Weismann, Galton, Pearson, and others have put forth their theories with no uncertain voice, but it must be borne in mind that they do not all agree on certain important points, and that learned as a man may be he may yet be led astray.

Dr. Ormerod says that there appears to be a glaring instance of transmission of disease by heredity in the case of syphilis, but that this is explained as follows: "Either the child imbibes the virus *in utero* by the placenta from an infected mother—this is evidently an antenatal infection rather than an inheritance—or else the virus is introduced by the sperm cells of the father at the very moment of conception; this again, whatever it may appear to us, is to the biologist not inheritance but an infection of a still earlier date. Similarly it is denied that there can be a true inheritance of any microbic disease whatever. Suppose we assent to that, yet susceptibility to such diseases, in either a plus or minus direction—that is proclivity to them or power of resistance to them—may be inherited. And may not such susceptibility be first acquired and then transmitted?" This last sentence really puts the whole question in a nutshell. If no diseases can be inherited, nevertheless it is possible that acquired susceptibility to them may be inherited.

Again, how far does the prevalence of a disease among a race for a continued period confer immunity? When pulmonary tuberculosis attacks a people who have hitherto been free from its ravages it spreads like wildfire and is fearfully destructive of life. The same may be said of syphilis when it encounters a virgin soil. This would appear to show that in the case of nations who have had these diseases with them for hundreds of years, some degree of resistance has been acquired and then perpetuated. That is to say, that the taint in the blood, so to speak, which confers immunity has been transmitted.

In the sphere of the nervous system the study of heredity in disease is of the greatest interest. Here most certainly, as the speaker showed, heredity is an agent of great power, for it ranks with injuries, infections, and intoxications as one of the principal causes of chronic nervous degeneration. So far as the neuroses are concerned, including such affections as epilepsy, insanity, hysteria, neurasthenia, tics, alcoholism, etc., the manifest influence of heredity can be easily traced. In addition, there are some diseases, such as Friedreich's ataxia, Huntington's chorea, and periodic paralysis, which crop up, either in successive generations or in one generation; periodic paralysis, indeed, has been traced back for five generations. These have been called familial diseases, to avoid the distinct assertion that they are hereditary, but this seems to one very like verbal hair splitting. As to acquired characters being transmissible, Dr. Ormerod truly remarks that in answer to this question "the plain unlearned man would certainly say 'yes,' and so did the learned up to a short time ago." Weismann's theory of heredity, so widely held nowadays, has overturned this view, and the theory of the continuity of the germ plasm is the one which now holds sway.

Our views on heredity may have been wrong and needed revision, but possibly at the present time we are progressing too rapidly in the opposite direction. The biologists have arrogated to themselves the position of laying down the law on the subject to the scientific world, and scientists appear to have recognized the assumed superior knowledge of the biologists, albeit they have not been able to fit in all the parts of their theory. They may be right, but until they have proved their points more conclusively than they have proved them up to now, the ordinary man is quite justified in exhibiting some degree of scepticism on the subject.

HOSPITAL MANAGEMENT.

IT goes without saying that the value of a hospital is mainly dependent upon the manner in which it is managed. If a hospital is badly managed, then its sphere of usefulness is greatly limited. This statement, however, is so obvious that it is not worth while to waste time in discussing it. Many hos-

pitals are not so well managed as they might be. This also is an obvious statement, but it leads to the matter in point. How should hospitals be managed so as to be wholly successful? Undoubtedly there are a large number of hospitals in this country and in New York itself which are excellently managed and which therefore give most satisfactory results, but there are also some of which the reverse may be said.

It is not the intention here to criticise the management of the hospitals of America, but to note what has been recently stated in regard to the management of hospitals in Great Britain by one of the greatest authorities on the subject. Sir T. Clifford Allbutt delivered an address on hospital management at the opening of the Medical Department of Victoria University, Manchester, on October 1. In Great Britain the control of hospitals is invariably in the hands of both laymen and medical men Frequently the lay managers are more numerous than their medical confederates, which often leads to a large amount of friction. There have been in recent years several regrettable controversies between the lay governors and the hospital staff and medical members of the board of control. Allbutt, referring to this subject, said that a prevailing error in hospital government was the failure of the lay managers to act in frank and equal partnership with the medical managers, whereby the full cooperation and best results of money and knowledge were more or less sacrificed. In this matter the lay governor was a little apt to be arrogant, a little purse-proud. Yet, after all, money was but the raw material, to be worked up with knowledge. The speaker proceeded to say that the belief that money was of more value than knowledge was vulgar and erroneous. Yet in the medical and lay partnership too often the lay manager presumed that the physician or surgeon was not his partner in hospital management, but in some sort his servant. The partners should not be, and, in fact, are not master and servant, but comrades; and even if the great healing engine is created by banknotes the principle of frank and open partnership should not be modified. Of course, there are often faults on both sides. Sometimes the scientific expert is prone to allow his imagination to carry him into the realms of extravagance, but on the other hand the layman is just as likely to be narrow-minded, domineering, and unduly meddlesome. He looks upon the whole affair from the standpoint of economy alone, and is apt to be cheeseparing at the expense of scientific progress. Unless, indeed, medical and lay managers work in unison and keep in touch, little mistakes and large blunders are continually being made.

The argument of the lecturer was that scientific research and the proper treatment of patients should not be hampered by laymen who were necessarily ignorant of scientific and medical matters. Of course there is another side to the argument. Physicians are proverbially bad business men, and if the whole management of hospitals were left in their hands it is to be feared that unsatisfactory results from the point of view of economy would occur. Good business men are absolutely needed in the management of hospitals and therefore it is eminently fitting that a certain number of laymen possessing the commercial instinct should be found on the boards of hospitals. But there would seem to be no reason why medical men and laymen should not work together amicably with good results to science and in the best interests of the institutions concerned.

Kefir in Malnutrition of Infants.

It is now generally recognized that neither drugs nor general hygienic measures play any great rôle in the therapy of chronic malnutrition of infants; the whole problem is that of feeding, and where breast milk is unavailable and modified cow's milk unsuccessful, this problem becomes very difficult indeed. Of late the administration of soured milks, that has won a recognized place in the therapy of the gastrointestinal disorders of adults, has been tried in the nutrition of infants, and has proved to be of distinct value in well selected cases. Dresler has experimented with the use of milk prepared with the kefir ferment and in the *Münchener medizinische Wochenschrift* for November 10, 1908, Tollens reports his results with the ferment obtained from Dresler. Freshly boiled milk was used, the ferment being allowed to act for eighteen hours, the necessary dilution being made with six per cent. sugar solution. The children very quickly lost their dislike of the sour-tasting food and the good effects of it were observed in a surprisingly short time; the appetite improved, the appearance of the skin became much more healthy, the increase in weight was constant and satisfactory, and the stools assumed a normal consistency and odor. The improvement soon allowed a transition to the usual milk modifications and the "kefir children" of the hospital were then safely sent home to the care of their mothers. A number of illustrative cases reported by Tollens give good evidence of the success of the method in individual children. There seem to be no contraindications to the use of the ferment so far as chronic cases of indigestion and malnutrition are concerned. Acute cases are probably ill-adapted for the use of such milks, the experience with milk soured by the Bulgarian lactic acid bacilli having been discouraging in this class of patients. Kefir fungi are obtainable in America and may well be tried in connection with hospitals for infants where the effects of such diet may be properly observed. The paper of Dr. Tollens noticed above and the original article of Dresler in No. 27 of the *Medizinische Klinik* for 1908 give the necessary details for the preparation of the food in question; proper attention to these details is, of course, a *sine qua non* of success, for fermentation of milk not controlled in the right time may easily result in products that will prove highly injurious to the sensitive gastrointestinal tract of the infant.

"Healed" Lesions in Tuberculosis.

Both clinicians and pathologists are fond of describing and demonstrating tuberculous lesions in which calcification has taken place as "healed lesions," which have become free from danger to the organism, and, indeed, it would seem as if the chalky nodules could not be suspected to harbor virulent bacilli. Some experiments of Schmitz, however, made under the direction of Lubarsch and reported in the *Deutsche medizinische Wochenschrift* for November 5, 1908, cast grave doubt upon the seeming innocence of these lesions. Inoculation of

guinea-pigs with the chalky material obtained from such lesions was followed by the infection of the animals with tuberculosis in seventy-five per cent. of the cases, while nodules that had assumed stony hardness proved to be infective in over thirty-five per cent. of cases. That the process of calcification is not necessarily of equal significance in all animals was shown by the fact that chalky nodules taken from tuberculous cattle and pigs proved much more frequently infective for guinea-pigs than similar material obtained from human lungs; calcification in human beings, therefore, seems to be of greater conservative significance than an anatomically similar process in the lower animals. The important conclusion to be drawn from these results is that great care should be exercised in considering any appearances in tuberculous lesions as signifying that healing has taken place. Careless induction of this nature when applied to the condition of tuberculous foci in living patients that clinically have apparently conquered the disease may lead to very unfortunate results if the patient follows his usual mode of life or unnecessarily exposes his lungs to some injuries. To look upon any appearances as indicative of "healing" in tuberculosis is little warranted in the face of the above experimental results; at most we should look upon calcified lesions as quiescent foci, and this attitude is certainly safest for the patient.

Antidiphtheritic Serum in Post-diphtheritic Paralysis.

Although antitoxin is universally used in the acute and early stages of diphtheria it is still considered as of doubtful value in the paralytic sequelæ of the disease. G. E. Schneider and L. A. Vandeuvre, in the *Progrès Médical* for August 29, 1908, state their belief that we may prevent these complications and may cure them when they have occurred by the use of large doses of antitoxin. In cases in which these injections have been successful the tendency has been to say that the disease tends to recovery, and that nature could have accomplished a cure if let alone. The authors cite a very interesting case, that of a young adult, who after an attack of diphtheria of moderate severity, from which he recovered, after injections of antitoxin, and remained well for five weeks, was suddenly attacked with paralysis involving all of the muscles of voluntary motion except those of respiration. He was unable to swallow and became emaciated from lack of food. Atrophy of all the muscles was extreme so that he had the appearance of a living skeleton. His heart was irregular and he was somnolent. Injections of antitoxin of twenty cubic centimeters each were given, five in all, and improvement began after the first. He recovered entirely and was able to attend to all of the duties of a soldier. Even an isolated instance, when so striking as this, is at least suggestive and would warrant a further trial of the serum in the late complications of diphtheria.

News of the Week.

Tuberculosis Exhibition.—The International Tuberculosis Exhibition brought to New York from Washington largely through the efforts of Dr. Alfred Meyer, opened at the Museum of Natural History on November 30. At the opening meeting addresses were made by Mayor McClellan, Mr. Robert W. De Forest, Mr. Edgar J. Leavey, Dr. Darlington, Dr. Meyer, Dr. Abraham Jacobi, and Prof. H. F. Osborn of the Museum. The exhibition will be open daily from 10 A. M. to 11 P. M. and on Sundays from 1 to 5 P. M., and no tickets are required. Besides the exhibit work on the three floors of the museum there will be a number of special conferences for the medical profession, churches, Y. M. C. A.'s, labor unions, telephone operators, street railway employees, and others. These conferences taken in connection with 40,000 posters to be displayed, street car cards, and more than one million pamphlets to be distributed or mailed, will, it is believed, interest nearly one million people in the subject and constitute the greatest battle against disease ever waged in an American city.

Physicians are taking an active part in the campaign and will hold a series of conferences as follows:

Dec. 4.—Mass Meeting of Physicians. Speakers: Drs. Lawrence F. Flick, Edward L. Trudeau, Simon Flexner, Joseph D. Bryant, and Mr. Edward T. Devine.

Dec. 8.—Mass Meeting of Medical Students. Speakers: Drs. G. F. Laidlaw, H. M. Biggs, W. B. James, Woods Hutchinson, W. Gilman Thompson, John B. Huber, and S. A. Knopf.

Dec. 18.—General Mass Meeting under auspices of the Homeopathic Medical Society of the County of New York. Dr. George F. Laidlaw, presiding. Speakers: Dr. Thomas Darlington, Hon. Robert Hebberd, Hon. Eugene H. Porter, and Dr. H. D. Pease.

Dec. 11.—Special Medical Meeting, under auspices of Public Health Section of the Academy of Medicine, Dr. John A. Wyeth, presiding. Dr. Walter F. Wilcox will be one of the speakers.

Monday, December 21, has been set apart as "New York State Day." The responsibility for organizing the meetings and exercises of New York State Day, at the request of the authorities of the Exhibition, has been accepted by the State Charities Aid Association, which will have the cooperation of the New York State Department of Health. The Hon. Joseph H. Choate, President of the State Charities Association, will preside over the general public meeting to be held in the evening. Among those who have been asked to speak are Hon. E. H. Porter, State Commissioner of Health, under whose administration that Department has carried into effect comprehensive and far-reaching educational campaigns for the prevention of tuberculosis; Hon. James W. Wadsworth, Jr., Speaker of the Assembly; Hon. Horace White, Lieutenant Governor Elect. Hon. John Williams, Commissioner of Labor, who is to speak on the Medical Inspection of factories with special reference to tuberculosis; Bishop Nelson of Albany, who is chairman of the local sub-committee on pubulicity, and has done most effective work in this line: Dr. William M. Gibson of Utica and Dr. Herman N. Biggs of New York City; John Mitchell of the National Civic Federation; Hon. Joseph T. Alling, President of the Rochester Health Association; Hon. Martin E. McClary, President Board of Managers of Ray Brook State Hospital.

Vanderbilt Clinic Day Camp.—The roof of the Vanderbilt Clinic, which has been prepared for the open-air treatment of tuberculosis, received its first quota of patients on November 30. On the Saturday preceding, the camp, which is to be known as the Red Cross Day Camp of the Vanderbilt Clinic, was open to inspection by those interested in the maintenance of the work. The entire roof over the laboratories, about 110 feet in length, has been covered with a waterproof flooring, and

along the northern wall a shelter has been erected which is completely open to the south. In the center there is a small but complete diet kitchen where a luncheon will be served to the patients, who will also be supplied with milk and eggs twice during the day. About forty or fifty patients will be accommodated, and steamer chairs and rugs are provided for them. The Ladies' Auxiliary of the Vanderbilt Clinic, which has recently been formed, is taking an active interest in the work and will assist in providing amusements, games, clothing, and such other extras as may be needed. The camp is under the direction of the Professors of Medicine, Diseases of Children, and Applied Therapeutics of the College of Physicians and Surgeons, and the attending physicians are their respective Chiefs of Clinic, Dr. L. R. Williams, Dr. E. La Fetra, and Dr. H. S. Patterson. Two other physicians will also be in attendance during the day, as well as several nurses.

Tuberculosis Sunday.—In response to a request made by the Committee on the Prevention of Tuberculosis of Brooklyn, many Brooklyn ministers set apart Sunday, November 22, for a discussion of means of preventing the spread of the disease in the borough. In some of the churches addresses were made by speakers sent out by the Committee, and collections were taken up to assist in carrying on the work. There is a great need for more dispensaries for the treatment of the disease and for nurses to reach the sick in their homes. New York clergymen have been requested to observe Sunday, December 6, in the same way.

Labor Men and Tuberculosis.—The Central Federated Union has decided to hold its regular meeting on Sunday, December 13, in the Assembly Hall of the Museum of Natural History, and to follow it with a mass meeting in connection with the Committee on the Prevention of Tuberculosis. Addresses will be made by physicians and by labor delegates from trades in which there is a danger of tuberculosis, and opportunity will be given to view the exhibition which is to open on November 30.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for September, 1908, shows that the sick rate per thousand is considerably less than that for September, 1907, although the usual decrease from the August rate did not occur. As compared to September, 1906, the decrease in the sick rate is very marked, being about 12 per thousand; that is, there was saved in the working force, in September, 1908, over September, 1906, 16,200 days of sickness. There has also been a notable decline in the death rate, particularly among the negroes. In September, 1908, the total death rate was 12.78, and the total number of deaths, 48; in September, 1906, the rate was 57.34, and in September, 1907, 28.63. The death rate among negroes has fallen in the past three years from 67 per thousand to 10.65 per thousand, and during the last six months has several times been lower than the rate among the whites. For some reason the whites seem to be much more exposed to death by accident than do the negroes. For example, of the 19 deaths among the whites during September, 12 (more than half) were due to violence; of the 29 deaths among negroes but 5 were violent. Dr. Gorgas, Chief Sanitary Officer, suggests that under present conditions, the number of cases of malaria may be considered an index of the conditions of sanitation. In September, 1907, 1,811 cases of malaria among employees were admitted to the hospital; in August, 1908, 1,525, and in September, 1908, 1,410, showing a decrease of 401 cases from last year. No case of yellow fever or plague has occurred in the Canal Zone within the last two years.

Cholera.—An increase in the number of cases of cholera in St. Petersburg occurred during the last week in November, most of them among the better class of families. The expectation that the cholera would die out entirely with the advent of cold weather has not been fulfilled. In Manila the situation has so greatly improved that Admiral Sperry reversed his decision not to allow the men of the Atlantic fleet shore leave during their stay there, and this was accordingly granted from November 26 to November 30.

Foot and Mouth Disease.—With the disease already reported in four States, and reaching almost to the source of New York City's milk supply, the situation has become alarming. Michigan and Maryland are the two last quarantined and traces of the disease have been reported elsewhere. Both England and Canada are maintaining a strict quarantine, and President Roosevelt has forbidden the exhibition of any cattle from the infected areas at the International Stock Show in Chicago.

Death Rate in New York.—For the week ending November 21, the death rate in New York was 14.58 per 1,000, with a total of 1,236 deaths. During the same week in 1907, the death rate was 16.09, and the total number of deaths 1,322. The statistics show a decrease in deaths from pneumonia and tuberculosis, and an increase in those from heart disease.

Our Falling Birth Rate.—During a lecture on Births and Birth Rate in the course in Sanitary Science at Cornell University recently, Prof. Walter F. Wilcox stated that from 1860 to 1900 the proportion to each 1,000 women of child-bearing age in the United States has decreased by 152, or an average of about 30 in each decade. If such a change, he pointed out, were to continue unchecked for a century and a half, there would be no children left. Prof. Wilcox said that the true reason for this fall, is that in modern times births and the birth rate have come to be the control of human will and choice to a larger extent than ever before. Under these conditions modern societies are apparently showing a tendency to increase from the classes with less prudence of self-control than the average, and thus to eliminate the most desirable lines of descent, somewhat as the monastic system has been said to do. He pointed out, also, that among men who were graduated from college probably one-fourth and among women two-fifths remain unmarried, a much larger ratio than in other classes.

Newark Water Supply.—The residents of Newark, N. J., have recently complained of the condition of the city water, which has had an oily or fishy taste and a pronounced odor, nauseating to those who attempted to drink it. Chemical examination has shown that the trouble is caused by the growth of the organism asterionella, the development of which is favored by low water in shallow reservoirs. The city engineers have begun to treat the lakes in the watershed with copper sulphate as a means of killing the organism. As a result of the city water becoming unpotable, Newark has very nearly experienced a famine in bottled waters.

Medical Reserve Corps.—Several leading physicians and surgeons were recently appointed First Lieutenants of the Medical Reserve Corps of the United States Army, among them Dr. Wm. T. Bull,

Dr. Roswell Park, Dr. Alvah H. Dotay, Dr. Simon Flexner, Dr. Thomas Darlington, Dr. Frank Foster, and Dr. Alexander Lambert of New York. All passed with "distinguished standing." They are liable to be called upon in an emergency for professional services, and when they are, they will be rapidly promoted to a rank more in keeping with their stations in civil life.

Hospital Ship in Storm.—The hospital ship *Relief*, which sailed from Manila on November 15, bound for San Francisco, was badly damaged by a typhoon which was encountered on November 18, during which the engines were disabled and fire broke out on board. This, however, was controlled by the crew, which showed splendid discipline. After being five days overdue at Guam, the vessel was reported, on November 25, from Southern Luzon, P. I. The *Relief* is under the command of Surgeon Charles F. Stokes, and during the anxious five days in which she was overdue, the question of the advisability of putting a medical officer in command with a civilian sailing master was acutely to the fore. The result proved that a capable surgeon is as fit to command a ship at sea as any other man of sound judgment and nautical experience.

Philadelphia Clinic for Home Treatment of Chest and Throat Diseases.—The Board of Trustees of this institution has recently purchased the property, 2114 Lombard street, and has made application to the State Board of Charities for an appropriation to adapt the building for the work of the Clinic. Until these alterations are completed the Clinic will continue to be held in the temporary rooms, 519 South Fifteenth street, Mondays, Wednesdays, and Fridays at 3 P. M. The work of the Clinic has been very satisfactory. Dr. Frank Read is President of the Board of Trustees, and Dr. Thomas J. Mays is Medical Director.

German Hospital, Philadelphia.—On Donation Day on November 26 the German Hospital received, in addition to nearly $8,000 in cash and $750 in useful articles, two donations of $5,000 each for free beds, one for the benefit of the members of the First Regiment, N. G. P., from Mrs. Bessie McClure in memory of her son, Dr. Sorden McClure, the other from Mr. George W. Bremer in memory of his parents, Lewis and Catherine Bremer.

Beth Israel Hospital.—At the graduating exercises of the Beth Israel Hospital Training School for Nurses (New York) on November 24, gifts to the amount of $60,000 for a new building for the hospital were announced. It is planned to locate the new institution on the East Side somewhere between Houston and Fourteenth streets. The graduating class of the school numbered eleven.

Hospital of the Rockefeller Institute.—At a recent meeting of the Board of Directors of the Rockefeller Institute for Medical Research, Dr. Rufus I. Cole of the Johns Hopkins Medical School, Baltimore, was appointed Director of the Hospital of the Rockefeller Institute for Medical Research and Dr. Christian A. Herter was appointed one of the Physicians to the Hospital. Work on the hospital buildings is in progress and it is expected that they will be completed and the hospital be ready for opening in November, 1909.

Hospital for Nervous Diseases of the City of New York.—An examination for the appointment of two internes in this hospital will be held on December 15. Application should be made to Dr. E. L. Hunt, secretary of the Medical Board, 54 W. Fiftieth street, Manhattan.

Dr. Daniel R. Brower of Chicago was recently appointed a member of the State Committee which is to have in charge the investigation of conditions at the Cook County Insane Asylum, Dunning.

Dr. E. C. Dudley of Chicago was recently elected an honorary member of the American Medical Association of Vienna. He is the third physician to receive this distinction. The other two honorary members are Dr. Politzer of Vienna, and Dr. W. W. Keen of Philadelphia.

Mme. Curie, the widow of Prof. Curie and with him joint discoverer of radium, has been appointed Chief Professor of Physics in the Faculty of Sciences of the University of Paris. Mme. Curie succeeded her husband in the professorship which he held in the Faculty before his death.

Athletics in the Public Schools.—Dr. C. Ward Cramptom, the new director of physical training in the New York public schools, is taking an especial interest in developing athletics among the boys of the elementary schools. The Board of Education has recently made official the practice for class athletics and the athletic badge test hitherto conducted in a few of the schools. The Public Schools Athletic League offers trophies for the class in each borough making the best record in each of the events.

Nobel Prize Awards.—It has been officially announced that the Nobel prizes for 1908 are to be awarded as follows: For chemistry, Prof. Ernest Rutherford, Director of the Physical Laboratories of the University of Manchester, England; for literature, Algernon Charles Swinburne; for physics, Dr. Max Planck, Professor of Physics in the University of Berlin; for medicine, divided between Dr. Paul Ehrlich of Berlin and Prof. Elie Metchnikoff of the Pasteur Institute of Paris. Prof. Metchnikoff is quoted as saying that as Theodore Roosevelt and other recipients of the prize in other fields have devoted the money to continuing the work in which they were interested, he intends to do the same "in continuing his efforts to discover how the body can get its chance, so to speak, and how it can be prevented from being needlessly sacrificed in early youth—comparatively, that is—at 70 or 80 years of age, when it ought to hold out until it is 150."

Publicity Pays.—The report of the management of the Mount Morris Plains (N. J.) Insane Asylum shows that the innovation which was made there last year in advertising for all supplies and making contracts therefor with the lowest bidders, has been successful. The result has been a saving of nearly $2,500 for the year.

Health of Montclair.—The rumor of an epidemic of scarlet fever in Montclair, N. J., has been met by the publication by the Board of Health of statistics for the month ending November 20. The report shows that during that time there were but nine cases of scarlet fever in the town. But one case of diphtheria had occurred among the four thousand school children since the schools were opened in September.

Harvey Society Lecture.—The fifth Harvey Society Lecture will be delivered on Saturday, December 5, at the New York Academy of Medicine, at 8:30 P. M., by Dr. M. J. Rosenau and Dr. John F. Anderson of the United States Public Health and Marine Hospital Service. The lecture will be on "Anaphylaxis."

New York Pathological Society.—At a joint meeting of this Society with New York Surgical Society on December 9, 1908, Dr. John Howland

and Dr. A. N. Richards will present a paper on "An Experimental Study of the Pathology and Metabolism of Delayed Chloroform Poisoning." The discussion of the paper will be opened by Dr. Gideon Wells of Chicago, Dr. James Ewing, and Dr. Charles G. L. Wolf. A discussion of the clinical aspects will be introduced by Dr. George E. Brewer.

American Association for the Advancement of Science.—The sixtieth meeting of this Association will be held in Baltimore, December 28, 1908, and January 2, 1909, under the presidency of Dr. T. C. Chamberlin of the University of Chicago. The permanent secretary is Mr. L. O. Howard of the Smithsonian Institute, the general secretary, Dr. J. Paul Goode of the University of Chicago, and the secretary of the Council, Dr. D. C. Miller of the Case School of Applied Science, Cleveland, Ohio.

American Society of Sanitary and Moral Prophylaxis.—A regular meeting of this Society will be held at the New York Academy of Medicine, on Thursday evening, December 10, at 8:30 P. M. The subject for discussion will be "The Lecture Work of this Society." Papers will be presented by Thomas M. Balliet, Dean of the School of Pedagogy, Prof. F. N. Seerley, Dr. Emma E. Walker, and others; followed by a general discussion.

The Eastern Medical Society.—The annual dinner of the Eastern Medical Society was held at the Hotel Astor, New York, on Thanksgiving night, November 26. Dr. Abraham Jacobi was the toastmaster, the speakers included Dr. Wolf Freudenthal, Rabbi Stephen Wise, and Dr. William K. Polk.

The Penobscot County (Me.) Medical Association held its 55th annual meeting on November 17, at Bangor, and elected the following officers: *President,* Dr. Harry Butler; *First Vice-President,* Dr. J. E. Lethiecq; *Second Vice-President,* Dr. H. P. Clough; *Secretary,* Dr. J. B. Thompson; *Treasurer,* Dr. H. H. Crane. The following standing committee was also appointed: Dr. W. C. Peters and J. O. Bemis of Bangor, and Dr. C. M. Thomas of Brewer.

Obituary Notes.—Dr. Thomas M. Wilson of Chicago died on November 19 in the Presbyterian Hospital in that city, after a three weeks' illness from glanders, aged 38 years. Dr. Wilson was graduated from the Rush Medical College in 1906, and has served as an interne in the Presbyterian Hospital and as instructor in pathology in the Chicago Veterinary College. For some time past he had devoted his spare hours to the study of glanders, in an effort to produce a serum to counteract the effects of the bacillus. His death adds another name to the list of martyrs to research.

Dr. A. J. Gibbs of Denison, Texas, died at his home on November 12, aged 72 years. Dr. Gibbs was graduated from the Pennsylvania Medical College in 1857, and had served as city physician and as a member of the Board of Health of Denison. He was a member of the American Medical Association, and of the County Medical Society, a veteran of the Civil War, and formerly editor of the *Eureka Springs Medical Journal.*

Dr. Walter M. Jackson of Stamford, Conn., died suddenly on November 15, aged 56 years. Dr. Jackson, who was a graduate of Harvard Medical School, after a few years of practice in Providence, R. I., settled in Stamford about seventeen years ago, and devoted himself largely to laboratory experiments. He had taken out a number of patents on various devices.

Dr. Charles Dexter Noble of Norway, Maine, died at his home, on November 9, after a long illness, aged 65 years. After serving during the Civil War in the 17th Maine, until wounded in the spring of 1864, Dr. Noble took up the study of medicine at the Louisville (Ky.) Medical College, graduating in 1867. In 1869 he settled in Oberlin, Ohio, where he remained in practice for nearly thirty years. During the Spanish War he served as surgeon in the 5th Ohio, and from 1900 to 1902 served in the Philippines. Here, however, his health gave away, and after his return he was unable to resume practice.

Dr. Armand Mignault of Salem, Mass., died at his home, on November 13, aged 53 years. Dr. Mignault was a native of Canada, and was graduated from the Victoria Medical College, Montreal, in 1886. He had since practised in Lowell and in Salem. He was a member of the Massachusetts Medical Society.

Dr. Hanley Nelson Bushnell, for many years a practitioner in northern New York, died at his home in East Orange, N. J., of old age, on November 28. Dr. Bushnell was born in 1827, and was graduated from the medical department of New York University in 1848. He retired from practice several years ago.

Dr. Gabriel P. Reeves, a well-known citizen of Yonkers, died at his home, on November 25, aged 99 years. Dr. Reeves was graduated from the medical department of New York University in 1845, and had practised in Yonkers from 1857 until his retirement a few years ago.

Obituary.

ANDREW J. McCOSH, M.D., LL.D.

NEW YORK.

Dr. Andrew J. McCosh, a prominent surgeon of this city and a man of many friends, died on Wednesday of this week, as a result of fracture of the base of the skull received last Saturday in a runaway accident. Dr. McCosh was born in Belfast in 1858, and came to this country with his parents when his father was called to the presidency of Princeton College in 1868. He studied at Princeton, and was a member of its first football team. Being graduated in 1877 he began the study of medicine at the College of Physicians and Surgeons, New York, receiving his degree with the class of 1880. After a year of postgraduate study in Vienna, he began practice in this city in the office of Dr. T. Gaillard Thomas. Dr. McCosh was surgeon to the Presbyterian Hospital and professor of clinical surgery in the medical department of Columbia University. He was a member of the American Surgical Association, of the Medical Society of the County of New York, of the New York Academy of Medicine, and of the American Medical Association.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

KING'S BIRTHDAY HONORS—BRADSHAW LECTURE—TUBERCULIN BY THE MOUTH—LISTER AND WEST HAM—MRS. GARRET ANDERSON A MAYOR—PLAGUE IN LIVERPOOL—OBITUARY—THE CENTENARIAN AND OTHER AGED MEMBERS OF THE PROFESSION.

London, November 13, 1908.

The list of honors conferred on the King's birthday will both please and disappoint. Of course, the politicians and supporters of the Government and free trade run off with the chief. But science and medicine get a few crumbs. Alfred Russell Wallace, F.R.S., has the Order of Merit, although this may be due to his chairmanship of the Land

Nationalization Society as much as to his great scientific position. Sir G. A. Critchett is promoted to the baronetage. Dr. Percival Hartley, Secretary of the Committee of the King Edward Sanatorium, has a step in the Victorian Order. Jonathan Hutchinson is given a knighthood. Such a title is scarcely appropriate for a veteran whose fame has penetrated every civilized country. I am sure the King would have fully realized his work if it had been explained in the weakest terms. The Premier and his cabinet have served him badly. If hereditary title was not desired His Majesty would have selected an appropriate distinction had he been properly informed. Dr. Thomas Oliver also gets a knighthood, largely, no doubt, in recognition of his excellent work in hygiene, especially on the White Lead Commission and the Madrid International Exhibition, and as Medical Expert in Dangerous Trades; but he has done good work as a physician, too. Dr. Donald Macalister enters the Order of the Bath. Dr. Stewart Woodhouse, who has served on the Irish Prisons Board, receives a knighthood. So does Dr. J. J. Thomson, Cavendish Professor of Experimental Physics, who received the Nobel Prize in 1906.

The Bradshaw Lecture at the Royal College of Physicians was delivered on the 3d inst., by Dr. W. Pasteur, of the Middlesex Hospital. He took for his subject, "Massive Collapse of the Lungs," treating at length of those cases which depend on imperfect power of expanding the thorax. Our knowledge about this may be chiefly derived from cases of paralysis of the diaphragm, the latest advance being due to the advent of radioscopy. Since the introduction of the orthodiograph, which eliminates the error due to the magnification of the shadow, accurate records of the size and position of the thoracic viscera in different phases of respiration have been obtainable, and by it Dr. Halls Dally has carried out a series of observations to which the lecturer referred in appreciative terms, and stated that during the last year he had obtained confirmatory results. He added that there are strong reasons for believing that the central tendon of the diphragm, contrary to former belief, moves freely in respiration. Dally, among others, has found that its curvature undergoes little change in its descent. Supported below by the viscera, it acts somewhat like a piston, pushing them forward and downward, and expanding the lower ribs. If the descent of the viscera is prevented by contraction of the abdominal muscles, the force is chiefly expended on the lower ribs. The expanding force of the diaphragm accordingly is for the most part exerted on the portion of the lungs below the great fissures—that is to say, on the lower lobes—and the study of cases of diaphragmatic paralysis shows what happens to the lungs when this force is removed. The lecturer then mentioned a series of 64 cases of diphtheritic paralysis observed by himself, the diaphragm being involved in 28. Clinical evidence is not so definite in cases of massive collapse. The physical signs may be due to compression, consolidation, or collapse, and the state of the patient may not permit careful examination. Curiously, too, when these signs have been most marked the patients have recovered, but they were mostly those of affections of the upper lobes from paralysis of the intercostals. Those form a group with apical signs for the most part. In another group—diaphragmatic—the signs point to the bases. Rarely the two groups seem combined with physical signs all over one lung. The lecturer had noticed a paradoxical symptom which he would not at present explain: That was exaggerated action of the lower ribs as an early indication of diaphragmatic failure, most obvious when the paralysis is well marked, disappearing as soon as the function is restored. In intercostal paralysis no sign is of greater value than flattening of the chest wall unilateral or bilateral. Another feature of importance is rapid onset of symptoms and equally rapid improvement on restoration of function. Massive collapse differs from the patchy or lobular form in being due to muscular weakness, and it may occur in the absence of bronchial obstruction, although the two may co-exist. Any degree of inflation of the lung may promote lobular collapse when there is any obstruction in the air-way, but the mode of production is different. Massive collapse is an active process; lobular, passive. The former is brought about by the active exercise of the elasticity of the lung, the latter, as usually held, by a passive removal of the air from portions of the lung, cut off by bronchial occlusion from the external air.

So far as to diaphragmatic paralysis. In contrast to it costal paralysis throws upon it all the work of respiration. The lecturer had seen two cases of this in the last ten months, and described them. In each there was duirng inspiration a definite diminution in girth of the upper part of the chest in striking contrast with the expansion of the lower ribs by the diaphragmatic action. Still, it is not easy to account for the further falling in of the ribs in this condition, except on the supposition that the root of the lung moves freely in respiration, and is not fixed, as it was thought to be. It would appear, then, that in complete paralysis of the upper ribs the expanding power in the diaphragm is not sufficient to prevent collapse of the upper lobes and in complete loss of that expanding power the costal breathing cannot maintain the expansion of the lower lobes.

The observation that pulmonary lesions may be caused by diaphragmatic failure led the lecturer to ask whether the same agency might not be sometimes responsible for the chest complications after severe operations. These are most often abdominal and the bases of the lungs most liable to be affected. Sepsis, anesthetics, cold, irrigations, aspiration of secretions during insensibility, and other things have been invoked to explain the post-operative lesions. Thinking that interference with the action of the diaphragm might be a cause, the lecturer had examined some patients under *x*-rays shortly after gastroenterostomy and had hoped to be able to bring forward some conclusions on this occasion, but the cases were not at present sufficiently numerous. He, however, exhibited some orthodiagrams and hoped to obtain tracings to throw further light on the subject. He had also seen 4 cases of massive collapse in the post-mortem room. The condition, he thinks, has been overlooked or neglected. It may lead to entire deflation of one or more lobes, is generally caused by the muscles which are the direct distenders—the diaphragm and intercostals—but there are strong reasons for thinking the reflex inhibition of diaphragmatic movement may lead to the same result. This, too, may throw light on post-operative lung complications.

Ever since the use of tuberculin was introduced one has heard at times the question casually put, What would be the effect of giving it by the mouth? I have on many occasions joined in a little speculation on the question when started among friends, but I had no definite facts to go upon until Drs. Arthur Latham and A. C. Inman communicated to the Royal Society of Medicine (*Proceedings* No. 6) a paper stating that administration by the mouth or the rectum would elicit a satisfactory immunizing response. They showed that the effect was to reduce fever, diminish the daily fluctuations of temperature and the curve of the opsonic index in tubercle, etc., was almost the reverse of the temperature curve. Since that preliminary paper (April last) they have continued their research, with the result of confirming their previous work and perhaps of also extending it. One cannot forget how at the earliest trials of tuberculin in this country the effects were so often disastrous that its use was speedily discontinued. In Germany it was held to be useful, and our ill-success attributed to improper doses or methods. One of the results of Sir Almroth Wright's work is a reconsideration of this matter. Doses are now given that only serve to raise the opsonic index, the aim being to keep the patient as long as possible in the "positive phase." Meantime Drs. Calmette and Breton have shown that tuberculin given by the rectum produces the same effect as when injected under the skin, on the announcement of which fact early this year it seemed that many patients might prefer the method. This is also confirmatory of the report on which I am commenting on administration by the mouth. Drs. Latham and Inman state definitelv that the same effects on both the temperature and opsonic curves are produced by the mouth as by injections, and further, that as far as they can judge, the dose by the mouth is about equal to half that by the skin. The effect of a dose on an empty stomach is rapid, often within an hour—an excessive dose is followed by undue intoxication in from one to two hours.

The point of most difficulty and yet of most importance is the determination of the dosage. It is desirable to do this before beginning the treatment, and it is best done by the opsonic index. But in acute pulmonary tuberculosis that should be determined three times a day—a demand to be met in the research laboratory. Within limits it appears that the correspondence of the clinical symptoms with the curve may be utilized for practice, but the initial index ought to be taken and then the official observations. But even so the opsonic index should be taken from time to time as a safeguard, for it must never be forgotten that tuberculin is a dangerous thing to be introduced hy any method, and its use demands as much care as the most active poisons. It is of little use while successive autoinoculations occur. To arrest these or limit them absolute rest is the only resource. The Germans continue the plan of giving gradually increasing doses at stated intervals, but the plan is not advisable, and is only satisfactory in a limited class of cases. Mr. Oliver Bruce in the laboratory of the hospital greatly assisted in the research, and the authors express their gratitude, as they do also to the physicians whose beds were placed at their disposal.

The freedom of West Ham has been conferred on Lord

Lister at his country house, and he has written thanking the citizens of his birthplace, with regret that his health had not permitted him to receive the distinction in public.

Mrs. Garrett Anderson, the first English lady doctor, has been elected Mayor of Aldeburgh, of which town she and her family have been benefactors. She was proposed on this account by a doctor, who said that on principle he objected to women presiding over assemblies of men, but this was an exceptional case. Mrs. Anderson in accepting said the mayoral robe had no terrors for her. She would have worn a mortar board, but when she once appeared in that headgear it made His Majesty smile, so she had had a black velvet bonnet specially made.

Three cases of plague have occurred at Liverpool, as probably you have heard by cable. Two have died. The origin of the first has not been traced. It is not expected to spread further.

Our medical centenarian passed away on the 16th inst. Sir Henry Alfred Pitman, who reached his one hundredth birthday on July 1, and who was for so long Registrar of the Royal College of Physicians (from 1858 to 1889), when he was named Emeritus Registrar, was born on July 1, 1808, entered Trinity College, Cambridge, in 1827, and took his B.A. in 1831. He was elected F.R.C.P. in 1845, assistant physician of St. Georges' Hospital 1857, and remained on the staff until 1886. From 1876 to 1886 he represented the college in the General Medical Council. His Knighthood dated 1883. On attaining his one hundredth birthday in July the King telegraphed his congratulations, and his friends presented him with a silver gift bowl. The funeral, on Wednesday, was attended by many old friends, including the president of the college he had served so well.

Some other aged members of the profession have also passed over to the majority.

John Briscoe, F.R.C.S., many years surgeon to the Radcliffe Infirmary, Oxford, and to the prison, has died at the ripe age of 87. He had retired from active work for twenty years or more. He qualified in 1842, and was elected to the fellowship of the college in 1875.

Dr. John Tudor, J.P., of Dorchester, died on the 19th inst., aged 85. He qualified in 1847. He was many years surgeon to the County Hospital, and had been surgeon also to the Seaman's Hospital. He contributed to the Medical Chirurgical Society on excision of the elbow as long ago as 1858.

Dr. Ben. F. Popham of Kensington died on the 10th inst., in his 83d year.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 19, 1908.

Acute Gonorrheal Epididymitis, with Special Reference to the Operative Treatment.—Under the general headings of definitions, pathology, prognosis symptoms, and diagnosis, J. H. Cunningham covers familiar ground. When he takes up the question of treatment he claims for operation that it shortens the suffering, arrests the course of the acute process, lessens the period of confinement, and shortens convalescence and after-treatment. The general principle involved is the surgical one of drainage to an infected organ. It is only within the past two years that operative treatment in this affection has received serious consideration. The author describes the Hagner method of operating, and summarizes his personal experience with it in seven cases. In some of these the vas deferens was drained by the Belfield method. Following operation it is advisable to use massage and to give deep instillations of 10 per cent. argyrol. Induration in the epididymis remains after operation, but it is not of the discreet nodular type generally observed in an epididymis previously the site of gonorrheal infection. Instead, it is the induration commonly observed after drainage of any inflamed structure. The sensitiveness so often noted in the testicle after epididymitis, and which often lasts seven months, has been absent. In conclusion, there is no question in the mind of the writer that the operation advised by Hagner greatly lessens the suffering and diminishes the duration of the disease. Whether or not the epididymis is left in a better condition to serve as a conduit for the testicular secretions cannot be determined. It is a notable fact that recurrent epididymitis has not taken place in any case in which the operation has been performed.

New York Medical Journal, November 21, 1908.

The Nature of Carcinoma in General, and the Early Diagnosis of Gastric Carcinoma.—J. M. Anders gives a general description of this disease, dwelling particularly on the matter of early diagnosis. He adds that this is, by medical methods, in our present knowledge out of the question, but it is practicable save only in cases marked by extreme latency, to assume the existence of strong suspicions by weighing the available facts and data. Under these circumstances, delay in the matter of requesting the application of surgical means is inexcusable, in view of the amenability of incipient malignancy to surgical art, in some cases, at least. As to the actual indications for surgical intervention he says that in the presence of the following grouping of features and conditions, or even a majority of the same, an exploratory operation should be advised, to be followed by radical extirpation in case the new growth be encountered: (1) If the patient's age is between the forty-fifth and seventieth years, the period of life in which carcinoma develops in the majority of cases. (2) If slight or moderate indications of secondary gastrectasis exist, confirmed by *x*-ray and physical examinations. (3) If the chemical examination repeatedly during the course of three or four weeks shows marked subacidity or absence of hydrochloric acid and particularly if lactic acid be also found. (4) If there is wasting without other assignable cause or causes, and moderate anemia with low color index and possibly leucocytosis. (5) If the condition resists treatment for several weeks. (6) If epigastric rigidity is present. (7) If a constant positive blood reaction is given by the stools with good motor functioning on the part of the stomach and neither free hydrochloric nor lactic acid is present.

Lipoma of the Kidney.—O. W. H. Mitchell reviews the recent literature of the subject, and discusses current views as to the pathology of this class of renal tumors. He appends a report of the case of a colored woman of 32 years who died from uterine carcinoma. The kidneys were dark colored, and their capsules stripped readily. On the surface of the left kidney, just beneath the capsule, situated entirely within the cortex of the organ, was a yellowish-white area measuring 6 x 8 x 7 mm. Microscopically the tumor consisted of fat and connective tissue cells. Many capillaries found in the tumor were distended with blood. The tumor was surrounded by a hyperemic zone. No pigmentation was found. The tissue of the kidney was congested and was in a condition of moderate catarrhal nephritis. The capsules of the tufts, which were in close proximity to the tumor mass, were much thickened. The preponderance of connective tissue in certain parts of the tumor would place it in the class of fibrolipomata of some investigators. No portion of kidney tissue was seen to be entirely surrounded by tumor tissue. The tumor presented an encapsulated appearance, the capsule being formed by compressed kidney tissue. Fat droplets were to be seen in some of the connective tissue cells which lie in close proximity to the tumor. Several glomeruli were to be seen adjacent to the tumor tissue. A body very similar to a glomerulus was seen within the connective tissue area surrounding the tumor, and fat droplets were found in some connective cells external to it.

Pulsation of Large Aneurysms Nonexpansile but Transmitted.—S. Lange has made a study of aneurysms with the fluoroscope, and says that he has repeatedly found that large tumors proven by autopsy to have been aneurysms failed to show on the screen any trace of pulsation. Yet some of these cases, in which the tumor pressed against the anterior or posterior chest wall, gave to the palpating hand the sense of an expansile pulsation, undoubtedly a transmitted one. On the other hand, small aneurysms and nonaneurysmal dilatations of the aortic arch have invariably shown fairly active pulsations upon the fluorescent screen. The smaller the aortic tumor, the more active the pulsations were. In this latter type of cases it was assumed that such active pulsations could occur only in the fluorescent screen, would almost disappear during diastole, only to swell out prominently during absence of accumulated blood clot, which presupposes an unbroken endothelium, hence the diagnosis of simple aortic dilatation was advanced. But when the aortic wall gives way and thrombosis occurs (a true aneurysm resulting) the pulsation becomes less active and the diastolic recoil less marked. When the tumor mass and its blood clot (the mass of which usually increasing with the size of the aneurysm) reaches considerable proportions, there is no longer any pulsation or diastolic recoil visible to the *x*-ray, although the palpating hand upon the chest may still feel a transmitted impulse.

Journal of the American Medical Association, November 21, 1908.

Cardiovascular Drugs.—J. L. Miller describes the characteristics of the more important remedies, dividing them into two classes: those which act chiefly on the heart, such as digitalis and strophanthus, and those which act chiefly on the vessels, such as the vasoconstrictors and the vasodilators. They are to be used when there is imperfect distribution of blood, due to cardiac insufficiency or lack

of vascular tone. The special cardiac remedies, the digitalis group, are to be employed when the imperfect distribution depends on cardiac insufficiency from valvular or muscular defect. The idea that such are not indicated in myocarditis is incorrect though greater care in dosage should be observed. Nor are they contraindicated necessarily in cardiac trouble with marked arteriosclerosis or high blood pressure. Heart insufficiency associated with slow pulse is often relieved by digitalis, which favors better emptying of the heart in each systole, better circulation in the coronary vessels, and consequent better nutrition of the heart muscles. There is still much difference of opinion as to the value of digitalis in aortic regurgitation. It should be remembered that it increases the systolic output which compensates in a measure for the greater amount returning during diastole, and Stewart has shown that, after all, the amount of regurgitating blood is small and prolonging the diastole is not a serious matter. The various members of the digitalis group have practically the same action, the difference is mainly one of degree. It is unfortunate that such a valuable drug as digitalis should have its objectionable features. These are chiefly its variable strength, its irritating action on the gastrointestinal tract, and cumulative effects. As regards the first there is no reason why a standardized preparation of digitalis should not be made. The cumulative action and the gastrointestinal irritation cannot be entirely overcome, and the daily secretion of urine and character and frequency of the pulse need to be watched during the administration. When an increased secretion of urine is observed, usually occurring within 48 hours, the dosage should be lessened and the lessened dose may be continued often for a considerable period without danger of cumulative action. The patient must be seen daily while taking full doses, and too much stress cannot be laid on arrhythmia as an evidence of intoxication. With a preparation of known strength and careful watching, it should not occur. The resort to intravenous medication is mentioned as proper in certain cases, but it is reserved for those cases in which prompt action is required and when administration by the mouth is prevented by gastric irritation. Strophanthus differs from digitalis in its less powerful action and somewhat less cumulative action. The second class of drugs, the vasomotor ones, is next taken up. First, the vasoconstrictors of which the most important are adrenalin, caffeine, camphor, and strychnine. These are described in detail, the most active is adrenalin, but its action is very transitory, lasting only from five to ten minutes; it should be given subcutaneously or intravenously, the dosage is from ten to fifteen minims of the 1 to 1000 solution. Caffeine holds the first place as a vasoconstrictor in the acute infections and camphor has similar effects though less constant. In ordinary doses strychnine can hardly be considered a vasomotor drug, and it is only when the dose approaches the toxic one that the blood pressure is increased. The vasodilators have a rather uncertain position in cardiovascular therapy. With our present knowledge, nitrites and nitroglycerin in physiological doses are absolutely contraindicated in the heart failure of acute infection. The value of alcohol as a cardiac stimulant has been much disputed, but Miller thinks that its dilating action on the external vessels renders it useful in shock and when there is engorgement of the splanchnics with insufficient filling of the peripheral vessels. The use of vasodilators in hypertension is discussed and the conflicting results of experiments noticed. Miller thinks, however, that we may safely use vasodilators in cases of extreme hypertension (over 200 mm. of mercury), and in headaches which are relieved by lowering pressure. The treatment of angina pectoris is especially discussed and Miller thinks, from certain experiments made by himself and Dr. Matthews, that it is possible that the forcing of blood through the coronary vessels by digitalis may be useful, the drug being given intravenously or subcutaneously. As regards the treatment of arteriosclerosis, only the iodides can claim to be efficient.

Infant Feeding.—D. E. English criticises the modern scientific feeding of infants, as not calculated to favor the proper development of the infant's stomach into the complex organ of the adult. What is wanted is an elastic muscular organ and this, he claims, is not so likely to be produced by regular frequent feeding, which, moreover, disturbs the infant's rest. He advises instead, allowing the baby to feed till it is full, without regard to the amount. This stretches the stomach and gives its muscle the exercise it needs to develop it. Then let the infant sleep as long as it will, under the most favorable conditions, and when it wakes don't feed it at once but wait till it is hungry. If it is thirsty or fretful give it water and soothe it, but do not mind mere crying—it does the baby good. This exercise of crying somehow prepares the stomach for its next load of food. When the crying threatens to change to a sickly wail, then feed the baby and feed him full. The intervals of feeding will be irregular. During the first month they may sometimes be as short as two hours, sometimes as long as four hours in the day and six or eight at night. The feedings for the first three weeks will average for the twenty-four hours, seven or eight, rarely nine. General hygienic treatment is inseparably connected with the success of any method of feeding. Under this plan of feeding and general treatment, it is astonishing, English says, how easy it is to modify the milk to suit the baby. Fed in this way, kept out of doors and not overclothed, it soon develops surprising digestive powers. The foundation principle of the method is that a healthy infant cannot always digest the same amount of food in the same number of minutes. The amount he can digest depends on how much he has used up and how much he has earned by exercise, crying, etc., since the last feeding.

The X-Rays in Epithelioma.—G. E. Pfahler divides the epitheliomas, as regards their treatment by the Roentgen rays, into five classes: 1. Superficial epitheliomata of the exposed surfaces of the hands and face, which should yield practically 100 per cent. of cures. They are usually small in area, of slow growth and comparatively painless. They will usually require ten or twelve treatments and from two to three months for a cure; the results are more likely to be permanent than with any other treatment. If untreated there is a possibility of this form passing into the deep ulcerating type. 2. Superficial epitheliomata associated with senile keratosis also yield to the Roentgen rays very similarly to those of Class 1, but recurrences are much more probable. These patients also seem to have exposures at short intervals on account of the risk of dermatitis. 3. Pearly epitheliomata. These include a small group of cases in which there is a circle of pearl-like elevations forming a ridge and surrounding a central area much resembling healthy skin. The ridge spreads, often irregularly, while the center heals. They are of slow growth and not very malignant, but they yield to treatment less readily than the other superficial forms. Best results will probably be obtained by protecting the soft center and treating the border strongly with a very soft tube. 4. Under the class of deep ulcerating epitheliomata, Pfahler groups those cases that involve the deeper tissues and present large ulcerating surfaces, with indurated edges and often with an indurated base. They may involve any part of the body and are at times associated with enlargement of neighboring lymphatic glands. They often consist of recurrences of superficial epitheliomata of Class 1 after treatment with caustics, curettement or excision. These cases do not yield readily to the rays and should be excised when possible. 5. Epitheliomata on mucous surfaces, including those on the lips and inner surface of the cheeks, the vagina and the penis. In these cases no time should be lost by *x*-ray treatment, but the growth should be excised at once, and this followed by a thorough course of treatment with the rays over the glandular area.

Ruptured Tubal Pregnancy.—Hunter Robb thinks that there is room for conservative treatment in ruptured tubal pregnancy and that it is indicated in the majority of cases. When the diagnosis of the condition is certain, operative measures are indicated, but in most cases the danger is not so imminent as to demand immediate interference unless the condition of the patient is otherwise satisfactory. Many women not only survive tubal abortion or rupture, but even recover without operation. Not more than 5 per cent. die at the time of rupture, whereas the statistics that he has collected of immediate operation show a mortality of 8 per cent. In cases in which there is collapse or shock the operation should be deferred until this is tided over. Loss of blood rarely causes death and it is rarely sufficient in these caes; and he asks why we should add to the existing condition the additional shock of immediate operation. Clinical operation has shown that patients whose abdomens are filled with bloody fluid may survive, and dogs when experimentally subjected to like conditions do not succumb. In most cases we fail to find any bleeding vessels and the danger of restarting a hemorrhage is to be considered. Some reasons for not believing the hemorrhage to be so great as has been supposed are: (*a*) The great majority of ectopic sacs are ruptured between the first and third week of gestation. (*b*) The point at which the impregnation takes place is in a small area formed by a diverticulum in the tube, and the chorionic villi have only a feeble attachment. (*c*) From 75 to 78 per cent. of the ruptures occur through the fimbriated end of the tube, and are tubal abortions, not more dangerous as far as hemorrhage is concerned than those occurring through the cervix. (*d*) The next most frequent place of rupture is the isthmic portion of the tube which is free from any large blood vessels. (*e*) The point of rupture in the gestation sac practically never involves the ovarian or uterine artery. (*f*) As a result of the inflammation preceding the ectopic gestation there is a relative

increase in the connective tissue in the tube, decreasing its vascularity. (*g*) The placenta is generally attached to the posterior wall of the tube and as the rupture is generally through the anterior or lateral wall it is not lacerated, but retains its firm attachment to the wall of the tube and is subjected to pressure. Physiologists teach us that a woman weighing 130 pounds must probably lose four pounds of blood before succumbing to the hemorrhage *per se*. So much blood as this is rarely found in the abdomen. The bloody fluid is partly a serous exudate. Its sudden removal before the vessels have had a chance to adapt themselves is dangerous and may be fatal. When the bleeding would be enough to cause death the patient is rarely seen in time to be saved by ligation of the bleeding vessels and the best operators lose from 40 to 50 per cent. of their patients after immediate operation during shock. The results obtained by some who have waited are certainly worth considering. Robb reports experiments on dogs which suggest that hemorrhage may be determined from the hemoglobin readings and that the subcutaneous injection of physiologic salt solution usefully stimulates the patient and does not start up the hemorrhage again. They also suggest the use of proper bandages or the application of weights to the lower abdomen as hastening the stoppage of hemorrhage, rendering the pulse slower and of better quality and improving the general condition. He holds that it is better to leave something to Nature when there is any possibility that the immediate operation may be the wrong procedure.

The Lancet, November 14, 1908.

Seven Cases of Cheese Poisoning.—All the patients of W. B. Evans were young, the ages running from 3 to 16 years, and they were grouped in families, all of whom were evidently purchasers of cheese from the same source. Some of the adults in the same families who had eaten the cheese complained of nausea and epigastric pains. The younger the patient, the more severe were the symptoms. In all the children the symptoms were of the same type, pain, vomiting, and collapse of varying severity. In all a mustard emetic was given, with brandy and water in the cases collapsed. This was followed by a bismuth mixture, and in one case with diarrhea a dose of castor oil was given. All were well inside of 48 hours. The reporter says that the cheese had a strong odor and a somewhat crumbly consistency, but was not discolored or offensive, and had nothing suspicious about it to either seller or purchaser. He considers that it had developed tyrotoxicon, and that this alkaloid was the cause of all the trouble.

Quinine Poisoning.—The patient of A. C. Parsons was an American man of 35 years, who had lived in various countries, but had never contracted malaria as far as was known. On several occasions he had been upset by small doses of quinine taken for various purposes. When traveling from England to Nigeria he was advised by his fellow voyagers to begin taking quinine. He took five grains, which made him sick. On admission to a hospital two and a half grains of the bisulphate of quinine were given him in solution. In the course of an hour (at 9 A.M.) he had a sinking at the abdomen and flushing of the face. Intense irritation and discomfort then began in the feet and gradually spread throughout the body. This was quickly followed by a rapidly spreading rash, erythematous rather than urticarial in character and most marked on exposed portions of the body. His appearance had by now undergone a complete change; the face was flushed, and the skin everywhere was hot, hyperemic, and dry; the temperature, however, was subnormal. There were distracting tinnitus and frontal headache, but no amaurosis. The heart's action was seriously weakened, and the pulse was feeble, accelerated, and irregular; there were palpitation and shortness of breath. The patient looked and felt ill, the flushed appearance, restlessness, and general pruritus producing a picture of severe anguish. At noon he had a syncopal attack while trying to rise from his bed. At about 2 P.M. the pruritus and erythema began to pass off, but nausea and severe headache remained. At 3 P.M. the temperature had risen to 101° F., and he was perspiring profusely. By dinner-time he felt better, all the symptoms had cleared up with the exception of headache. At 10 P.M. he was sleeping quietly, with a normal temperature. Subsequent examination showed a marked anemia, with hemic heart murmurs. No malarial parasites were found in the blood. He set out for England, but died from some kind of "fever" on the voyage. The author says that it would be a sound practice if all officials and others who contemplate residing in malarial districts were examined as to their capability of taking quinine before they ventured out into unhealthy lands.

Recent Investigations into the Pathology and Treatment of General Paralysis and Tabes Dorsalis.—W. F. Robertson says that bacteriological, histological, and experimental evidence has been obtained bearing out the opinion that tabes dorsalis is dependent upon an invasion from the genitourinary tract by special diphtheroid bacilli. There is good reason to believe that as a predisposing factor gonorrhea is of greater importance than syphilis. One part of the evidence in support of the conclusion that a diphtheroid invasion is the essential element in the pathogenesis of tabes consists in successful therapeutic experiments. Certain cases under the author's recent care confirm his opinion that this disease if not accompanied by serious secondary infections can be combatted by serum and vaccine methods. Under such treatment the lightning pains, which in both cases were very severe, have virtually disappeared, the progress of the disease has been arrested, and the general health of the patients has undergone a very striking improvement. He adds that the facts recently observed have served to establish more securely the conclusions that general paralysis and tabes dorsalis are dependent upon the presence of specific infective foci, primarily localized in the nasopharyngeal and oral mucosa in the one case, and in the genitourinary tract in the other, and that in both diseases the bacterial and toxic invasion is essentially lymphogenous.

Novel Methods of Operation in the Removal of Malignant Tumors.—H. Manders exploits the "fulguration" method of treatment, which is a combined surgical and electrical procedure. Its novelty consists in the application of oscillatory electricity. The steps in a given operation are about as follows: (1) The surgeon divides the tissues and lays bare the neoplastic masses without separating them; (2) the tumor is "fulgurated" by the strongest sparks, so as to produce the greatest possible effects in the shortest time (maximum, ten minutes); (3) the growth is excised, and (4) the "fulguration" is repeated. The last step continues for about 45 minutes. The tissues become ischemic and the cut capillaries cease to bleed. No actual scab is formed, but a fine layer of clot, which eventually becomes detached, as happens in burns. The wound is then closed, provided with thorough drainage, and covered with gauze plentifully sprinkled with sodium biborate, over which is placed a large pad of cotton wool. This dressing, which is changed after 24 hours, is often very painful. Cicatrization is rapid after the slough separates, but complete healing is slower than after an ordinary surgical operation. The paper contains full details as to the electrical devices employed and their mode of application. Manders says that if "fulguration" has in any way reduced to a minimum the recurrence of cancer after operation the combined operation is fully justifiable, and must be regarded as a distinct gain in treatment. The demerits of the new operation are: (1) That the length of time during which the patient must be kept under anesthesia is much prolonged; (2) that the anesthetic must be chloroform, because the more volatile ether is apt to catch alight from the sparks; (3) that anesthesia, besides being prolonged, must be deep, because the fulguration, especially in the second stage of operation, when the biphase method is used, is very painful; (4) the disadvantage during the operation of having to change from one instrumentation to another; (5) the difficulty of managing and controlling a rush of violent sparks; and to these must be added (6) the uncertainty of being able to reach every part of the incised area with a series of sparks which are not continuous but intermittent, as will be explained immediately.

British Medical Journal, November 14, 1908.

Arteries, Normal and Pathological.—The paper of J. A. McWilliam and A. H. Mackie gives a series of illustrations of cross-sections of arteries in both health and disease, especially after pneumonia. In making their investigations the authors have found that in the majority of cases in which dissolution has been a gradual process of an exhausting nature preceded by high temperature, etc., the arteries have shown no sign of contractility when they came to their hands from the post-mortem room twelve to twenty-four hours or later after death. They presented all the characters of dead relaxed arteries when tested in various ways—the application of stimulating and relaxing agents, tracings of elasticity, etc. On the other hand, they found that in many instances, especially in cases of relatively sudden death, the vitality of the arteries may not be so readily lost, and contractility may persist for very considerable periods. Thus the renal artery of a man who had died suddenly from cerebral hemorrhage showed decided contraction in response to stimulation (chemical) twelve hours post mortem. After stimulation it gave the elasticity curve characteristic of contracted as contrasted with relaxed artery—a transverse strip when weighted did not give the maximum elongation with the first weight, but increasing elongations (with equal increments of weight) up to a maximum followed

by decreasing elongations. A portion of this artery put into the usual fixing and hardening fluids contracted markedly and showed a caliber and thickness of wall notably different from those of the same artery fixed in the relaxed state after vitality had been extinguished. In many other instances, both in the case of normal and pathological arteries, marked contraction has been seen to occur especially in response to chemical stimulation (chloroform vapor, alcohol, formol, etc.) as long as thirty hours post mortem. Full details are given of the methods employed in hardening and straining the sections.

A Case of Stokes-Adams Syndrome Observed for More Than Eight Years.—The patient of W. J. Turrell and A. G. Gibson was a man of 70 years, formerly considerable of a walker, and during his last ten years of life a gardener. He was first seen in 1899 for digestive troubles. His heart was weak at the time. Later he began to have series of convulsions of an epileptiform character. Later these seizures were accompanied by giddiness or fainting, but no convulsions. Later, mild attacks were brought on by the taking of food and by voiding of urine. A firm grasping of some solid object would at times ward off an attack. So the man went on for a term of years. His pulse was slow, even down to 16 at times, and had the habit of dropping beats. This occurrence seemed to be more marked with a relatively quick rate, but with the slower rate it seemed to be of more consequence to the patient, for when the pulse beats dropped to the slow rate he was more liable to an attack. He stated that the dropping of one beat did not incommode him, but if two beats in succession were dropped it was hard for him to remain conscious, and he often had an attack. A rate of 25 per minute seemed most comfortable for the patient. When it reached or exceeded 30 it became intermittent or irregular. Treatment seemed of little avail. In unusually severe attacks, large hypodermics of strychnine with small internal doses of brandy gave relief. He was finally found dead in bed, his livid appearance indicating a convulsion. Autopsy showed no gross change in the regions of His's bundle, or its branches, but the microscope showed a tendency to fibrosis in the region of the central fibrous body of the heart, extending downwards and encroaching especially on that region occupied by the bundle. The bundle in the fibrous body itself was represented only by a few isolated strands of muscular tissue.

Tuberculosis in Lime Workers.—W. J. Burns Selkirk has made some interesting observations as to health conditions among this class of workers. He finds the health of workers in lime kilns above the average. There seems to be far less than the normal amount of consumption and bronchitis. It is believed that the lime inhaled is dissolved by the carbonic acid in the lungs and absorbed. Calcium in the intestinal canal prevents fermentation. Lime dust particles may, however, be deposited in the lungs. It may be that continual absorption of calcium from the lungs and intestine may maintain an abnormally high percentage of it in the blood. The author asks, does this occur in the lime worker, and is it preventive of tuberculosis in him? Or is his freedom due to the external lime dust being unfavorable to the life and growth of the bacillus outside the body? It seems curious to suggest an atmosphere of dust for the treatment of tuberculosis; it would have been as curious some generations ago to have suggested fresh air. At the least have we not in this lime and cement working an occupation which we may recommend to the workingman predisposed to tuberculosis or already in the early stages of it? Or could the neighborhood of a lime-kiln be organized as a curative tuberculosis colony?

Influence of the Nervous System on Infective Processes.—G. L. Cheatle divides the relationship between the nervous system and infective processes into neurovascular and neurotrophic. It must be admitted, he says, that in most cases the nerovascular system is normal immediately before the actual moment of inoculation, and that in most cases the changes which occur in the neurovascular system after inoculation are due to the presence of the infective processes. On the other hand, it is obvious that, if abnormal vasoconstriction or abnormal vasodilatation were present at the time of the inoculation, then the infective process might be modified by either of these conditions. However this may be, my object now is to point out that there is a marked change in the neurovascular system associated with some processes of infection. Concerning the neurotrophic relationship, one of two things or a combination of both must be operative. Either there is a positive or negative influence of a neurotrophic nature in the normal areas which repels the onset of the disease, or there is a positive or negative influence of a neurotrophic nature the operation of which limits the disease to the whole of the neurotrophic area affected. Discussing a case of tuberculous lesions in the head and neck the author adduces, as pertinent, the following argument. The presence of the disease in the affected area is alone sufficient to account for its spread within and final limitation to that area, for the simple reason that presence of the disease lowers the immunity of the area in which it is operative. This may be an important factor, but it is impossible to assume that, with the disease on their boundaries, the surrounding areas have not been attacked by it; and if they have been attacked, then they must have repelled it; and as they have repelled it, then the neurotrophic affairs cannot have been in identical states on the two sides of the boundaries even before the inoculation of the tuberculous area occurred. For if the neurotrophic conditions had all been the same before infection, there would not have been any limitation to a nerve area, but the spread of disease would have been equal in all directions except for mechanical obstruction. Hence the area diseased was more susceptible to the *Bacillus tuberculosis* than were the surrounding parts before inoculation occurred. There appears to me no doubt that there is a neurotrophic factor to be taken into consideration in the consideration of the process of immunity.

Berliner klinische Wochenschrift, November 9, 1908.

Transplantation of Vessels and Organs.—Capelle reports results of extensive experimental work in this subject. Implantation of pieces of arteries for artificial defects in other arteries was followed by good functional and anatomical results when the same animal species was used for the operation and for procuring the material. When other species of animals were used the sections of the vessels functionated properly, but after a time showed various stages of degeneration. Sections of veins were found to serve as good substitutes for arterial defects; slight dilatation of the vein section was soon followed by increase in the thickness of its walls and approach to the character of arterial structure. Very encouraging results were obtained in the transplantation of the thyroid gland with the suture of vessels supplying it. One dog lived for fifty-one days, and the gland proved to be quite normal in appearance. Another animal lived for 245 days; the gland was then removed and proved to be normal; the dog died after the removal of the transplanted gland, showing all symptoms of tetany. Transplantation of kidneys proved to be more difficult, because infections were very frequent. In two cases, however, the transplantation of the kidney into the peritoneum and into the neck of another animal was followed by the cantinuation of kidney function for several days. Death resulted from hemorrhage and infection. The kidney transplanted into the neck showed the phenomena of secretion very well, the ureter having been sewn into the external wound; chemical examination of the secretion showed it to be normal urine. The writer thinks that the sewing of vessels and the use of sections of arteries and veins to fill out defects can be safely adopted for operations in human beings at the present state of technique; the future must show how far transplantations of organs will prove successful in this connection.

Duodenal Ulcer in Children.—Kuttner reports a case of duodenal ulcer in an infant one month old and another in a child of four years. Neither case was diagnosed during life. The ulcers were situated in the "unprotected" part of the duodenum above the papilla of Vater. No etiological factors could be found in the previous history or in the physical examination of the patients; one of them suffered from a light nephritis which could not be brought into any relation with the origin of the duodenal lesion. The older child suffered from a pseudo-membranous colitus and its stools contained an overabundance of colon bacilli; some recent experimental work in the production of gastric and duodenal ulcers suggests that this organism may play an active part in the production of ulcers. Kuttner thinks that many cases of so-called idiopathic pyloric stenosis of infants is really caused by the existence of duodenal ulcers; frequently, comiting of blood is reported in such cases, and even the absence of such vomiting does not exclude an ulcer, as the affection may be quite latent. The treatment of duodenal ulcer of infants and children consists in procuring as much rest as possible for the stomach. Food is to be given in small quantities, should consist mainly of milk, and should be administered cool or cold. In case vomiting persists, rectal feeding must be temporarily carried out; among drugs, alkalies are most serviceable. The author holds that operation is especially indicated if internal medical treatment has not been successful. When the surgeon is called to see the patient while the latter is suffering from a very severe hemorrhage, operation is usually hopeless.

Book Reviews.

Text-Book of Nervous Diseases and Psychiatry. For the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., LL.D.; Professor of Nervous Diseases in Cornell University Medical College; Visiting Physician to Bellevue Hospital; Neurologist to the Montefiore Hospital; Neurologist to the Woman's Hospital; Consulting Physician to the Manhattan State Hospital; ex-President of the American Neurological Association; ex-President of the New York Academy of Medicine; Corresponding Member of the Société de Neurologie, etc. Seventh Edition, Illustrated by 261 Engravings and 3 Plates in Black and Colors. New York: William Wood & Company, 1908.

The fact that Dr. Dana's book has now reached its seventh edition is a good index of its popularity and also its best advertisement. Following out the author's original intention "to present the science of neurology in a concise yet as far as possible complete form," the present edition has not been materially enlarged. While additions to the sections on histology, psychasthenia, hysteria, neuritis, tabes, multiple sclerosis, tics, brain tumors, etc., have been made, and in some instances the articles on these subjects rewritten, considerable of what is now old or unimportant has been at the same time eliminated. The book occupies an extremely useful place between the larger treatises and the smaller textbooks, and will continue to be found a helpful and reliable guide in the study and practice of this most difficult branch of medicine, and a credit to American neurology. Valuable additions to Part II. on Diseases of the Mind are noticeable in the shape of case histories, etc., and the writer has overcome his well-known prejudices sufficiently to review the methods of psychotherapy. The book retains its handsome dress and typographical excellence.

The Sanitation of Recreation Camps and Parks. By Dr. Harvey B. Bashore, Medical Inspector for Pennsylvania Department of Health. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1908.

A pocket volume of something over one hundred pages, well illustrated and containing much that cannot fail to be of value to the summer camper—brief and readable chapters on location and construction, water supply, waste disposal, and environments, with a supplementary chapter on the sanitation of public parks—intended as a sanitary guide, particularly for inexperienced vacation campers.

Consumption, How to Prevent It and How to Live with It; Its Nature, Its Causes, Its Prevention, and the Mode of Life, Climate, Exercise, Food, Clothing Necessary for Its Cure. By N. S. Davis, A.M., M.D.; Professor of Principles and Practice of Medicine, Northwestern University Medical School; Physician to Mercy and Wesley Hospitals; Member of the American Medical Association, American Climatological Association, Illinois State Medical Society, Chicago Medical Society, Chicago Pathological Society, Chicago Neurological Society, Chicago Academy of Sciences; Fellow of the American Academy of Medicine; Author of a Handbook on "Diseases of the Lungs, Heart, and Kidneys" and a Treatise on "Diet in Disease and Health." Second Edition, Thoroughly Revised. Philadelphia: F. A. Davis Company, 1908.

In this book the author has attempted to put forth in a simple untechnical manner the elementary principles with which a layman who has contracted tuberculosis should familiarize himself. The original edition has been considerably enlarged and some of the chapters rewritten. It is a book intended almost wholly for the laity, and is comparatively free from some of the objectionable features which characterize so many works of its kind.

The Age of Mental Virility. An Inquiry into the Records of Achievement of the World's Chief Workers and Thinkers. By W. A. Newman Dorland. New York: The Century Co., 1908.

The greater part of this little book appeared in the *Century Magazine* last spring. It was written in disproof of Osler's rash statement that "the effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty," and the facts offered in refutation of this pessimistic utterance are indisputable and convincing. Dr. Dorland cites the life histories of four hundred of the world's greatest thinkers and workers—philosophers, inventors, painters, musicians, physicists, novelists, etc., and shows that all of them did effective work, and often their best work, after the age of forty. His conclusion, with which his readers are forced to agree, is that the age of the acme of mental activity lies between forty and sixty, and that, provided health and optimism remain, the man of fifty can command success as readily as the man of thirty. Every man of forty or over should keep this interesting book on his shelves and turn to it whenever he is tempted to feel that his age of usefulness is passing. A glance through its pages will be like a whiff of oxygen to the tired runner.

Neurological and Mental Diagnosis; A Manual of Methods. By L. Pierce Clark, M.D., Senior Attending Physician, Hospital for Nervous Diseases, New York; Visiting Neurologist to the Randall's Island Hospitals and Schools, New York, etc., and A. Ross Diefendorf, M.D., Lecturer in Psychiatry in Yale University; Assistant Physician and Pathologist, Connecticut Hospital for the Insane, etc. New York: The Macmillan Company, 1908.

This little volume on methods in neurological and mental diagnosis ought to be an excellent aid to the medical student, both in and out of college. A definite method of procedure is laid down in each line of examination, and the authors have had the courage to omit those newer signs and phenomena, yet unproven, which would tend to bewilder and confuse the physician studying in this special field of medicine. The illustrations are for the most part original, and are excellent. It is gratifying to note that the work includes a glossary of mental items, an addition much desired in these days of modern psychiatric cant.

Diseases of the Eye. By M. Stephen Mayou, F.R.C.S., Late Hunterian Professor, Assistant Surgeon, and Pathologist, Central London Ophthalmic Hospital, etc. (Oxford Medical Publications.) With 119 Original Illustrations and 8 Color Plates. London: Henry Frowde, Hodder & Stoughton, 1908.

This is an elementary work designed for the use of students and to give the "general practitioner" a cursory glance at the subject of ophthalmology. It is written by one who is well versed in regard to the subject, is brief, lucid, and somewhat dogmatic. The illustrations, which are original, are generally excellent. The author has been particularly fortunate in depicting pathological changes. The greater part of the work is devoted to the consideration of diseases and conditions affecting the external parts and the anterior segment of the eye. The rather obscure affections of the fundus are very briefly described. The chapter on operations occupies about fifty pages, and is very practical. An appendix containing a formulary and setting forth the visual requirements for entrance to the British military and civil services completes the text. It is one of the very best works of its kind and scope, and is recommended especially for undergraduates in medicine.

Therapeutics: Its Principles and Practice. By Horatio C. Wood, M.D., LL.D.; Emeritus Professor of Materia Medica and Therapeutics in the University of Pennsylvania; Member of the National Academy of Science. Thoroughly Revised and Rewritten by Horatio C. Wood, Jr., M.D.; Associate Professor of Pharmacology in the University of Pennsylvania; Assistant Physician to the Philadelphia General Hospital. Fourteenth Edition. Philadelphia and London: J. B. Lippincott Company.

The author states that the changes in this edition are more extensive than in any previous edition for many years, and among them is to be noted a complete rewriting of the chapter on cathartics, giving the latest conceptions of their modes of action and a more orderly rearrangement. In the article on diuretics more space has been assigned to the effects of water and the mineral salts of the system. There are also articles on the opsonic and ion theories, together with graphic tracings portraying the effects of drugs.

Generally the drugs are treated scientifically and thoroughly, but the author still looks upon alcohol as a cardiac stimulant, although acknowledging the different experimental results. He also classifies sparteine as a cardiac stimulant, a drug at present being closely questioned as to its right place.

The absence of material on the physical methods of therapeutics is a distinct weakness in a volume otherwise so complete. Drugs which are printed more often in textbooks than written on prescriptions occupy full space, while methods which need description and explanation and which are often of great efficiency, are calmly ignored.

The plan of the author in printing the important facts in large type, leaving the more intricate details in smaller type, is excellent. In these days of student life, when so much is to be learned, concise statements are most important.

It is to be regretted that the senior Dr. Wood, on account of ill health, has not been able to take active part in the preparation of the present volume, his long, painstaking, and scientific work having reflected such honor on American medicine.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

FIRST DISTRICT BRANCH.

Second Annual Meeting, Held in Poughkeepsie, Wednesday, October 21, 1908.

THE PRESIDENT, DR. S. W. S. TOMS, OF NYACK IN THE CHAIR.

President's Address.—Dr. S. W. S. TOMS of Nyack in making this address said that the county medical society must heed the voice of the times. It should take the initiative in each community in matters that presented themselves regarding public health and the problems of sanitation. Our nation had its canal zones and its New Orleans cesspools at its doors. The recent International Congress of Tuberculosis reminded us that there were 200,000 deaths annually from a preventable disease. The speaker asked what was being done outside a few large cities to lessen this scourge. The infant mortality per thousand, according to the last census of the United States, was as follows: Michigan, 121.3; Connecticut, 156.8; New York, 159.8; Massachusetts, 177.8; District of Columbia, 274.5. Were these figures not sufficiently appalling to stir all to activity in preventing the slaughter of the innocents? The principal cause for this high death rate was so well understood and could be so efficiently prevented that it became almost criminal for a community to allow it to exist. The giving of poisons to these defenseless infants in their food could not be laid to criminal intent, but to the ignorance of their mothers. The term "cholera infantum" should be supplanted by the term "acute milk poisoning"; this would appeal to the mind and comprehension of the most ignorant. What mother would continue to give a food known to be poisonous to her infant? Every mother who was feeding her infant artificially on cow's milk, or other food of which it was a part, should be told of the danger of continuing to do so while the child was suffering from a putrid diarrhea. Many a mother had never suspected for a moment that the diarrhea from which her child was suffering was caused by the germs in the food that had hitherto perfectly nourished the child. She did not realize that such milk, originally pure, if allowed to remain for twenty-four hours in a warm room, would contain more germs than sewage. Mothers should be more thoroughly instructed regarding these matters. Another problem deeply concerning the public welfare was that of school hygiene. During the year just ended 17 per cent. of the school children of New York City were excluded from attendance at school for varying periods of time, on account of contagious diseases, and out of 141,908 children examined 108,329, or 76 per cent., were found to be suffering from non-contagious physical defects. It was generally conceded that contagious diseases of childhood could be absolutely controlled were it not for the schoolhouse. Gonorrhea, next to measles, was stated to be the most prevalent malady of civilized countries, and it was estimated that from 75 per cent. to 90 per cent. of all males had been infected, and that it was the cause of from 50 per cent. to 65 per cent. of the capital operations on women in public hospitals, and one of the chief causes of sterility. The county medical societies should take more interest in the questions which were constantly presented to municipal boards of health. There were the problems of milk supply, water supply, ice supply, pure foods and drinks, as well as the control of contagious diseases.

A Successful Demonstration of the Problem of Obtaining Sterile Cows' Milk.—Dr. JOHN T. HOWELL of Newburgh said that five years ago the proprietor of a dairy farm consulted him regarding the best means of securing germ-free milk from his dairy. He laid down for him certain well-known principles of aseptic surgical technique, emphasizing the importance of attention to detail, and these principles were applied in the management of the dairy work. The stables and milk houses were made models of construction, providing all necessary ventilation, cleanliness, sterilization, refrigeration, etc. The cows were most carefully selected. One and a half hours were spent in the preparation of the cows and the milkers before the operation of milking was undertaken. The results of these painstaking methods were apparent from the first, and a record had finally been made which had, as yet, not been equaled, one which included the first specimen of sterile milk ever recorded, and the only sterile specimens taken from the bottles delivered in New York City. Of nine samples taken by the inspector who visited the farm, six plates contained no growths, and the other specimens contained but 100, 200, and 300 colonies per cubic centimeter. The average bacterial count for the years 1906 and 1907 was below 1,000 per cubic centimeter. The average bacterial count for the year 1908 (eight months) was 126.1 colonies per cubic centimeter. An examination of seven specimens of foremilk from the teats showed three sterile plates. The keeping powers of the milk from this dairy were demonstrated by the fact that a bottle of milk sent to Copenhagen, Denmark, was found sweet after fifteen days; one sent to Panama was found sweet after eighteen days.

A Campaign Against Tuberculosis.—Dr. S. E. GETTY of Yonkers said that four years ago an anti-tuberculosis campaign was begun in Yonkers, and the tangible results thus far were a dispensary for consumptives, a nurse who devoted her whole time to visiting and instructing consumptives, an annual appropriation from the city of $3,000, a sanatorium for incipient cases, located on a tract of land away from the built-up portion of the city, with a present capacity of twenty patients. The relief committee was well organized, and distributed milk and eggs. Some educational work had been planned and executed. For the full details of this campaign he referred to Dr. Oscar H. Rogers' monograph on "The Fight Against Tuberculosis," published by the State Charities Aid Association Bulletin No. 103. The death rate from tuberculosis had shown a substantial and continuous decline since the beginning of the campaign. The total decline in the death rate in the fifteen years previous to the beginning of the campaign was from 24 per 10,000 to 21 per 10,000 population. In each of the last three years there was a decline from the previous years, so that the rate for the last year was 17.5 per 10,000 population. There had been a larger decline in the last three years than in the previous fifteen years. The dispensary had been treating patients for nearly two years; there were treated there 112 persons, of whom 103 were undoubtedly suffering from tuberculosis; 28 patients either refused treatment or removed from the city, leaving 75 cases. Of these 26 died; 31 per cent. of the remainder gained in weight; 29 showed improvement in the physical signs, and there were six apparent cures. The dispensary was filling a large place in the campaign. To bring to a successful issue this fight against tuberculosis there should be established in all cities of medium size hospitals or camps for the care and treatment of advanced cases of tuberculosis. In urging the municipalities to build and maintain hospitals for the care of advanced cases of consumption, he said that he was not unmindful that, if under political control the best interests of all could not be served, the objects of these institutions would possibly be defeated. The suggestion had been made, and it seemed feasible, that they be placed under the care of trustees or commissioners with a long tenure of office, say five or seven years, one to be appointed yearly. The appointing power should rest in the hands of the mayor. This method would tend to insure the continuance of a definite policy which would not be subject to the vicissitudes of party defeat or victory. There was no necessity for the erection of monumental buildings.

The Control of Ophthalmia Neonatorum.—Dr. John T. Wheeler of Chatham read this paper, from which he deduced a corollary the logic of which it seemed hard to escape, namely, that the practice of midwifery was responsible for one-third of all the blindness of children and of from one-tenth to one-eighth of all blindness from all causes in the world. In the city of Buffalo several years ago the births for the year numbered 8,500, and among these there were 102 cases of ophthalmia neonatorum, making a ratio of rather more than one case of ophthalmia to every 100 births. By following up these cases it was found that one in every twenty resulted in blindness; in other words, the ratio of blindness from ophthalmia neonatorum to the number of births was as 1 to 2,000. The statistics of London, though on a larger scale, gave practically the same ratio. Recently there had been about 60,000 births reported annually at Albany for 4,000,000 up-State population, not including New York, Buffalo, Albany, and Yonkers. If these reports were complete the number of births would probably be near 100,000. With a ratio of one case of blindness for every 2,000 births there would be, in New York State alone, 50 cases of blindness caused every year by the neglect of accoucheurs to employ the Credé method. Every individual doctor who habitually or occasionally neglected to use the Credé method was in a degree guilty of a share in the perpetration of this crime. Undoubtedly the largest proportion of the cases of ophthalmia neonatorum came from the lower classes, and midwives were responsible. Gonorrhea was responsible for 60 per cent. of the cases of ophthalmia neonatorum; the remainder were mainly due to the streptococcus. Dr. Wheeler said that it was his privilege to form a part of the machinery of a large movement in which every member of the medical profession was expected to do his share, toward which intelligent lovers of humanity were looking with eager interest. He then presented to the society an outline of the proposed campaign against ophthalmia neonatorum. This recommended the adoption by the entire profession of the practice of instilling a solution of silver salt into the eyes of the newborn child, which would reduce the number of cases of blindness occurring every year by one-third. A circular would be sent to the members of the profession which would make two important announcements: First, that all birth returns would hereafter contain the inquiry, did you employ a preventive for ophthalmia neonatorum? If not, why not? Secondly, that in order to facilitate this procedure all health officers, of which there were 1,260 in the State, would be supplied with small containers of silver solution of suitable strength for use in the toilet of the newborn, for free distribution among doctors and midwives.

Dr. Herman J. Boldt of New York said that he was one of the men appointed to carry out this undertaking in the State of New York, and he moved that this branch of the Medical Society of the State of New York form a resolution which would embody the features contained in Dr. Wheeler's outline. He also moved that a committee be appointed to bring this matter before each county society. It was decided that this matter should be acted upon later.

Dr. Joseph Price of Philadelphia, in discussing this paper, said that all the statements made regarding the gynecological affections which resulted from gonococcus infection were correct. The intelligent lay people were now beginning to consider the advisability of instituting such measures as were proposed.

Poliomyelitis Anterior Acuta.—Dr. M. W. Barnum of Ossining read this paper. He told of the methods and theory of treatment in the study of seven cases. In the summer and fall of 1907 there were probably 3,000 cases of this disease in New York City and its vicinity; it had left in its track many hundreds of helpless little human wrecks with which the future would have to deal. Two vitally important points remained to be cleared—first, the exciting cause of the disease and, second, a well-defined plan of treatment. The symptomatology of the disease was naturally divided into two parts—the acute stage, or the cyclone, and the chronic, or the wreckage. The clinical manifestations of the first stage he subdivided into three types—the mild, the neuritic, and the cerebral or bulbar. It seemed to be conceded by all authorities that during the acute stage, in the absence of any possibility of specific therapeutics, the line of treatment should be the one generally applicable to fevers of childhood, namely, rest, quiet, light nourishment, baths, cold applications, vascular sedatives, elimination, and counter-irritation of the spine. During the stage of regression there were three therapeutic propositions to be dealt with: the establishment and maintenance of a high state of general nutrition and blood efficiency; maintenance of nutrition and warmth in the paralyzed muscles; prevention of contraction and wabble-joints during the paralytic stage, and convalescence by proper orthopedic treatment. None of the seven patients reported upon lived within a mile of any of the others. In no instance was there any personal contact of one with another case. Never was more than one child affected in the same house, although, in four instances, several other children were present. Every case had improved unquestionably under treatment, and had continued to improve under electrical and mechanical stimulation, even after the lapse of one year. The mildness or severity of the onset seemed to have no bearing on the amount of residual paralysis; the mild initial symptoms left as permanent a paralysis as the severe ones. It was evidently important to keep the children under surveillance in order to see that home treatment was carried out, because parents got tired of the long routine and neglected instructions, and consequently improvement ceased. It was important to apply carefully fitted braces as soon as a joint showed signs of weakness in walking or standing. The backbone of the treatment was the galvanic current, together with manual and mechanical massage; but whatever method might be used, there should be change and interruptions from time to time to make continued progress secure and to avoid the nervous irritability which often came from overtreatment. As soon as a group of muscles could be used, even feebly, they should be trained and encouraged to voluntary use as rapidly as possible by any expedient that the physician's ingenuity could suggest.

Dr. Wisner R. Townsend of New York said that these cases were treated by the general practitioner, unless the specialist was called in for some reason. The prevention of deformities should be looked to, because it was well known that every case in which deformities occurred resulted from a complete paralysis of the anterior group without paralysis of the posterior group. These deformities could be prevented by the simplest of means. He asked the profession to make greater endeavors to prevent these deformities. He especially emphasized the fact that he was not asking that these cases be turned over to the orthopedist; if the general practitioner did what was required of him the orthopedic surgeon would see fewer cases that required his attention.

Some Nose, Throat, and Ear Symptoms of Significant Interest to the Practitioner.—Dr. D. S. Dougherty of New York read this paper. Of all the subdivisions of the general system of medicine none was more closely allied to the others collectively and individually than that of rhinology and laryngology. The intimate connection between nasal and nasopharyngeal conditions and ear disease rightly added otology to this division. Many symptoms observed in the upper respiratory tract were but local manifestations of general systemic disturbances and were frequently passed over with but scanty recognition of their significance. The nose, throat, and ear conditions in systemic disease might be prodromal, indicative of an incipient

or latent stage, complicating or merely concomitant. They were many in number and differed widely in character. Epistaxis or nosebleed might be due to trauma, morbid pathological changes, vicarious hemorrhages, or constitutional disturbances. In grave disturbances of the circulatory system, the hemorrhage was more likely to be found in the lateral walls, generally in the folds covering the turbinate bodies. Spontaneous epistaxis occurred in cases of plethora, scorbutus, purpura hemorrhagica, pernicious anemia, and hemophilia. Disturbances of the circulatory system were common causes of epistaxis. Cirrhosis of the liver, Bright's disease, and chronic alcoholism might have nosebleed as a concomitant symptom. Nosebleed in the aged, seemingly without cause, might be an indication of incipient arteriosclerosis. Epistaxis was a premonitory symptom of typhoid fever. It influenced the prognosis in the latter stages of purpura, malignant disease, and diphtheria. In scarlet fever and measles it indicated a very severe type of infection. In children a unilateral hemorrhage mixed with a mucous discharge usually pointed to the presence of a foreign body. In children nosebleed was often indicative of adenoids. Nasal hemorrhage was the commonest form of vicarious menstruation. The importance of earache was apt to be minimized or exaggerated. While suppuration was probably the most frequent cause of earache, this symptom accompanied various other conditions. Especial stress was laid upon the importance of earache in children. Hoarseness might arise from any cause that directly or indirectly affected the functional or pathological properties of the larynx or that modified in any way the resonating qualities of the voice. Hoarseness complicated or accompanied many general diseases, among which were tuberculosis, syphilis, typhoid fever, rheumatism, gout, diabetes, uncompensated valvular lesions, malaria, scurvy, purpura, chronic nephritis and hepatic cirrhosis, as well as vasomotor conditions. The continued hoarseness in children usually indicated adenoids. Overuse and faulty use of the voice was a common cause of hoarseness. The chief and most dangerous complications of chronic suppurative otitis media were infections of the brain and its membranes, of the intracranial sinuses, and of the jugular vein. General septicemia and pyemia might occur through the agency of suppurative otitis. Septic conditions and pericarditis, septic pneumonia, and pleurisy, abscess of the lungs, infractions of the spleen or kidneys, metastatic abscesses of the joints were all conditions in which at times the primary infective cause could be traced to the middle ear. Arthritis and synovitis might likewise occur. All cases of purulent otitis should be regarded as serious, and in such patients any sudden rigor, rise of temperature, insistent headache or vomiting, vertigo or photophobia should arouse suspicion of a complicating infection.

The Prevention and Preoperative Treatment of Mastoiditis.—Dr. W. Sohier Bryant of New York recalled a few anatomical and physiological facts about the ear and said that the protection of the patient from mastoiditis depended upon a perfect physiological condition of the upper air tract, and this was best maintained by good hygiene. This desirable condition might be attained, when any structural or functional defect was present, by operative or medical interference. When the functions alone were at fault local applications would be found of benefit. In general diseases the preservation of a healthy state of the upper air tract would safeguard against mastoiditis. In order to be effective, the preoperative treatment should begin before the signs of mastoiditis had become marked. The sooner the operation was performed the better for the patient with mastoiditis and osteitis. As soon as infection of the middle ear appeared, or was even suspected, preventive treatment was in order. Under the head of preoperative treatment should be included cupping and bloodletting and Wilde's incision. In summarizing his paper Dr. Bryant said that the preventive treatment of mastoiditis should be directed to the nasopharynx and its preservation in normal condition. Preoperative treatment was a question (1) of general systemic treatment with saline laxatives and rest in bed; (2) of the application of heat for the pain; (3) of drainage of the middle ear; (4) of treatment of the nasopharynx. He emphasized the fact that nasopharyngeal treatment was the best treatment for the prevention and abortion of mastoiditis.

The Prognosis and Treatment of Abnormal Blood Pressure.—Dr. Egbert Le Fèvre of New York read this paper. He said that in order to interpret the true prognostic significance and therapeutic indication of abnormal blood pressure it was necessary to have a clear conception of the factors that normally controlled the circulation. Normally the vascular system protected itself against sudden variations in pressure by the coordination that existed between different parts of the system; changes in the blood supply of one organ or set of organs were met by an opposite change in other organs or sets of organs. In this way an optimal level was maintained. This coordination of different portions of the circulation was carried out through the widening and narrowing of the lumen of the blood-vessels by contraction or relaxation of the muscular fibers in the walls of the arteries, capillaries, and veins, and the action of the muscle was largely controlled by the vasomotor nerves. While the normal tone of the blood-vessels was maintained through the action of the vasomotor nerves on the muscle tissue in the blood-vessels, this action was favored or inhibited by the secretion of certain glands in the body. The suprarenal glands added to the blood certain substances which increased the blood-pressure, while a secretion of the thyroid had the opposite effect. The prognostic significance of abnormal blood-pressure depended (1) on its cause, (2) on the changes that its long continuance had produced in the vascular system itself, and (3) on the dangers of accidents as hemorrhage, etc., from too high pressure, and subnutrition from too low. The peripheral resistance in abnormally high pressure had been ascribed to (*a*) an increase in the amount of blood contained in the vascular system; (*b*) increased viscosity of the blood; (*c*) changes in the blood-vessels themselves which might be of two kinds, diminished elasticity of the vessels from fibrous or atheromatous change, or increase in the tonicity of the muscle tissue in the arteries and arterioles. Conditions that caused increased peripheral resistance through the contraction of the arteries and arterioles might be due to increased irritability of the vasomotor system, or of the arterial muscles; both of these conditions might be due to primary toxic or primary nervous influences. Regardless of cause, the changes induced by high arterial tension could be divided approximately into three stages according to the extent that the high blood-pressure was due to the contraction of the arterial muscle or the fibrous change in the blood-vessels which made them more or less inelastic tubes. The first stage was characterized by persistent high tension due to hypertonicity of the muscular coats of the arteries and arterioles. This stage had been called that of presclerosis by Huchard, angiosclerosis by v. Basch, and chronic hypertension by Cook. The second stage was that of progressive hypertrophy of the muscular tissue of the cardiovascular system associated with degenerative changes in the intima and fibrosis of the external coat of the arteries. The third stage was that of diminished muscular control due to progressive fibrosis which caused increased obstruction in the arteries and arterioles of certain areas and a tendency to cardiac exhaustion and insufficiency. The treatment should take into consideration not only the stage, but also the cause. The first stage was the curable one. He did not think that the necessity of controlling the use of tobacco in these cases was sufficiently appreciated. Mental and nervous excitement was an important factor in causing the arterial spasm and hastening the occurrence of the second and third stages. Those who practised

in financial centers had had this fact impressed upon them during the past year. The influence of psychic and mental states on high blood-pressure had not been sufficiently estimated and the curative effects of the treatment at Spas were largely due to the patient's frame of mind. There everything tended to raise his hopes. One of the most difficult therapeutic problems was the proper use of the vasodilators, and he was thoroughly convinced that the present inordinate use of them to control arterial tension was not altogether free from danger. He could find no justification theoretically or clinically for the continued use of these drugs permanently to lower blood-pressure.

The Detection of the Treatment of Abnormal Blood Pressure.—Dr. Louis Faugères Bishop of New York said that the measurement of the quantity known as blood-pressure had introduced a new factor in the diagnostics of internal medicine and one which was bound to become more important as it was better understood. At the present moment it was in the position that the measurement of fever was at the time when the clinical thermometer was first introduced. Physicians had gone such a long time without the measurement of fever with thermometers that many considered it an unnecessary refinement, and not a few were chagrined to find that their former opinion as to the existence or absence of fever was not confirmed by the thermometer. Then there were quibbles as to the inaccuracy of temperature measurement because it was found that thermometers were not always accurate and that there was a difference as to whether the temperature was taken on the surface of the body, in the mouth, or elsewhere. Because the findings were difficult to interpret and did not always coincide with presupposed opinion, and because there was some variation in the findings according to the method by which they were sought, many rather objected to this new refinement of internal medicine.

They were still in the period of accumulating experience and it was for the medical profession in general to take up the measurement of blood-pressure and record in their own minds and otherwise, the findings so that they would gradually work out an understanding of its significance. It was unfortunate that the word blood-pressure, signifying in the minds of physicians the pressure of the blood inside of the artery, should have been so securely fastened on this quantity. The quantity was really the force required when applied in the form of a tourniquet to overcome the circulation of the blood through the vessels under examination. We applied an elastic pressure to a vessel and then determined how much force was required to overcome the circulation in this vessel. This force was known in clinical medicine as blood-pressure, sometimes as systolic blood-pressure, and it was a very significant quantity in diagnosis. In studying the methods of making this measurement, for clearness, we divided the procedure into two parts: first, the method of applying the pressure to the vessels, and, second, the method by which the amount of pressure applied to the vessel was measured.

This was illustrated by several instruments which were exhibited. First as to the part of the instrument that was applied to the body. In Gaertner's tonometer we had a band that went around the finger. The blood was driven out of the finger and the rubber band was inflated to a tenseness so great that the finger remained bloodless. Then the pressure was gradually relaxed until the blood returned to the finger. The pressure at the point when the blood returned to the finger was measured. The best instrument was the Potain. This consisted of a small rubber sack that was pressed over the radial artery until the circulation was stopped in the radial and then the pressure inside the sack was measured to see how much force had been required. The third method was that now almost universally used, particularly in this country. A four-inch-wide arm-band was placed around the arm and dilated until the circulation in the brachial artery was stopped. These were the principal methods of applying the pressure to the vessels. The measurement of the amount of pressure applied was made by some form of manometer. In general manometers were correct except that the aneroid manometers had the universal reputation among the scientists of changing their readings with time. The simplest form of manometer was that which consisted of a column of some fluid that balanced the pressure that was to be measured. The mercury manometer was used with many different instruments in many ways and had been called by different names, the Riva Rocci being the best known. Another method which had come into use a good deal now in the new instruments devised by Oliver and others consisted of a tube closed at the end and containing air in which the measurement was made by the amount of air compression caused by various degrees of pressure. A small drop of mercury or other fluid was placed in the tube as an index and traveled back and forth as the pressure was applied or released. This form of manometer was open to objection, as the slightest variation in temperature vitiated the readings, but like all other instruments it was good in the hands of those who had become skilled in its use. The last form of instrument was the aneroid manometer. This had long been known in the form of von Recklinghausen. The chief objection to these manometers was that they did not hold their readings and they were very expensive. The last instrument shown was one that the speaker had devised and consisted of an arm-band in which the pressure was made by the water, and in which a column of water falling from a rubber bag was used both to make and to measure the pressure. It consisted essentially of a rubber tube connected with an arm cuff at one end and a rubber bag at the other. Inside of this arrangement was placed twelve ounces of water without any air. The arm-band was applied in the usual way and the tube and bag containing the water elevated until there was sufficient pressure to stop the circulation in the arm. The distance of the top of the water column above the heart was read by means of graduations on the tube and that gave the systolic pressure.

There were two or three other methods of measuring blood-pressure that he could not mention for lack of time. He was working on several interesting problems which he hoped would make the measurement of blood-pressure a much more convenient matter clinically. Particularly was this necessary for the simple measurement of diastolic pressure. As regarded the treatment of abnormal blood-pressure Dr. Bishop said he would touch only upon one point that he considered his own discovery, namely, the treatment of high blood-pressure by means of physical fatigue. He found, as a matter of clinical experience, that patients suffering from high blood-pressure who were subjected to physical fatigue early in the day by means of exercise, that was divorced from all nervous excitement, underwent a distinct modification of all their high blood-pressure symptoms and apparently escaped the three terminal catastrophies of this condition. They escaped paralysis, they escaped dilatation of the heart, and they escaped progressive kidney disease. The treatment of abnormal blood-pressure must always be a matter of art as well as science. Science must be brought to bear to furnish elaborate and complete data as to the physical condition of the body and its chemical activities, but art must be brought to bear to control the habits, mentality and diet of the patient, and he ventured to assert that there was no class of patients who gave more brilliant results than those who were suffering from functional circulatory disorder.

Officers Elected.—The election of officers resulted in the choice of the following to serve for the ensuing year: *President*, Dr. Charles E. Townsend of Newburgh; *Vice-President*, Dr. Theodore D. Mills of Middletown; *Secretary*, Dr. C. E. Denison of New York; *Treasurer*, Dr. J. E. Sadlier of Poughkeepsie.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held October 19, 1908.

The President, Dr. Robert T. Morris, in the Chair.

Two Cases of Glandular Tumors of the Neck Treated with X-Ray and High Frequency Currents.—By Dr. John Herman Branth. These were two of five cases, the speaker said, of glandular tumors of the neck, more or less chronic in character, which he had successfully treated by means of *x*-ray exposures and the application of the high frequency current. In one of the cases shown there was a tumor, about two and a half inches in diameter, hard and somewhat flattened, which had disappeared after 46 treatments with the *x*-ray and high frequency current. In the other cases, 72 exposures had been given, and the patient was still under treatment, although marked improvement had been noted. In all of his cases, Dr. Branth said, the tumor was on the right side of the neck, and was evidently glandular in character.

Dr. Edward Wallace Lee said these cases of more or less acute enlargements in the neck, or glandular tumors, as Dr. Branth had called them, were comparatively common. Just what the origin of the infection was in the cases shown was of course problematical—whether they were due to a tonsillar or other throat infection, or something more remote. The question was whether they would have subsided as soon or even sooner without the applications of the electricity and *x*-ray. Dr. Lee said he had seen many of these glandular swellings in the neck subside without any special treatment, or under treatment directed to the particular source of the infection, if that could be ascertained. No proof had been advanced that the method of treatment described by Dr. Branth had any specific effect on these acute glandular enlargements. In the case of the young woman, the enlarged gland could still be felt in the neck. In the case of the young man, the condition was apparently an acute one, and would probably have subsided coincidently with the infection that gave rise to it.

Dr. Charlton R. Gulick, who had sent one of the cases to Dr. Branth for treatment, said that in that case, contrary to the patient's own testimony, the glandular enlargement had existed for a number of weeks, and its presence was associated with much debility and considerable loss of weight, which was rapidly regained after the disappearance of the swelling. Its appearance and consistency, Dr. Gulick said, was entirely different from the acute glandular enlargements of the neck due to an acute infective process of the tonsils or elsewhere, to which Dr. Lee had apparently referred, and which were very common in the practice of all general practitioners. The duration of treatment—7 months—seemed further proof that acute infection was not the cause of this growth.

The President, Dr. Morris, said it was the experience of many to have seen these glandular enlargements disappear under the use of the *x*-ray and high frequency current, and personally he was inclined to believe that these agents formed a valuable addition to our therapeutic resources in cases of this kind. Of course, if these enlargements were due to a tangible source of infection, our therapeutic efforts should be turned in that direction.

Dr. Branth, in closing, said that in his treatment, he applied the *x*-ray for a period of from eight to twelve minutes, according to the susceptibility of the patient, and followed this by an exposure of from six to eight minutes to the high frequency current with the vacuum tube. In reply to Dr. Lee, the speaker said he would be quite willing to trust to nature to cure some of these cases, but in others more energetic treatment was apparently necessary. In the case of the gentlemen, the enlargement gave rise to some difficulty in breathing. In none of his five cases was any special point of infection made out. One case presented by Dr. Branth had been under treatment since December 21 (ten months), and was still under treatment, though at long intervals. In some of these cases, surgical intervention was considered, and some surgeons advised that immediate action was preferable, owing to the growing danger in the triangles of the neck. These tumors had no relation to goiter or tuberculous conditions, but should be considered in a class by themselves. At present the personal opinion of Dr. Branth placed greater value in the high frequency current application as a curative agent, yet he added *x*-ray treatment because past experience had achieved satisfactory results.

Etiology, Pathology, and Course of Neurasthenia.—Dr. Edward D. Fisher, in taking up this phase of the symposium in "Neurasthenia," defined neurasthenia as exhaustion of the nervous system, characterized by marked functional inefficiency. Its principal symptom was functional disturbance of nervous activity, shown in incapacity for continuous mental action, with loss of control over the emotions, added to which was loss of physical endurance. Being an affection of the nervous system as a whole, we naturally found symptoms referable to brain, spinal cord, and the peripheral and sympathetic nervous systems, some cases being more marked in one direction, others in another. This being the case, its multiform variety of symptoms had led to multiform plans of treatment. Of late, psychotherapy had been most in evidence. Too much emphasis could not be laid on the physical side of neurasthenia, in contradistinction to the purely psychical side. Neurasthenia was not a disease peculiar, as it had so often been said, to Americans: it belonged to all countries and peoples under like conditions of stress. There was no race which would not succumb to it if the conditions were the same; no individual who was not subject to it if exposed to excessive strain. It might be the professional man, the mother at home, the explorer, the inventor—especially, in fact, any one who used his brain powers to excess if he combined therewith physical exhaustion. Neurasthenia was much more frequent in men than in women; in the latter, hysteria was more common, a disease which clinically was closely allied to neurasthenia, some writers, indeed, classifying the two diseases under one head. It was essentially an adult disease, but not infrequently observed in children, even under the age of five years. Heredity was present in 40 per cent. of all cases, according to Zieber. It was certainly an important factor in the predisposition to nervous breakdown. One found a family history of nervous instability, alcoholism, insanity, syphilis, and tuberculosis not infrequently. The exciting causes were alcoholism, syphilis, trauma, shock, and mental strain. Occupation entered largely as a causative factor, especially among those who did night work, such as clerks and editors, telegraphers, etc. The cause here was probably insufficient rest. Exhaustive disease, such as typhoid fever, grippe, or pneumonia, left as sequelæ malnutrition of the nervous system. Excitability and exhaustion were the most marked symptoms; slight causes excited these patients to anger, anxiety, or depression. Any irritation of the special organs, as the eye, ear, stomach, heart, sexual organs, *et al.*, caused irritation and exhaustion. There was often a fear of insanity, although rarely was the intellect involved. There was, however, an actual incapacity for continual mental effort from early mental fatigue. Physically, the signs were those of headache of the pressure type, especially at the base of the skull, vertigo, and sleeplessness. There was a general feeling of discontent, unhappiness, and unrest, and inability to forget one's self, with marked self-consciousness. The vertigo was more of the subjective than the active form. Sleeplessness in all its varieties was one of the most trying symptoms, but it was not always present. The tendon reflexes were usually exaggerated; ankle clonus was exaggerated; the patellar reflex and the Babinski sign were present. It was different from that found in organic lesions of the cord, involving the lateral tracts, in that there was flaccidity of the muscles rather than spasticity. The

pupil reflex to light was normal, and this was important to remember, as the multiple character of the mental symptoms in neurasthenia might suggest general paresis. The absence of the Argyll-Robertson pupil enabled us to make the differential diagnosis. It was not to be forgotten, also, that the early symptoms of general paresis might be of the neurasthenic type. Neurasthenia was accompanied by many subjective disturbances of sensation, tingling, numbness, itching, and vasomotor disturbances, rushing of blood to the head, erythematous manifestations, urticaria, etc. There was usually palpitation or intermittence of the cardiac action, associated with pain, and it was difficult at times to differentiate the cardiac symptoms from those of true angina pectoris. There might be actual loss of consciousness for many hours, with marked tachycardia and all the appearance of impending death. These attacks had been compared to epileptic seizures. Intestinal disturbance was almost always present, and colitis was present usually if there was digestive trouble. In neurasthenia, the restoration to normal conditions was slow, if ever complete. The nervous system was the last to show evidence of exhaustion from excessive physical and psychical stress; it was also the last to show complete restoration of function. The course of the disease was often a prolonged one. Recovery was always possible and generally probable in time under proper management. Often some great exciting motive or desire might be the cause for a sudden and complete disappearance of all symptoms of the disease. It was not possible to speak of any definite plan of treatment, but rest and nutrition were the keynotes.

True Neurasthenia; Its Nature and Treatment.—By Dr. A. D. Rockwell. (See page 955.)

Treatment of Neurasthenia by High Frequency Currents and the Ultra Violet Ray.—By Dr. Sinclair Tousey. (See page 957.)

Treatment of Neurasthenia by Static Electricity.—Dr. John Herman Branth said the deeper one delved into the physics of electricity, the more striking became the seeming endless variety of manifestations and forms of this elusive force. Electrotherapeutics were as yet in their infancy, but the field of application widened rapidly, and at the present time many chronic and subacute diseases were treated by this remedy. In looking up the literature on the subject of neurasthenia, it was found that many authors mentioned as a complication a derangement of the great sympathetic nervous system, which presided as regulator over the vital functions and nutrition. Intestinal antointoxication was, for instance, a functional derangement of the great sympathetic. Neurasthenia furnished all the symptoms pointing to derangement of this system, of course differing somewhat in each individual. To establish a nervous equilibrium, *i.e.*, to promote a restoration to health, the Pharmacopœia gave us little help, because the vital processes were so low that assimilation of a medicine was just as much hindered as the assimilation of food. However, with a stimulation of the sympathetic nervous system by electricity (which was perhaps the nearest to nervous motion we had), the processes of nutrition would become more active, and then we might be able to observe that medicines would produce results. The treatment of neurasthenia patients with high tension and high frequency currents was founded on a reasonable basis, which the results seemed to confirm. By the application of static electricity, all vital functions could be stimulated. We could send a high frequency current directly through the trunk, and so through the solar plexus, innervating the stomach and liver, spleen, intestines, and the ganglia, innervating the kidneys and pelvic organs, and thereby bring about not only the assimilation of food, but also absorption of medicines, which would, perhaps, under other conditions, pass out of the body like the unassimilated food. It seemed rational, therefore, to employ high tension electricity together with medicines. Of the latter, the writer mentioned bromide of strontium, sometimes combined with small doses of choral, to produce nervous calm and sleep. Static electricity was nature's safest and most rational remedy for stimulating healthy metabolism.

Dr. William M. Leszynsky said that in the first place a patient with neurasthenic symptoms should be thoroughly examined as to the presence or absence of organic disease, for it was not an uncommon occurrence to have patients with chronic nephritis or tuberculosis or even with organic nervous disease treated for a long time for neurasthenia without the true diagnosis having been made. Of course, neurasthenia might be associated with other manifestations, especially with phobias and obsessions and hysteria. As to the etiology of neurasthenia, the speaker thought that a large proportion of the cases were the result of excesses—mental, physical, and dietetic. Some years ago the late Dr. Robert E. Taylor attempted to describe a special symptomatology for those cases due to withdrawal to prevent conception. At that time, Dr. Taylor was not very successful in impressing his belief upon others, but since then, Dr. Leszynsky said, he had seen at least seven or eight cases of neurasthenia in which this practice was the etiological factor in the production of many of the peculiar symptoms, and these patients recovered within three months after the cause had been removed. There was another class of profound neurasthenics in which the symptoms were apparently the result of the constant and excessive use of saline cathartics or magnesium waters, taken for long periods of time. There were others due to the excessive use of coffee, tea or alcohol. In regard to the treatment, neurasthenics could be divided into two classes, the rich and the poor. With the former, the problem was a comparatively simple one, as the patient could carry out all the requirements of treatment, but the poor neurasthenic in the large city was the one to be pitied. As a rule, we could not change his occupation nor give him the necessary rest. As to the value of electricity in neurasthenia, the speaker thought it could not take the place of hydrotherapy, and he did not believe that any form of electricity, alone, would cure these patients. The static current he had found of value, particularly as a psychotherapeutic agent. He did not favor the complete rest cure, as it gave these patients too much time to themselves, and they usually did badly. The chief indications were a suitable occupation, medication as required, and the ability of the patient to carry out the physician's directions.

Dr. William Broaddus Pritchard said the papers and discussion of the evening pointedly illustrated the most interesting phase of this whole question, which was that it was apparently impossible to get two men to agree on this subject in any respect. The types and symptoms of neurasthenia varied widely according to the viewpoint. As a matter of fact, every subject of neurasthenia had his own particular variety of neurasthenia. The causes that produced it were also many and variable, and always multiple. To his mind, Dr. Pritchard said, it was a paradox to conceive of a child with neurasthenia. He did not believe in hereditary neurasthenia; it was an acquired condition in all cases. The only thing the patient inherited was the high order of cortex; the peculiarly susceptible quality of gray matter. The disease never develops in a fool, although it may make one. Contrary to Dr. Fisher's statement, he regarded it as essentially and peculiarly an American type of disease; not that people elsewhere were immune to it, but it was the atmosphere of superstrenuous endeavor characteristically American that was the chief factor in the production of this condition. In order to clear the complexity that surrounded this general subject, we should keep a picture of true neurasthenia before us, and around this genus arrange the subsidiary types, which would include endless protean groups of symptomatic varieties as species of the genus. The treatment of neurasthenia was more important negatively than positively. The "dont's" were more important than the things that

should be done. Most of the valuable therapeutic points had already been covered by the previous speakers. The relation between the doctor and the patient and the personality of the physician were important factors. Electricity, massage, hydrotherapy, passive exercises, all had their special field of usefulness, but he agreed with Dr. Leszynsky as to the wisdom of avoiding the absolute rest cure, which was apt to bring about a condition of morbid introspection and conduced to harmful idleness. These patients needed occupation, but along different lines than that along which their nervous breakdown occurred, and preferably in some direction which would arouse a primeval instinct or stimulate an answer to some "call of the wild."

Dr. Joseph Fraenkel said that in discussing neurasthenia each speaker, apparently, had a different picture in mind. Personally, he believed that there was such a disease as neurasthenia, but that in its true form it was rare indeed and represented a degenerative condition. Outside of this we had a great variety of so-called cases of neurasthenia, due to more or less known causes, which were benefited by any and all of the remedies that had been mentioned to-night: high-frequency current, hydrotherapy, rest, arsenic, occupation, and so on. Each case had to be closely investigated on its own merits, and we had, therefore, in these cases of so-called neurasthenia, a condition which often required the keenest diagnostic skill to interpret and treat successfully. In speaking of the Emanuel Church movement and similar workers in psychotherapy, Dr. Fraenkel said he believed their apparent success was due to their singleness of purpose. On general principles, psychotherapy was limited to a comparatively small group of functional cases, in which the symptoms were primarily psychical.

Dr. Theodore K. Tuthill said that the greatest treatment of neurasthenia he knew of was to send the patient off to the woods under the care of a guide. He should go so far from a railroad that he could not hear the whistle and then get lost and have to find his way back to camp. There was nothing so beneficial to a neurasthenic as camp life in the virgin forest. He had nothing to say against the other remedies that had been mentioned by the various speakers, but he thought the one he had recommended was the best of all.

Dr. Forbes R. McCreery said that no mention had been made of intestinal toxemia in neurasthenia. In his own cases he had found large amounts of indican and phenol in the urine. He asked whether the intestinal symptoms in these cases were a cause or an effect of the neurasthenia.

Dr. Edward Wallace Lee emphasized the importance of a more thorough, painstaking examination of the patient. In too many instances, he thought, a diagnosis of neurasthenia was made upon insufficient grounds. Also the more our knowledge was advanced in pathology, the less would we be inclined toward diagnosing functional disorders. Many of the so-called functional disturbances were due to an unrecognized pathological condition. If we studied our cases more scientifically and gave them more attention, we would get better results; this was more important, he said, than the personality of the physician, upon which so much stress had been laid by some of the speakers.

Dr. Edward D. Fisher, in closing, said in reply to Dr. McCreery that he thought the intestinal disturbances were secondary. He did not think neurasthenia could be caused by intestinal trouble. As a rule, the symptoms were functional in character and not indicative of organic disease. In reply to Dr. Lee, the speaker said that by the personality of the physician, or the personal equation, we simply meant the ability of the physician to gain the confidence of the patient, which was an important factor, and which gave the patient the idea that he was being treated by a man who understood his business.

Dr. Rockwell, in closing, said he was glad to hear Dr. Fraenkel say that neurasthenia was relatively a very rare disease. It was seldom seen in hospital or dispensary patients, and even among the well-to-do and more intelligent classes where it was mostly found, much that was popularly classed as neurasthenia was, as already intimated, simply pseudoneurasthenia.

The discussion was then closed by Drs. Tousey and Branth.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held October 16, 1908.

Dr. C. Ogilvy and Dr. Godfrey R. Pisek in the Chair.

This was a joint meeting with the Section on Orthopedic Surgery. The evening was devoted to a consideration of the paralyses in early life.

The Causative Factors of the Paralyses of Early Life.—Dr. Royal Storrs Haynes said that the paralyses of early life had as their primary causative factors lesions of the motor tract. These lesions might occur at any point from the cortex to the muscles and might be due to (1) congenital defects or malformations; (2) lack of development of cortical cells; (3) injury to the tract from trauma, from pressure of hemorrhage, or fluid or inflammatory exudate, from the displacement of bone or from the growth of neoplasms; (4) inflammation of the nervous system in brain or spinal cord or peripheral nerves; (5) poisoning by bacterial toxins or chemical poisons; (6) degeneration of the nerve or muscle cells. From the orthopedic standpoint it seemed to him fitting to consider those affections which occurred most frequently and which resulted in the greatest number of cases of paralysis. Beginning therefore with the periphery, he considered primary muscular dystrophy, obstetrical paralysis, diphtheritic paralysis (multiple neuritis), Pott's paralysis (compression myelitis), infantile spinal paralysis (poliomyelitis), and infantile cerebral paralysis. The other forms of peripheral paralysis he dismissed with a mere mention. Primary muscular dystrophy was an instance of primary degeneration of the motor tract, the muscles only being affected. This occurred before the tenth year, occurred most often in boys, had an hereditary tendency and ran in families. The paralysis might be of the face and shoulder girdle (Landouzy-Déjerine type), of the back and arms (Erb's juvenile type), or of the muscles of the back and lower extremities (muscular pseudo-hypertrophy). The seat of injury in obstetrical paralysis was commonly the junction of the fifth and sixth cervical nerves. In from five to six per cent. of all cases of Pott's disease paralysis occurred. At the Hospital for the Ruptured and Crippled in a series of 2,028 cases of nervous trouble, 75 per cent. were cases of poliomyelitis, 20 per cent. were due to cerebral disease, and the remaining 5 per cent. covered all other types of cases. Children in the first three years of life presented 77 per cent. of the cases. Infantile cerebral paralysis was second only to infantile spinal paralysis in the frequency of its course at this hospital. Paralysis of this type might be congenital or acquired, the former being the more frequent. The congenital cases might be due to causes within the uterus or to injury during labor. Syphilis was a doubtful cause. In conclusion, he repeated that paralysis in early life might be due to lesions in any part of the motor tract; that they might be caused by any one of several factors; that a number of clinical affections which caused paralysis existed; but that poliomyelitis and cerebral lesions caused an overwhelmingly large majority of the cases.

The Differential Diagnosis of the Paralyses Occurring in Early Life.—Dr. E. G. Zabriskie, in this paper said the chief factors in the correct diagnosis of paralysis in early life lay in the proper elicitation of the facts attending the onset, the character of the paralysis, and, in some instances the most important, the progress the disease had already made. The first important step in

the differentiation of the various paralyses was the determination of the seat of the causative factor. The differentiation of central from peripheral lesions was often extremely difficult. The condition known as spasticity, which was in reality a symptom complex, was almost invariably dependent on a degeneration or lack of development of the pyramidal tracts. Clonus was frequently lacking. Concerning the Babinski phenomenon Sachs and other writers considered the dorsal extension of the great toe as normal in children under two or four years. Other manifestations of central involvement were ataxia, either of station or muscular movements, the incoordination of the arms and the peculiar gait seen in cerebellar disease, intention tremor so closely related to ataxias, and the various kinds of clonic and tonic spasms or convulsions. Nearly all the other symptoms of nervous disease, or to speak more particularly, the symptoms of paralysis, might be met with in peripheral as well as central lesions, and it was rather by a careful consideration of the sum total of the symptoms that they could arrive at a diagnosis. The reflexes alone furnished them with little information; the same applied to the electrical reactions. The condition of sensation was of great help in distinguishing between central and peripheral manifestations. Thus, anesthesia, whether partial or complete, must necessarily follow the cutaneous distribution of the affected nerve in peripheral conditions. In those of central origin its distribution would be segmental hyperesthesias. Hyperesthesia was widely distributed in peripheral lesions; while in central, with the exception of poliomyelitis and meningitis, it was confined to a zone denoting the upper segmental limits of the disease process. The distinction between spinal and cerebral lesions depended solely on the application of whatever knowledge of the anatomy and physiology of the central nervous system they possessed. Not infrequently the entire diagnosis would rest upon the time the paralysis was first noticed, whether at birth or shortly after, whether it followed immediately or shortly after febrile states, convulsions, or coma, or whether its development was so gradual that it passed unnoticed until quite pronounced. Perhaps one of the most puzzling diagnostic distinctions one had to make was when one was obliged to distinguish between a mild cerebrospinal meningitis, acute anterior poliomyelitis, and multiple neuritis. Each of these conditions had its own distinctive features in well pronounced cases. But in some cases a diagnosis must be deferred until progress had been made. The diagnosis of infantile cerebral palsies was usually to be made by their spastic character, diminished intelligence, and history of onset. They could only be confounded with birth palsies when the spasticity was so slight as to be overlooked, and at a very early age. The determination of the group of atrophies was an extremely difficult one. Progressive muscular atrophy and chronic poliomyelitis were practically indistinguishable in most cases.

The Electrical Treatment of the Paralyses in Early Life.—Dr. T. H. Romeiser said that in the treatment of paralysis the utility and choice of electrotherapeutic measures was still a question giving rise to much discussion pro and con. There was also some diversity of opinion in regard to the form of electricity to be preferred, especially relative to the three modalities in use, static, faradic, and galvanic, and their various modifications. In the spastic paralyses not much was to be expected from electricity alone. In acute anterior poliomyelitis very gratifying results had been obtained. The object of electrical treatment, if the nerve cells were destroyed, was essentially to stimulate those muscles which were cut off from the neural physiological influence in order to maintain their metabolism and nutrition. Faradic and galvanic currents were used in most of his cases. He felt that galvanism was preferable to faradism. Electrical stimulation of the paralyzed muscles should not be begun before the inflammation in the cord had subsided. A characteristic of the muscles paralyzed in acute poliomyelitis was that contraction to the anode was greater than to the cathode. After the first year but little improvement had been observed; the best results had been obtained during the first four or six months. In none of the cases of acute poliomyelitis was electricity alone used. Of equal, if not of greater importance, were massage and properly graded exercises. The fact that without any special therapy there was a natural tendency to a progressive recovery, especially during the first few months, made it difficult to say how much of a remedial rôle electricity played. He was impressed, however, with the belief that the child gained strength more rapidly during the electrical treatment. In none of the cases were the orthopedic indications neglected.

The Mechanical Treatment of the Paralyses in Early Life.—Dr. Wisner R. Townsend said that it certainly seemed to those connected with the clinic that the children had improved more, gained more power, and were in every way in a better condition when mechanical care was given than those where no mechanical care was given. Apparatus had been ordered during eight months preceding April 1 on the Monday, Wednesday and Friday clinic of the Out-Patient Department of the Hospital for Ruptured and Crippled for sixty-six patients, all children, for the prevention of the following deformities: Drop foot, 6 cases; genu recurvatum, 25; talipes varus, 3; talipes equinus varus, 3; talipes valgus, 9; talipes calcaneus, 7; talipes calcaneovalgus, 2; talipes equinus, 14; lateral curvature, 2; drop wrist, etc., 1; weakness abdominal muscles, 3; right valgus and left calcaneus, 1; right drop foot and left valgus, 1; multiple deformities, 3. There were 38 males and 28 females; total 66. Under two years were 25 patients; between two and four years, 24; over four years, 8, a total of 57, nine not giving statement. The time between the attack and the deformity was as follows: Two days, one case genu recurvatum; 1 week, one case genu recurvatum; 2 days, one case calcaneovalgus. The average time after the attack when apparatus was applied was three months. The temporary apparatus when possible was applied earlier. Although all recognized that deformities frequently followed poliomyelitis, yet it was a fact that but very few realized how rapidly they came on and how frequently they occurred. Many different forms of mechanical appliances were used. Splints of plaster-of-Paris were inexpensive and easily applied. In dispensary work the objection was that they were so easily soiled. If the bandage was heavy it was clumsy; if too light it cracked and might not hold the limb perfectly. Braces of steel were simple and could be made of any weight to fit the varying age of the patient and, if made without joints, could be produced at a very reasonable cost. For many cases joints were not needed. In fact, they should not be used in the early treatment, and in some by the time the splint was discarded one with motion was not needed. Dr. Townsend showed a simple splint which was in general use at the hospital and had given very general satisfaction.

The Surgical Treatment of the Paralyses of Early Life.—Dr. R. H. Sayre said that the number of cases of paralysis which occurred in infancy and childhood which were amenable to surgical treatment was very much smaller than that which was best treated by mechanical support, but a certain number of cases derived wonderful help from surgical intervention. Surgery might be required either for the muscles, tendons, fascia, bones, or nerves. In many cases of paralysis certain groups of affected muscles became shortened, especially the flexor muscles when they were unopposed by the constant stretching action of the extensors. This shortening might at times be overcome by manipulation and mechanical stretching, and at other times would require surgical intervention. But could they decide what means to employ? If when the tissue was stretched to its utmost extent, and point pressure applied to it, a reflex spasm was produced, this tissue had been elongated as far as it was possible to elongate it by

stretching, and if it was desired to make it permanently longer this must be done by a surgical operation. This was a valuable guide in determining when to stretch and when to cut. In the majority of cases where they were called upon to elongate contracted muscles it was possible to do this by subcutaneous tenotomy. If the tendon was cut subcutaneously the deformity should be immediately corrected, and if a proper dressing was applied there need be no fear of non-union of the tendon. He had seen as much as three inches of the tendo Achilles reproduced after subcutaneous tenotomy. In some instances, as in contractions of the long flexors of the fingers, open operation on the forearm was advisable. The question of transplantation of the force of the unparalyzed muscle to the paralyzed one, first suggested by Nicoladoni, in order to be practicable must have a strong muscle whose force could be diverted and made to do the work of its paralyzed neighbor. It was occasionally possible by electricity and massage and gymnastics to develop a feeble muscle into a vigorous one, and subsequently operate. Certain details of technique must be observed in order to get the best results in tendon transplantation. If sepsis took place, or if they had pressure necrosis from sutures which were too tight, the result would be a failure. Unless the foot was kept in plaster-of-Paris in a position to relieve the newly attached tendon from strain, the result was apt to be a failure. It might be wise at times to drill a hole through bone and pass the tendon through it to make sure of firm union. The results of nerve transplantation and nerve splicing after traumatic paralysis had given such remarkable satisfaction that investigators had hoped for brilliant results in cases of infantile paralysis. Dr. Sayre had seen only a few cases in which he thought the operation indicated, and the results in all he had done so far had been failures. He felt personally that the operation should be tried in suitable cases, but he did not feel that it had yet been shown that a nerve that had been paralyzed for a long time could be regenerated by splicing it to a live one. Brachial palsy of the Erb type was due to overstretching of the nerve roots which resulted in rupture of the sheath, fibers, and vessels of the nerves. The only way to re-establish nerve conduction was to excise the cicatricial area and do an end-to-end suture of the nerves. In anterior poliomyelitis, however, the condition was different, and the results which were obtained by the experimental transplantation of healthy nerves in animals and of nerve suture after injury in man, should not be relied upon as giving reasonable hope that an equally favorable result would follow a similar operation on a diseased nerve. When a growing bone was compelled to bear weight while imperfectly supported, as was the case in infantile paralysis affecting the lower extremity, it very frequently became deformed; and in such cases, in addition to operations on the soft parts, bone operations were sometimes necessary.

Dr. H. L. Taylor confined his remarks to poliomyelitis. The treatment of the attack, so far as he knew, consisted in leaving the child alone. The child should be allowed to rest in bed. Massage and electricity were contraindicated during the first month, and sometimes for a longer period. In order to prevent deformity, keep up the nutrition. Deformity could be prevented in practically all the cases, at least in nine-tenths of them, by the application of a suitable apparatus which prevented the malposition of the feet. After the acute stage had passed over, the nutrition was best kept up by the use of the vibrator. The vibrator when properly used was superior to the use of electricity or massage.

Dr. Henry Koplik said he was interested in what had been said regarding the difficulty in making a differential diagnosis between the forms of meningitis and polioencephalitis. It was a well-known fact that if one observed the cases for some time, say twenty-four hours, the diagnosis would clear up. The diagnosis was not as difficult as at first appeared. He could not quite understand why when three lumbar punctures were made and the fluid examined a diagnosis could not be made, although such things sometimes happened. There was nothing more difficult to decide in cases of poliomyelitis than when to place the patient in the hands of the orthopedic surgeon. Deformities took place, but the children were too ill for operative work.

Dr. Sara Welt-Kakels discussed the papers from the standpoint of differential diagnosis. Among other cases she recalled one seen in private practice, a boy of three years. It was during the epidemic of poliomyelitis, and it was found that the child could not move the arm. It was learned that the nurse was walking with the child, leading him by the arm. The child stumbled, but was upheld by the nurse. Then it was found the child could not move the arm. Placing the member in a sling for four or five days resulted in a cure.

Dr. L. C. Ager believed that if the physician saw a case of poliomyelitis early, in 95 per cent. of the cases he could prevent deformity. A typical case was readily diagnosed; the diagnosis was practically only a matter of time.

Dr. L. E. La Fetra believed that a good deal could be done by treatment in the acute stage. Dr. Taylor advised leaving the child alone, and Dr. La Fetra agreed with this plan so far as electricity, massage, and manipulation were concerned. But much could be done by the use of icebags to the spine or counter-irritation with mustard and hot bottles. This would relieve the pain around the spinal nerve roots. This pain was a marked feature during the last epidemic. He believed that they could prevent the deformities if they began treatment at once; in most cases it was best to place the feet at right angles from the very beginning of the attack.

Dr. Walter L. Carr believed that much could be done for the relief of pain in the early stages of the disease. He did not hesitate to begin early the orthopedic treatment by placing the limb in proper position and keeping it there.

Dr. William M. Leszynsky, Dr. Henry W. Frauenthal, and Dr. Ontf also discussed the papers.

Pathological Society of Philadelphia.

At a stated meeting held November 12, Dr. A. G. Ellis exhibited a specimen of "Partial Cardiac Aneurysm, with Occlusion of the Coronary Artery Supplying the Area Involved." The condition was due to arteriosclerosis. The heart itself was enlarged and dilated. Dr. C. E. Farr exhibited "Specimens from a Case of Addison's Disease," in which classic symptoms were present and the disease was diagnosed during life. On post-mortem examination tuberculosis was found present in a number of organs, including the adrenals and the kidneys, the liver, the lungs, and a testicle. Dr. Farr exhibited also "Specimens from a Case of Stricture of the Urethra, with Pyelonephritis and Urethrovesical Fistula." Dr. John Speese exhibited a specimen of "Sarcoma of the Breast." From his investigation, this form of tumor appears to be much less common than statements in the textbooks would lead one to believe, namely, perhaps 1 per cent., instead of 7 or 8 per cent. of all tumors of the breast. Dr. A. O. J. Kelly exhibited a specimen of "Carcinoma of the Pancreas, with Metastasis," from a man 21 years old. The growth in the pancreas was exceedingly small, and might readily have been overlooked, while the liver was enormously enlarged and the seat of a large number of metastatic growths. Dr. Kelly exhibited also a specimen of "Gastric Ulcer Showing an Eroded Vessel." The organ came from a patient about 40 years old, who had been long under observation, and who had finally bled to death. On post-mortem examination the ulcer was found to be the seat of beginning carcinomatous degeneration. Dr. H. T. Karsner exhibited a specimen of "Partial Cardiac Aneurysm, with a Solitary Kidney Presenting an Anemic Infarct." It had not been possible to find the vessel to occlusion, of which it

was supposed the degeneration and bulging of the wall of the heart were due. Likewise, the most careful search failed to disclose the presence of a second kidney or ureter, or even a dimpling in the wall of the bladder suggestive of any attempt at communication with such a kidney. Dr. A. G. Ellis presented a communication, entitled "The Pathogenesis of Spontaneous Cerebral Hemorrhage." He had studied the blood-vessels in more than a score of brains from cases in which death had resulted from cerebral hemorrhage, and in almost all he had found a varying, but in no instance an extraordinary, number of the vascular enlargements usually designated miliary aneurysms. These, however, he found on careful histological study to be merely false aneurysms, resulting from laceration or rupture of the intima, sometimes also of the media, and finally at times also of the adventitia of vessels, the seat of arteriosclerosis or atherosclerosis, with the escape of blood between the coats of the vessels. The change began in the internal elastic membrane of the intima and extended thence to the other parts of the vessel. Rupture might take place from these formations or from some other part of the diseased vessel. Dr. D. J. McCarthy presented a communication entitled "The Types of Cerebral Hemorrhage," with illustrative specimens. Dr. W. M. L. Coplin presented a specimen of "Tuberculosis of a Lacteal." In the intestine could be seen a small ulcer, passing off from which was a lacteal vessel whose lumen was obstructed by a number of tubercles giving rise to a moniliform appearance. In this instance the chyle-vessel pursued a longitudinal direction, and not the transverse course thought to be distinctive of lacteals. The receptaculum chyli was not involved.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Delaware Board of Medical Examiners.

Tuesday, June 16, 17, and 18, 1908.

ANATOMY.

1. Give shape and number of segments forming os hyoides.
2. Give form, location, and attachments of ethmoid bone.
3. Give shape, size, origin, and insertion of latissimus dorsi muscle.
4. Give shape, size, origin, and insertion of trapezius muscle.
5. Describe vermiform appendix—location, attachment, structure, shape, and size.
6. Explain origin, course, and distribution of brachial artery.
7. The stomach is supplied by what arteries?
8. Explain course and distribution of cephalic vein.
9. Give formation and distribution of deep cervical plexus of nerves.
10. Explain anatomical formation of mammary gland.

PHYSIOLOGY.

1. What special centers have we in the spinal cord?
2. Name the special centers existing in the medulla oblongata and give their respective functions.
3. What is the function of the Eustachian tube?
4. What is the difference between aphasia and aphonia?
5. At what time of life does menstruation begin and end in the temperate zone?
6. In what way can you prove, physiologically, that the anterior columns of the cord are motor and the posterior sensory?
7. What are the chief functions of the skin?
8. What is the origin of urea, and the average quantity excreted in 24 hours?
9. What is the object of boiling starchy foods?
10. What are the functions of the liver?

CHEMISTRY.

1. Define specific gravity. What relation does the amount of solid matter in urine bear to the specific gravity of urine?
2. How are the compounds containing two, three or four elements distinguished by name? Illustrate.
3. What is (*a*) an acid, (*b*) an alkaloid? Illustrate.
4. How may the presence in urine of each of the following be detected: (*a*) albumin (*b*) sugar?
5. How may the presence of mercury be detected in a solution?
6. Define combustion. State the result of combustion.
7. During respiration what chemical changes take place in (*a*) air, (*b*) blood?
8. Give the symbol, valence and a principal compound of each of 10 elements.
9. Define and illustrate (*a*) mixture, (*b*) compound, (*c*) radical, (*d*) salt.
10. Mention the chemical reason for the use of lithia and its salts in cases of uric acid diathesis.

MATERIA MEDICA.

1. Give the common name, preparations, and doses of colchicum.
2. What are the physiological actions of gelsemium?
3. Name the preparations and doses of benzoin.
4. State some general rules to be observed in prescription writing.
5. Write a prescription for acute cystitis with alkaline urine; two for acute dysentery.
6. What is salol? What are its physiological actions? Why should care be exercised in its administration?
7. What are anthelmintics? Name three drugs of this class, stating the dose of each.
8. Give the common name, the active principles, the preparations and doses of nux vomica.
9. How does strophanthus differ in its physiological action from digitalis?
10. Make a list of the lithium salts with dose of each.

THERAPEUTICS.

1. Name three digestive ferments and state the indications for the use of each.
2. What are the therapeutic uses of sodium phosphate?
3. State what you know about the uses of potassium iodide.
4. Veratrum viride. What are its medical uses?
5. What is aqua hydrogen dioxide? What are its therapeutic uses?
6. Name the preparations and doses of codeine. For what is it used?
7. What is the chemical antidote for arsenic? Iodine? Corrosive sublimate? Chlorine water? Nux vomica and its alkaloids?
8. What are the therapeutic uses of bismuth?
9. What are the therapeutic uses of hydrargyri chloridum mite?
10. Write a short essay on "hydrotherapy."

PATHOLOGY.

1. Give the causes and process of cerebral softening.
2. How does calcareous degeneration of the arteries influence the circulation, and to what diseases does it predispose?
3. Describe the protective agencies by which the body guards itself against the entrance and harmful effects of pathogenic bacteria.
4. What are some of the phenomena attending pus-formation?
5. What structural changes take place in chronic gout?
6. Differentiate a tuberculous joint from one enlarged by chronic rheumatism.
7. Name some of the principal bacteria of the staphylococci and the streptococci groups.
8. Describe the rash and give the morbid anatomy of scarlatina.
9. What changes take place in hypertrophy of the heart?
10. What are the pathological conditions in gonorrheal ophthalmia?

PRACTICE OF MEDICINE.

1. Differentiate primary lobar pneumonia from acute pneumonic phthisis.
2. Give the treatment of erysipelas: (*a*) dietetic, (*b*) constitutional, (*c*) local, (*d*) prophylactic.
3. Give treatment and symptoms of acute articular rheumatism.
4. Give period of incubation, character of eruption, and complications of each of the following diseases: (*a*) measles, (*b*) variola, (*c*) scarlet fever.
5. Define hydrophobia: give clinical history and treatment.
6. Give symptoms and treatment of acute congestion of the lungs.
7. Give the etiology and symptoms of acute cardiac dilatation.
8. Etiology and symptoms of arteriosclerosis.

9. Make a differential diagnosis of follicular tonsillitis and diphtheria.
10. Name four diseases for which you consider there is a specific treatment. Write prescriptions for each.

OBSTETRICS.

1. Define obstetrics. Give a rule for determining the date of labor.
2. What is the placenta? Describe its formation and development.
3. Name, under separate headings, the positive and doubtful signs of pregnancy.
4. Into how many stages is labor divided? Define each stage.
5. Define puerperal eclampsia. Give the causes and treatment of same.
6. Name three important abnormal presentations and your management of each.
7. What are the symptoms, varieties, and dangers of placenta prævia?
8. Give the causes, symptoms, and treatment of simple chronic endometritis.
9. Name two conditions requiring the use of an anesthetic during labor. State the kind of anesthetic preferred and give the method of administering it.
10. Describe in full the application of forceps.

SURGERY.

1. Give minute directions for antiseptic surgical dressings applied to surface wounds.
2. What tendons are severed and what mechanical device is necessary for correcting congenital talipes varus?
3. Give diagnostic symptoms, reasons for, and methods of ligating aneurysmal arteries.
4. Differentiate chronic cystitis and chronic prostatitis.
5. Differentiate phimosis and paraphimosis.
6. Explain the formation of an orifice, sinus, and fistulous openings—with method of drainage and treatment.
7. In what particular do the diagnostic symptoms of appendicitis differ from those of acute peritonitis?
8. Differentiate traumatic and hospital gangrene.
9. Explain necessary structural changes in reuniting fractured bones.
10. Classify the method of reducing dislocations by manipulation.

HYGIENE.

1. What precautions should be taken in school rooms to protect the sight of scholars?
2. What are the chief sources of contamination to drinking water?
3. What physical conditions would render the taking of a Turkish bath unsafe?
4. What care should be employed in exhumations?
5. Name causes for greater prevalence of diphtheria and smallpox in cold than in warm weather.
6. State the advantage of cremation over earth burial.
7. What is milk sterilization? How is it performed?
8. How do forests benefit public health?
9. Mention some of the diseases to which artisans are especially liable.
10. Is green wall paper objectionable? If so why?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

DELAWARE BOARD OF MEDICAL EXAMINERS.

June 16, 17 and 18, 1908.

PHYSIOLOGY.

1. *The special centers in the spinal* cord are: the cilio-spinal, secretory, vasomotor, genital, vesical, and rectal centers.

2. *The special centers in the medulla oblongata* are: (1) center for mastication, (2) for secretion of saliva, (3) for sucking, (4) for deglutition, (5) for vomiting, (6) for voice, (7) center for expression, (8) cardiac centers, (9) respiratory centers, (10) vasomotor centers.

3. *The function of the Eustachian tube* is to keep the atmospheric pressure within the tympanic cavity the same as that on the outside.

4. *Aphasia* is a condition in which the patient is unable either to receive ideas or to communicate them by the ordinary means of speech or writing.

Aphonia is simply loss of voice, due to some interference with the function of the vocal cords.

5. In the temperate zone, menstruation begins at about fourteen or fifteen years of age, and ends at about forty-five or fifty.

6. Transverse section of the *anterior root* of a spinal nerve causes loss of motion and degeneration of the peripheral portion of the anterior root fibers; and stimulation of the anterior root is followed by tetanic contraction of the muscles supplied by the nerves concerned.

Transverse section of the *posterior root* of a spinal nerve causes loss of sensation and degeneration; and stimulation of the dorsal root is followed by sensations of pain, or pressure, or temperature.

7. *The functians of the skin* are: Protection, sense of touch, excretion, regulation of body temperature, absorption, and respiration.

8. *Urea* is chiefly made in the liver; it is the end product of the metabolism of the proteids. The average quantity of urea excreted in twenty-four hours is about five hundred grains.

9. *The object of boiling starchy foods* is: To burst the cellulose envelope and thus allow the digestive juices to come into contact with the granules.

10. *The functions of the liver* are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

CHEMISTRY.

1. *Specific gravity* is the weight of a given volume of a substance as compared with the weight of a similar volume of some other substance taken as a standard, under like conditions of temperature and pressure.

In normal urine, the last two figures of the specific gravity, multiplied by 2.33, will give approximately the number of grams of solids to the liter of urine.

3. An *acid* is a compound of an electro-negative element or residue with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element, without the formation of a base.

Examples: Sulphuric acid: H_2SO_4 Nitric acid: HNO_3.

An *alkaloid* is a basic nitrogenous substance, alkaline in reaction, and capable of uniting with an acid to form a salt in the same way that ammonium does. *Examples*: Morphine and strychnine.

4. To examine for *albumin*: "The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

To examine for sugar: First remove any albumin that may be present, then "render the liquid strongly alkaline by addition of sodium carbonate. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."

5. *The presence of mercury in a solution may be detected* by the Reinsch test, as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put in into a clean dry, glass tube, open at both ends, and apply heat at the part where the copper is. If mercury is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of metallic globules of mercury.

6. *Combustion* is rapid oxidation, with the giving off of light and heat. The *products of combustion* are light and heat.

7. (*a*) The chemical changes produced in the *air* by respiration are:

	Inspired Air.	Expired Air.
Oxygen	21 per cent.	16.6 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide...	0.04 per cent.	4.4 per cent.
Other gases.....	Rare.	Often present.
Watery vapor ...	Variable.	Saturated.

(*b*) In the *blood* the chemical changes are: (1) The giving up of the CO_2 by the venous blood, (2) the absorption of oxygen during inspiration and (3) the blood loses a small amount of watery vapor.

8.

Ten Elements.	Symbol.	Valence.	A Principal Compound.
1. Hydrogen.	H.	1.	Hydrogenmonoxide(or water), H_2O
2. Oxygen.	O.	2.	Hydrogen dioxide, H_2O_2
3. Carbon.	C.	4.	Carbon dioxide, CO_2
4. Nitrogen.	N.	3 or 5.	Ammonia, NH_3
5. Chlorine.	Cl.	1.	Sodium chloride NaCl
6. Sulphur.	S.	2.	Sulphuretted hydrogen, H_2S
7. Potassium.	K.	1.	Potassium iodide, KI
8. Sodium	Na.	1.	Sodium carbonate, Na_2CO_3
9. Silver.	Ag.	1.	Silver nitrate, $AgNO_3$
10. Boron.	B.	3.	Borax, $Na_2B_4O_7$

9. (*a*) A *mixture* is the product obtained by uniting into a more or less homogeneous whole two or more substances, whether elements or compounds. There is no chemical union, and the amounts of the component parts are not definite. *Examples*: Air, milk and water.

(*b*) A *compound* is a substance made up of two or more elements, chemically united with each other in definite proportions. *Examples*: Ammonia, NH_3; borax, $Na_2B_4O_7$.

(*c*) A *radical* is a group of atoms which can enter or leave a chemical reaction like a single atom. *Examples*: Ammonium, NH_4; ethyl, C_2H_5.

(*d*) *Salts* are substances formed by the substitution of an electropositive element for part or all of the replaceable hydrogen of an acid. *Examples*: Sodium nitrate, $NaNO_3$; monopotassic sulphate, $KHSO_4$.

10. Lithia and the salts of lithium are used in cases of uric acid diathesis, because: (1) They diminish the acidity of the urine; (2) they have a diuretic action; (3) they hasten the excretion of the urates; (4) and so prevent the accumulation of gravel and the formation of calculi; (5) the lithium salt of uric acid is the most soluble of all the urates.

MATERIA MEDICA.

1. Colchicum. *Common Name*: Meadow Saffron.

Preparations and Doses: Colchici cormus, gr. iv; extractum colchici cormi, gr. j; colchici semen, gr. iij; fluidextractum colchici seminis, ♏j ss; tinctura colchici seminis, ♏xxx; vinum colchici seminis, ♏xxx; colchicine, gr. 1/128.

2. *The physiological actions of gelsemium:* "When given internally gelsemium acts as a powerful depressant to the respiratory, circulatory, and nervous systems. It acts as a depressant to the heart muscle and vagus nerves, and under its influence there is a diminution in the pulse force and blood pressure. It primarily depresses the sensory side of the spinal cord; but later, if given in large amount, depresses the motor side. The drug has no effect upon the spinal nerves, but the motor cranial nerves are paralyzed by large doses. In moderate amounts it causes the respiration to become slow and feeble, and in lethal quantities paralyzes the respiratory centers.—*U. S. Dispensatory.*

3. *Preparations and Doses of Benzoin:* Adeps benzoinatus; tinctura benzoini, ♏xv; tinctura benzoini composita, ♏xxx; acidum benzoicum, gr. vijss; ammonii benzoas, gr. xv; sodii benzoas, gr. xv; lithii benzoas, gr. xv.

6. *Salol* is phenyl salicylate; and is composed of 60 parts of salicylic acid, and 40 of carbolic acid. Its *physiological action* is: antiseptic, antipyretic, and germicidal. Care should be exercised in its administration, because in the small intestine it is decomposed into its constituent parts, and symptoms of carbolic acid poisoning may develop.

7. *Anthelmintics* are agents which kill or expel worms. *Examples:* Oleoresina aspidii, gr. xxx; Pelletièrine tannate, gr. x; santonin, gr. j.

8. Nux Vomica. *Common name:* Dog button, or poison nut; *Active principles:* Strychnine and brucine.

Preparations and Doses: Extractum nucis vomicæ, gr. ¼; fluidextractum nucis vomicæ, ♏j; tinctura nucis vomicæ, ♏x; strychnine, gr. 1/64; strychninæ sulphas, gr. 1/64; strychninæ nitras, gr. 1/64.

9. *As compared with digitalis, strophanthus* acts quicker, is less enduring in its effects, is less certain, is not cumulative, has less marked vasoconstrictor effects, has greater diuretic power, and is said to be safer for aged patients.

10. *Lithium Salts, with Doses:* Lithium benzoate, gr. xv; lithium bromide, gr. xv; lithium carbonate, gr. vijss; lithium citrate, gr. vijss; effervescent lithium citrate, 5ij; lithium salicylate, gr. xv.

THERAPEUTICS.

1. There are only two *official* digestive ferments, viz., pepsin and pancreatin. Trypsin is also a digestive ferment.

Pepsin is indicated as an aid to gastric digestion in gastralgia, gastric cancer and ulcer, atonic dyspepsia, and the vomiting of pregnancy.

Pancreatin is indicated as an aid to digestion, and for the predigestion of food, in convalescence, in wasting diseases, and in intestinal dyspepsia.

6. *Preparations and doses of codeine:* Codeine, gr. ½; codeine phosphate, gr. ½; codeine sulphate, gr. ½.

Codeine is used to allay cough, and also in diabetes; sometimes it is employed as an anodyne in cases of some duration, such as cancer.

7. Chemical Antidotes. *For Arsenic:* Freshly prepared ferric hydroxide. For *iodine,* starch, or sodium carbonate or bicarbonate. For *corrosive sublimate,* white of egg or milk in moderate amount. For *chlorine water,* ammonia, cautiously. For *nux vomica and its alkaloids,* potassium permanganate, or tannic acid.

PRACTICE OF MEDICINE.

1. The symptoms and physical signs of *lobar pneumonia* and *acute pneumonic phthisis* may be the same for the first eight or ten days; at this period the fever in *pneumonia* drops by crisis; whereas in *phthisis* the fever continues for some time longer and the patient gets worse; the sputum contains tubercle bacilli and elastic fibers, and instead of retaining the rusty color it becomes purulent and greenish.

In *pneumonia,* the breathing is very rapid, the pulse-respiration rate is disturbed, the fever is usually high, and runs a regular course, crepitant râles are heard at first, then signs of consolidation follow, and crepitant râles again succeed.

In *phthisis,* the breathing is hurried and there is dyspnea, the fever is often high, but does not run a regular course, at first the signs are those of bronchitis, followed by consolidation, a softening, or excavation in different parts of the lungs; sometimes there is nothing to be heard but scattered râles.

9. In *follicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are red and swollen, and in the crypts are seen white cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Löffler bacilli are never found.

In *diphtheria* the onset is more gradual; the temperature rises to about 101 ° to 103° F.; the tonsils are not much enlarged; there is an exudate of a thick grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon reforms, and may be found on the fauces and pharynx as well as on the tonsils; in the exudate the Klebs-Löffler bacilli may be found.

OBSTETRICS.

1. *Obstetrics* is that branch of medicine which treats of the science and art of caring for woman and the product of conception during pregnancy, labor, and the puerperium.

A rule for determining the date of labor: Count back three calendar months from the first day of the last menstrual period, and add seven days.

3. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation, and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy: (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

4. Labor is divided into three stages: The *first stage* begins with the commencement of labor, and ends with the complete dilatation of the os uteri. The *second stage* begins with a complete dilatation of the os uteri, and ends with the birth of the child. The *third stage* immediately follows, the second, and ends with the expulsion of the placenta and the beginning contraction of the uterus.

5. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death.

The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels and kidneys.

The line of *treatment* as laid down by Edgar is as fol-

lows: For *preventive treatment:* (1) the amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ.

The *curative treatment includes:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

SURGERY.

2. In *congenital talipes varus,* the following tendons should be severed: Tibialis anticus, tibialis posticus, and plantar fascia. The mechanical device necessary is the club-foot wrench.

7. In *appendicitis:* The right thigh is flexed, pain and tenderness are confined to the right iliac fossa, there may or may not be vomiting, fullness of the abdomen is above Poupart's ligament.

In *acute peritonitis:* Both thighs are flexed, pain and tenderness are more general and are increased by movement, vomiting is frequent, the abdomen in general is distended and is tense and tympanitic.

HYGIENE.

1. *Precautions which should be taken in school rooms to protect the sight of scholars,* should include the following: (1) The light should be ample, and should come from the left side or from behind the scholar, never from the front. (2) The windows should extend nearly to the ceiling, and should have proper shades. (3) Blackboards should be clean and black, neither glazed nor shiny, and must not be on the same side as the windows. (4) Schoolbooks should be of good paper with good clear type, and the lines amply leaded. (5) Pupils should assume correct attitudes in writing or reading. (6) Desks and seats should be of a proper size, style and arrangement. (7) Proper medical examination should be made of the eyes when necessary, and defects corrected as soon as possible.

2. *The chief sources of contamination of drinking water,* are: Sewage, including not only solid and liquid excreta, but also house water and waste water; manufacturing refuse, such as from dye works, bleaching works, tanneries, and numerous other industrial places; from improper storage or service of water.

3. *A turkish bath should not be taken* by patients suffering from organic heart disease, dilated heart, congestion of the lung, chronic bronchitis, with emphysema, pneumonia, or great obesity.

4. *In exhumations, care should be taken:* (1) To obtain the necessary permission from the proper parties; (2) to be sure to open the right grave; (3) to have the corpse properly identified; (4) if the coffin is at all broken, to take some of the earth from each side, above and below; (5) during the inspection to keep to windward of the body; (6) to work as rapidly as is consistent with thoroughness.

5. Ventilation is less satisfactory and the changes in temperature are greater and more frequent in the cold weather; hence vitality is lowered and there is a greater liability to take diseases.

6. *The advantages of cremation over earth burial* are: (1) Economy; cremation is very much cheaper, and there is no need for the community to purchase large tracts of valuable land for the accommodation of the dead. (2) Health; it is said that earth-burial causes the air to become poisoned, the burial grounds to become offensive, the soil to become laden with disease germs of every description, water to become poisoned, and diseases to be directly originated or propagated. (3) Body-snatching and desecration of tombs will be impossible.

7. "Sterilization of milk requires continuous heating under pressure for about two hours at 248° F., at which temperature not alone the bacteria and their spores are destroyed, but the normal appearance and taste of the milk as well. Part of the sugar is converted into caramel, part of the casein is precipitated, and the milk will no longer form a cohesive coagulum with rennet." (Harrington's *Practical Hygiene.*)

8. "In cold climates trees and shrubs obstruct the passage of the sun's rays to the soil, which is therefore liable to be cold and moist; but in hot climates the evaporation of water from the leaves tends to dry the soil, while the temperature of the air is lowered, and the ground is sheltered from the direct rays of the sun and kept cool. Thus, the heat of summer is lowered and the cold of winter lessened by the presence of trees, and having a lower temperature than the neighboring earth's surface, high forests increase the rainfall. * * * Probably in all climates a due admixture of herbage, shrubs, and trees, without dense undergrowth, but admitting the passage of free currents of air in every direction, is the most conducive to health. Large tracts of country destitute of trees and vegetation are in hot climates unbearably warm and dry, and in cold climates are exposed to every chilling wind and to every extreme of temperature, according to the season of the year. In such districts, too, rainfall is often absent or very slight in amount, the attractive influence exerted by trees and vegetation generally upon water-charged clouds being wanting." (Parkes' *Practical Hygiene.*)

9. *Some diseases to which artisans are especially liable:* Phthisis, fibroid phthisis, anthrax, glanders, tetanus, varicose veins, septic infection, lead poisoning, mercurial poisoning, arsenical poisoning, phosphorus poisoning, emphysema.

10. Yes, green wall paper is objectionable; because it may contain arsenic, which is liable to become detached from the paper, and may be present in the air of the room, and then be inhaled.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 5
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 4
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 8
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	J. D. Fernandez, Jacksonville	Tallahassee	May 19
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	W. F. Howard, Pocatello	Boise	April 6
Illinois	J. A. Egan, Springfield	Chicago	Jan. —
Indiana	W. T. Gott, Indianapolis	Indianapolis	May 25
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. 8
Kansas	D. P. Cook, Clay Center	Kansas City	Feb. 9
Kentucky*	J. N. McCormick, Bowling Green	Louisville	April 27
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 20
Maine	Wm. J. Maybury, Saco	Portland	March 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcook, Warrensburg	Kansas City	Nov. 23
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	E. J. C. Sward, Oakland	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Dec. 30
New Jersey	J. W. Bennett, Long Branch	Trenton	June 15
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 2
N. Carolina*	B. K. Hays, Oxford	Asheville	June 9
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma*	F. P. Davis, Enid	Chicasha	Jan. 12
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June —
Rhode Island	G. T. Swarts, Providence	Providence	Jan. 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June 8
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	Jan. 13
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Dallas	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 16
Washington*	K. Turner, Seattle	Spokane	Jan. 5
W. Virginia	H. A. Barbee, Point Pleasant	Huntington	April 13
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 12
Wyoming	S. B. Miller, Laramie	Cheyenne	Feb. 10

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Louisiana.—The Louisiana State Board of Medical Examiners has adopted the following resolutions: "On and after October 1, 1908, the Louisiana State Board of Medical Examiners will grant a license, without examination, to applicants who will comply with the following conditions: (1) They must appear in person before the board. (2) They must present a diploma from a college rated as Class A by the board. (3) They must present a certificate of examination by and from a State Board of medical examiners recognized by the Louisiana State Board of Medical Examiners. (4) They must furnish satisfactory proof of their identity. (5) They must give satisfactory evidence of good moral character. (6) They must pay a fee of $25.

Therapeutic Hints.

Capillary Bronchitis.—

℞. Sodii nitritis.....gr. vi
Fluidext. belladonnæ.....gtt. ii
Spts. ammon. aromat.....℥ii
Mist. glycyrrhizæ co.....℥iii
Aquæ anisi.....℥iii

M. Sig.: Teaspoonful every two hours for a child one or two years old.

R. T. Scott, M.D., Houston, Tex.

Bronchitis.—

℞. Creosot. carb.....℥ss.
Mucilag. acaciæ.....℥iss.
Aq. menth. pip.....q. s. ad. ℥vi.

M. S.: A tablespoonful every six hours.

Gonorrhea.—W. F. Glenn recommends the following:

℞. Zinci iodidi.....gr. xv.
Zinci chloridi.....gr. i.
Aq. dest.....℥vi.

M. S.: Use three times a day as an injection.

—*Journal American Medical Association.*

Migraine.—The following has been recommended for the relief of migraine:

℞. Ammonii chloridi.....gr. xx.
Tinct. gelsemii.....♏x.
Syrupi aurant.....℥i.
Aq. cinnamomi.....q. s. ad. ℥i.

M. S.: One tablespoonful at a dose. Repeat in three hours if necessary.

—*Clinical Review.*

Asthma.—Sawyer uses the following:

℞. Potassii nitratis.....℥ss.
Pulv. anisi fruct.....℥ss.
Pulv. stramonii fol.....℥j.

M. ft. pulv.

A thimbleful of this powder placed upon an earthenware plate is pinched by the fingers into a pyramidal shape, and lighted at the top of the little conical heap. It burns with a smoldering and gently deflagrating flame, and is held near and beneath the patient's face, who breathes in the smoke as it issues from the burning heap of powder. The ingredients of the powder should be dry, well mixed, and finely powdered.

A writer in the *Therapeutic Gazette* recommends the following combinations:

℞. Potassii nitratis.....℥ss.
Pulveris stramonii fol.....℥j.
Pulveris anisi fruct.....℥ij.
Pulveris lobeliæ inflat.....℥j.
Pulveris fol. theæ sinensis nig...℥j.
Ol. eucalypti.....♏xv.

M. ft. pulv.

Or, when and where the pungent fumes of sulphur in combustion may be indicated:

℞. Potassii nitratis.....℥ss.
Sulphuris sublim.....℥ss.
Pulveris anisi fruct.....℥iijss.
Pulveris stramonii fol.....℥j.

M. ft. pulv.

Far away from a pharmacy one might wish to extemporize a reliable fuming inhalation. A mixture of one part by weight of saltpeter and two parts of black tea, powdered, makes a good asthma powder for burning for emergency use, and both these ingredients are usually to be found as household possessions.

Manganese.—In malarial or catarrhal jaundice manganese is often very useful. It may be administered after the following formula:

℞. Mangani sulph. exsic.....gr. xl.
Cinchonidinæ salicylat.....℥ii.

M. ft. pil. No. xx.

Sig.: Two pills three times a day.

Or, the following formula may be employed:

℞. Mangani sulph. exsic.....gr. xl.
Fel. bovis. purif.....℥i.
Resinæ podophylli.....gr. v.

M. ft. pil. No. xx.

Sig.: One pill three times a day.

—*Clinical Review.*

Paroxysmal Sneezing.—In hay fever and paroxysmal sneezing J. B. Ball employs:

℞. Quininæ sulphatis.....gr. iss.
Arsen. iodidi.....gr. 1-24.
Extr. belladonnæ.....gr. 1-12.

One of these pills to be taken three times a day.

Pruritus Vulvæ.—After ablution with soap and warm water, the following is to be applied:

℞. Morph. sulph.....gr. vi.
Acid boric.....℥iss.
Aq. camph.....℥vi.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 28, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	405	184
Diphtheria	358	47
Measles	255	5
Scarlet Fever	191	10
Smallpox	—	—
Varicella	151	—
Typhoid Fever	47	13
Whooping Cough	24	2
Cerebrospinal Meningitis	5	7
Malarial Fever	—	—
Totals...	1436	268

Chordee.—Opium may be needed, and is conveniently prescribed in suppository form:

℞. Pulv. opii.....gr. vi.
Camphoræ.....gr. xviii.
Ol. theobrom.....q. s.

Ft. suppos. No. vi.

S.: One at bedtime. —*The Hospital.*

Vomiting of Pregnancy.—

℞. Cerii oxalatis
Pulv. ipecac.....āā gr. i.
Creosoti.....♏ii.

Ft. pil.

S.: One pill every hour until nausea is controlled. —Goodell.

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending November 27, 1908:

SMALLPOX—UNITED STATES

		Cases.	Deaths.
California, Los Angeles	Oct. 31–Nov. 7	1	..
San Francisco	Oct. 31–Nov. 7	2	..
Indiana, Elkhart	Oct. 31–Nov. 7	3	..
Fort Wayne	Oct. 31–Nov. 7	1	..
La Fayette	Nov. 2–16	3	..
Kansas, Topeka	Oct. 31–Nov. 7	2	..
Wichita	Oct. 31–Nov. 7	1	..
Kentucky, Covington	Nov. 7–14	4	..
Lexington	Nov. 7–14	1	..
Ohio, Cincinnati	Nov. 5–12	5	..
Washington, Spokane	Oct. 31–Nov. 7	1	..
Wisconsin, La Crosse	Oct. 31–Nov. 16	5	..

SMALLPOX—FOREIGN.

Brazil, Rio de Janeiro	Sept. 27–Oct. 18	1,420	652
Santos	Sept. 13–Oct. 14	36	15
Canada, Halifax	Oct. 31–Nov. 7	1	..
Victoria	Oct. 31–Nov. 7	1	..
Egypt, Cairo	Oct. 7–21	4	2
India, Bombay	Oct. 13–20	..	6
Rangoon	Oct. 3–10	..	1
Indo-China, Cholen	Sept. 25–Oct. 3	..	1
Italy, General	Oct. 25–Nov. 1	39	..
Naples	Oct. 25–Nov. 1	8	1
Mexico, Mexico City	Sept. 19–Oct. 3	..	9
Norway, Christiania	Oct. 10–24	6	1
Russia, St. Petersburg	Oct. 10–17	4	1
Warsaw	Sept. 25–Oct. 10	.	9
Spain, Barcelona	Oct. 25–31	..	4
Valencia	Oct. 24–31	2	..
Turkey, Constantinope	Oct. 18–Nov 3	.	7

CHOLERA.

China, Hongkong	Sept. 19–26	1	1
India, Madras	Oct. 3–16	29	19
Rangoon	Oct. 3–10	..	1
Indo-China; Cholen	Sept. 27–Oct. 3	2	2
Saigon	Sept. 27–Oct. 3	1	1
Russia, Odessa	Sept. 19–26		4
St. Petersburg	Nov. 4–9	258	29
Straits Settlements, Singapore	Sept. 19–Oct. 3	.	2

PLAGUE

Brazil, Rio de Janeiro	Sept 29–Oct. 18	16	7
Chile, Iquique	Oct. 12	4	
China, Hongkong	Sept 19–26	1	1
Egypt, General	Oct. 14–Nov. 3	20	12
Alexandria	Oct. 14–Nov. 3	6	4
India, General	Sept. 25–Oct. 10	4,977	3,699
Bombay	Oct. 13–20	..	16
Rangoon	Oct. 3–10	..	3
Indo-China, Cholen	Sept. 26–Oct. 3	9	9
Saigon	Sept. 26–Oct. 3	8	7
Peru, General	Oct. 8–14	27	13
Callao	Oct. 8–14	2	2
Lima	Oct. 8–14	2	1

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THE PHYSIOLOGICAL SIGNIFICANCE OF THAT FIRST LESSON.*

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ON a bright summer day in the early sixties I took advantage of a leisure hour or two in Syracuse to visit that anomaly among the charitable institutions of the State of New York—viz., a school for the instruction of idiots. The very purposes of the institution—*the education of idiots*—seemed then to be an unanswerable argument against its existence. Its founder, Dr. Hervey B. Wilbur, had encountered great opposition on this very ground that no one believed it possible to teach idiots sufficiently to make the creation of an institution for that purpose justifiable by the Legislature. The institution finally took the more appropriate title, "The Custodial Asylum for Feeble-Minded."

While crossing the lawn in my approach to the asylum, I casually noticed a group of young men engaged in "making hay." Some were mowing, others were spreading the cut grass, but all were actively and intelligently at work. On entering the administrative building I found Dr. Wilbur actively employed with his daily duties. I introduced myself as the editor of the *American Medical Times*, and explained that I was desirous of obtaining, by personal observation, information as to the success of the institution in teaching idiots. On this announcement the doctor's interest in my visit was aroused, and he became very communicative in regard to his work. We examined every part of the asylum and saw all of the inmates in their several departments and classes. It would be impossible to conceive of an apparently more hopeless and repulsive task than teaching many of those mere vegetating objects. Incidentally I suggested the impossibility of educating these children to become active and intelligent workers like the young men making hay on the lawn.

"Why, my dear sir," he replied, "those young men are all idiots, but the attendant, whom I presume you did not recognize from the others; some of them were as hopeless as the worst you have seen in the asylum."

I could not conceal my skepticism, and remarked that I regarded it as impossible to make a first impression on many of the inmates.

"That has been the mistake of the world in its treatment of idiots," he replied, "but in these later years we have learned how to teach the first lesson, and on that first lesson the whole system of educating the idiot depends. Come into the class room and I will give you a demonstration of the first lesson and its effects and results."

*Read before the American Association for the Study of the Feeble-Minded at its Thirty-second Annual Session, held at Rome, N. Y., June 24, 1908.

We went accordingly into the room of the lowest class of inmates, some of whom had been admitted so recently that the doctor knew nothing of their physical or mental condition. He requested me to choose one of the latter class who was unknown to him for a first lesson. I selected a boy who sat on the floor, drooling from his open mouth, and swaying his body, but who seemed insensible to anything about him, and, as the attendant assured me, had the food placed in his mouth at his meals.

The doctor took a dumb-bell and, placing it on the floor by the side of the boy, fixed his hand on the shaft with the fingers closed around it. Then taking another dumb-bell, and standing in front of the boy, the doctor raised his instrument high in the air and deliberately struck the dumb-bell on which the boy's hand was placed. The boy was startled by the concussion, but made no other sign of recognition of the blow. The doctor repeated the act twice more with the same result.

"This is the first lesson," the doctor remarked, "and he is a very promising student, with great possibilities. Now let me show you a boy of the same grade who has been under instruction for several months with two such lessons daily."

The second boy was the type of the first, and on the trial he removed his hand from the dumb-bell when it was struck, and raised his eyes from the floor, as if to see from whence the blow came. A third boy had been under treatment for a still longer period; he watched the doctor's movements, and when he saw the blow descending, raised his hand and laughed. A fourth boy was tested, who was now in one of the graded classes. When the doctor took the dumb-bell, and handed the boy another, the boy rushed at the doctor and for several minutes there was a clash of weapons, the boy showing dexterity and immense enjoyment of the contest.

In the discussion of his method of teaching the feeble-minded, Dr. Wilbur laid great stress upon the significance of "That first lesson." His explanation was to the effect that the idiot had a dormant nervous system, and the first step in the process of educating him must necessarily be to arouse the brain to activity; that the best method of making a first impression was through the sense of feeling; and that the shock communicated by a metallic substance through the sensitive surface of the hand was the most effective method. His argument was that if one special sense of the nervous system can be aroused to activity, other special senses will be excited, secondarily, and, finally, the whole brain will become receptive of external impressions and the higher mental functions will be gradually developed.

In the light of our present knowledge of the minute anatomy of the nervous system, and the physiological functions of its constituent parts, Dr. Wilbur's method of teaching the idiot was founded on strictly scientific principles. Undoubtedly he did not understand the full significance of his own rea-

soning for our knowledge of the structure or minute anatomy of the nervous system at that period was little more than its gross appearances. We had learned that its elements consisted of gray and white matter; that the gray matter was composed of cells and the white matter of fibers. The physiology of that period taught us little more than that the cells generated the nervous force, or energy, and that the fibers, or nerves, conveyed impressions, or impulses, to and from the cells. It quite naturally occurred to a thoughtful mind, like Wilbur's, that the brain of the idiot was in an inert, or dormant state, owing to the absence of a stimulus sufficiently powerful to arouse it to activity; if that stimulus could be properly applied through one of the special senses—seeing, hearing, feeling, smelling, tasting—the idiot could be taught like any other child. He chose the sense of feeling with the remarkable results that followed. Had he known the full significance of that first lesson in the light of modern scientific discoveries of the intimate structure and functions of the cells of the brain, its immense number of so-called centers, and their relations, his work would have been invested with a new interest, and there would have been far greater precision in its execution.

And what does modern physiology teach as to the structure and functions of the nervous system? In other words, *"What was the physiological significance of that first lesson?"* Let us first briefly notice the minute anatomy of the nervous system as at present taught. Though the most complicated mechanism known to science, excepting its connective-tissue which forms its skeleton, or frame-work, the entire nervous system consists of but a single body or tissue, viz., a cell with its branches, now called the "neuron." What has heretofore been known as nerves, commissures, and branches, are but prolongations of the central cells by means of which they communicate with the external world, and with each other. The cell, therefore, is the subject of the most profound interest to every student of the diseases of the nervous system. Its vast importance may be learned from the following statements of eminent physiologists: "The cell is a unified organism, a self-contained living being." "The sole active principle in every vital function." "The medium of sensation, will, and even thought, the highest of the psychic functions." "Our own body is a very elaborate social system of countless microscopic organisms; a colony or commonwealth made up of innumerable independent units."

Confining our discussion to the brain-cells, or "neurons," we learn that they are implanted in fetal life and at birth are in a rudimentary state. In numbers they are estimated by the thousands of millions. The essential feature in the structure of the cell proper is the nucleus, and its contents, which has the function of creating the force or power, known as "nervous energy," and "nervous fluid," the exact nature of which is unknown. The nerve cell, and its branches are often, and very properly, likened to the electric battery, the cell being the battery which generates the electricity, and the nerves the wires which convey it to its destination.

The anatomist teaches that these cells are grouped into centers according to their particular functions. We have long been familiar with the so-called special senses, which are nerve-centers with special functions, viz., seeing, hearing, smelling, tasting, feeling. These centers are designed to bring the individual into conscious relations with five distinct features of the external world in which he lives, moves, and has his being.

Comparatively few of these centers have as yet been accurately determined, but enough is known to prove that every function, every act, and possibly every thought has its origin in a special center in the cerebrospinal axis. For the coordination of the operations of these innumerable centers the interior of the brain is a mass of connective nerve fibers, through which the intimate relations of the nerve centers are maintained, thus securing the most perfect harmony in the functions of all of the organs of the body. These fibers are "commissural," connecting the two hemispheres; "projection," which project "upon the cortex of the brain the results of sensory stimuli upon the body;" and "association," which "connect different convolutions in the same hemisphere." It is stated that "Were it not for the existence of these fibers, perception, memory, and thought would be impossible. Our perception of a pear is incomplete until "we have fused into one mental whole the sensations from tasting, smelling, seeing, touching and hearing the fruit fall from the tree."

Another important anatomical feature of the nerve-centers is their arrangement. First, there are the centers of the special senses through which the individual communicates with the external world. This group is sometimes called the "lower brain." The functions of these centers are to receive the impressions and transmit them to another higher series of centers, called the mid-brain. The function of these centers is to take cognizance of the special character of each impression, and transmit it to the proper center in a still higher grade. This is called the "*higher-brain*," which it is both in location, being in the frontal part of the cerebrum, and in function, being devoted to ideation, or thinking.

Without going farther into what would become tedious anatomical details, let us consider what the physiologist teaches in regard to the nerve-cells, or neurons, and the nerve-centers. First, we learn that the cells are implanted at birth in a rudimentary form and undergo an evolution from the cell of the lowest of animal life to the complex cell of the human brain. Though at birth the cell has been perfected so far as regards its structural adaptation to its special future function, yet it will remain in an inert state and undergo no further change or development until excited to activity by its special stimulant. For example, if a person is born blind the cells of the center of sight will remain in a rudimentary state and undergo no further development until excited by their proper and only stimulus—light. The same is true of a large number of nerve-centers which are in immediate functional relations with the center of sight. If now an operation is performed upon the eye and light reaches the cells of the center of vision an immediate change takes place; the cells begin to enlarge; the blood-supply is increased to meet their more active nutrition, and all of the related nerve-centers undergo similar changes as to activity and development.

The physiological facts in regard to the cells of the center of seeing are the same in the centers of all the special senses — hearing, feeling, tasting, smelling—through which the brain as a whole is stimulated to functional activity. It follows that in proportion to the integrity of the special senses is a human brain perfect, or, on the other hand, defective. It is also asserted as a physiological fact that if the apparatus by which each of the nerve-centers of the five special senses receives impressions from the external world, were destroyed at birth, the

thousands of millions of nerve-cells of the brain would remain inert and undeveloped during the lifetime of the individual. This fact leads the physiologist to believe that in the human brain there are large numbers of nerve-cells that remain undeveloped because never excited to functional activity, and, also, that at any period of life, cells hitherto inert, may receive their proper stimulus and take on functional activity.

If to the born-blind there is no world of light, and to the born-deaf there is no world of sound, may it not be a fact that other worlds exist around us, than those revealed by the five special senses, which we do not recognize because the special nerve-centers for that purpose have not as yet been stimulated to activity? St. Paul hints at this opinion when he declares that certain religious truths can be discerned only by those in whom the spiritual sense has been awakened. May not the strange mental phenomena of dreams, telepathy, hypnotism, and kindred experiences of individuals be traced to the stimulation of nerve-centers aroused to activity only under special conditions? Certainly the very suggestion of this possibility opens a wide field for speculation.

A second important feature of nerve-cells, or neurons, is that they differ in individuals as to their susceptibility to impressions, owing to a difference in their intimate texture. This difference is due to heredity, and admits of the same explanation as other examples of the transmission of physical features from parents to child and differentiates persons, families, and even nations.

A third physiological feature of the nerve-cell is that while it will develop and increase in size when functionally active, it will diminish in size, or atrophy, when at rest. For example, if the eyes were bandaged and no light were allowed to reach the ophthalmic center for any given period, the cells of that center would gradually shrink, or atrophy, and provided the light were withheld for a sufficient length of time they would return to their rudimentary condition. It follows that it is in the power of the individual, or of a person having control of him, to increase or diminish the activity, and the integrity, of nerve-cells at will.

A fourth physiological fact is, that, while the nerve-cells derive their intimate structure on which their natural susceptibility depends, from heredity, or parentage, this susceptibility may be considerably increased and diminished by nutrition. In other words, we may withhold from the nerve-cells the elements of nutrition on which their normal integrity depends, and thus diminish their power and susceptibility, or we may supply them with nutritive materials equal to the natural demands of the cells and greatly increase their force and susceptibility.

Summarizing these anatomical and physiological facts we may formulate the following conclusions:

1. The neuron—the nerve-cell and its branches of communication—is the unit of the nervous system; there are thousands of millions of them and their specialized functions are the control of every organ, and act, of the body—"sensation, will, and even thought."

2. The intimate texture of the cell, on which its susceptibility and capacity to perform its functions depends, is inherited, but may be modified at will by proper exercise, nutrition, and conditions of environment.

3. The germ-cell is implanted at birth, and its subsequent development depends upon its stimulation to functional activity by its appropriate stimulus; that is, if it is not stimulated it will remain inert and undeveloped, thus making it possible, by applying the appropriate stimulus, to bring into healthy activity cells long dormant.

4. When an active cell ceases to be stimulated it begins to diminish in size—atrophy—and will become inert as regards its function, and will remain inactive until excited to activity by its special stimulant, showing that any class of cells may be reduced to an inert state and again restored to activity by withholding or supplying their appropriate stimulus.

5. Every cell has inherent in its constitution the power of selecting from the blood substances for its nutrition and stimulation, and for which it has a "selective affinity." This feature in the constitution of the cell enables us, by means of the appropriate remedies, to increase, diminish, or pervert its action.

6. In the structural arrangement of the neurons they are grouped into "centers" according to their special functions; in these centers the cells communicate with each other by means of innumerable branches—dendrites—while the centers communicate with each other through nerve-fibers known as commissures. In the grouping of these centers there is a perfectly logical and orderly series of sequences by which impressions are made, received, and responded to on the part of the centers, so as to secure the most perfect harmony in all of the acts, functions, and even thoughts, of the individual.

7. The fundamental grouping of the nerve centers was designed to bring the individual into proper relation with the external world—the source of all power—and hence we have first, the centers of the five special senses, seeing, hearing, smelling, tasting, and feeling; from these the impressions are conveyed to other centers closely allied in function, until they finally reach their destination in the cerebral centers, the seat of the "highest psychic functions."

8. Every nerve-cell has its own special function, and these functions are as numerous as the acts, and even the thoughts, of the individual, but each depends ultimately for its activity and development upon the stimulation which it receives from one of the five special senses, through the medium of association fibers.

From the preceding summary of anatomical and physiological facts we may conclude that every vital function, as well as every mental operation, thought, word, and act, has its origin and expression in one or many of these entities or units of the nervous system. Their combined physiological functions, in health, constitute the normal individuality of the person, mentally and physically.

If now we consider the extreme susceptibility of these bodies to an innumerable variety of impressions to which they are exposed, external and internal, to the body, we can form some conception of how unstable their functions may be. Their own structure is constantly undergoing change in the act of nutrition. Their integrity thus depends upon the absorption and removal of dead tissue and its replacement with suitable nourishment. If the dead matter is not promptly removed, or if the food of the individual is not suitable, the neuron is no longer in health and must perform its function less perfectly. They are also extremely susceptible to, and receptive of, impressions derived from the external world. Thus they are affected by the food we eat and the fluid we drink; by diseases of every kind which afflict the body; by everything recognized by the senses.

It follows that any change in the constitution or

structure of the cell or neuron must be attended by a derangement of its function which would find expression in the mental acts of the individual. If a group of cells should from any cause cease to act the mental attributes which they manifest when acting normally must cease. Equally, if the same cells are overstimulated their functional activity is correspondingly increased. Or, again, if the structural properties of the cells are changed, as by alcoholic intoxication, or by any other toxic agent which finds access to the brain and for which any cells have an affinity, the mental functional expression would be changed to the extent, and in the particular feature, that the affected bodies contribute to the mentality and personality of the individual. Thus, if certain intoxicants are administered the change effected in the constitution of the bodies devoted to the function of seeing are such that external objects assume new forms, technically causing an illusion of sight. The experimental physiologist can, at will, with certain toxins, change the action of groups of cells so that the individual will exhibit certain mental traits entirely foreign to his usual habit of thought and expression. In various forms of sickness the temper and conduct of the patient undergo marked changes, often becoming delirious, due to the changed conditions of nutrition caused by toxins in the blood or by the various forms of disease. Autointoxication, on which modern therapeutists place so much stress, finds its most frequent expression in the vagaries of character which the toxins generated in that great culture bed, the colon, produce on the nerve-cells. The old-time remedy for persons of gross habits of overfeeding—blue pill at night and a seidlitz powder in the morning—has changed a sour to a sweet temper. An English clergyman who had many wealthy parishioners was accustomed, when summoned to minister to the spiritual wants of a certain class, to send the applicant several pills with the request that they be taken at bed-time and the promise that he would call on the following day. The famous philosopher, Dr. Samuel Johnson, declared in his vehement manner that every sick man is a rascal. In health the individual exhibits ever-varying "moods of mind," owing to the constant changes in cell-structures or neurons, due to nutrition and the infinite number and kind of impressions acting upon them from within and from without the body. We are not the same in every respect this year that we were last year, this month that we were last month, this evening that we were this morning. The wise Diotima said to Socrates (The Symposium of Plato): "In the same individual there is succession and not absolute unity; a man is called the same; but yet in the short interval which elapses between youth and age . . . he is undergoing a perpetual process of loss and reparation. . . . And this is true not only of the body but also of the soul, whose habits, tempers, opinions, desires, pleasures, pains, fears, never remain the same in any one of us, but are always coming and going." In the ultimate elements of the brain, then, science is seeking the true explanation of the mental phenomena which characterize the various phases of insanity. A learned authority has thus tersely stated the conclusions of science: "As his neurons are, so the man is."

The preceding discussion which very imperfectly illustrates modern views of the anatomy and physiology of the central nervous system, furnishes the facts necessary to understand the physiological significance of that first lesson, which I witnessed, as taught by Dr. Wilbur.

The subject of the first lesson was a fairly well-developed child, both as to its body and brain, whose nerve-centers of the special senses had never responded to their natural stimuli, and hence the cells of these centers were in a rudimentary and undeveloped state. The result was that all the thousand million cells of the brain which depended upon the activity of these special centers for stimulation to action, remained inert and undeveloped. And yet to the mind of Dr. Wilbur there existed in this child an apparatus, organized for a special purpose which for some reason could not take the initiative in getting itself started. It was like a clock wound and prepared to register time correctly, but no one moved the pendulum; like an electric battery fully charged, but no one pressed the button that made the circuit. How was the first impulse to be given to this dormant mechanism—the brain? Evidently it must be through the medium of one of the special senses, for in that way must an initial impression be made on the nerve-cells. Wilbur chose the sense of feeling because through that medium the most direct and profound impression could be made. But actually and practically he used also the senses of seeing and hearing. In striking with the dumb-bell he stood in front of the patient so that the child saw him raise his arm to strike, as was apparent in the second and third child. The clash of the dumb-bells was conveyed through the apparatus of the ear to the auditory center. Thus in the first lesson three dormant centers were aroused to activity by the normal stimulus of three special senses. The physiological effect of the stimulation of the cells of these centers to functional activity was an increased flow of blood for their nutrition, and a consequent enlargement or normal development of the individual cells.

But the effect of this first lesson was not limited to the centers immediately stimulated to activity by the clash of the dumb-bells. If we could trace the far-reaching connections of the neurons of the special center of feeling with the neurons of other centers, deep in the brain substance and leading up to the great centers of thought, we should have seen hundreds of thousands of inert and undeveloped cells awakened from their dormant state and beginning to assume their proper functions. If to the results which followed the direct stimulation of the center of feeling, we had added the equal, if not greater, influence which the centers of seeing and hearing had upon the brain nerve-centers, we could probably only imperfectly appreciate the tremendous significance of that first lesson. It was the initial step in a course of instruction that had unlimited possibilities in its power to build a brain, and thus rescue a child from a mere vegetable life—an intolerable burden upon its family and a curse to itself.

The lesson which the preceding illustrations of the anatomy and physiology of the nervous system teaches has a wide application to our treatment of the dependent classes. We learn that the mental attributes of every person depend ultimately upon the physical state of the nerve-cell over which we have almost absolute control, both in its individual and collective capacity. If its texture is feeble from heredity or disease we may make it strong by nutrition, exercise, pure air, and medication; if it is undeveloped we can develop it by applying its appropriate stimulus and suitable nourishment; if it is unduly developed and hence over-active we can reduce it to a rudimentary and inactive state by removing every form of stimulant and reducing its nutrition; where neither the regulation of the stimulant or nutrition accomplishes our purpose, we can rely upon specific remedies.

The logical and inevitable conclusion to be drawn

from this discussion is, that, if we thoroughly understood the exact function, and the functional relations, of all the cells of the nervous system, we could, beginning with the child, develop whatever kind, or attribute of character, we choose. In the adult we could modify existing attributes by stimulation of one class of nerve-cells, and the repression of another, to any extent that we desired. There is no doubt that the marked changes which we often witness in the mental attributes of the sane and insane, temporary and permanent, are due to conditions affecting the functional activity of nerve centers. Nothing can be more thoroughly practical than the application of the proper remedies by which the equilibrium of these centers is secured. Socrates was asked how a vicious boy could be reformed, and he replied: "Remove every possible incitement to *vice*, and substitute every possible incitement to *virtue*."

The Athenian philosopher formulated his maxim on a sound, physiological basis. We are daily applying this advice in mental disturbances by placing patients under conditions which tend both to the forgetting of disturbing objects, and becoming interested in new and diverting surroundings, thus repressing the activity of the excited centers on which the disability depends, by removing the source of stimulation and substituting the activity of other centers. But, unfortunately, it is done without other motive than experience, and hence the results are comparatively slight. We can only feebly conjecture what vast numbers of feeble-minded would be taught self-care, what enormous percentage of insane would be cured, and what universal reformation of criminals would result, if every one of these classes now in public care were subjected, individually, for five years to the skilled, patient, and persistent treatment of experts in the physiological and psychological sciences.

The defect in the system of educating the idiot adopted by Dr. Wilbur was not in the means employed, nor in the method of employing them, but in the failure to recognize the true physiological significance of that first lesson to which he attached so much importance. While he individualized each inmate in his treatment he failed to individualize the integral parts of the brain, through ignorance of its intimate structure, and therefore, treated it as a whole—as a unit—which does not tend to the attainment of the highest possible results.

This limited view of a complex and complicated mechanism may not have greatly embarrassed a master-mind like Wilbur's in his methods and efforts to teach the feeble-minded, but it is painfully evident to an intelligent visitor to institutions for the care, treatment, or education of those suffering from idiocy, insanity, epilepsy, or other affections of the nervous system, that there is too often wanting, on the part of physicians and caretakers alike, that genuine enthusiasm in their work which insures the highest degree of success. The vast variety of symptoms which these diseases present for study attract but little attention because the brain is a sealed book. All of the inmates are placed on a dead level, and the treatment, instead of being individual, is *en masse*.

This superficial and mere surface knowledge of the inmates of institutions on the part of the officers not only results in ignorance of the possibilities of improvement of large numbers of patients, but begets incredulity as to the capacity of an entire class to be improved by any method of treatment. It is equally true that the medical officers, attendants, and managers of our charitable and correctional institutions have little, and too often, no faith in the capacity of the vast majority of the mentally defective class to be taught, the mentally diseased class to be cured, or the criminal class to be reformed. And this want of faith is due to ignorance of the capacities of the human brain to be infinitely modified by expert care. The result is that no state institution, devoted to the care and treatment of these classes, is so organized and conducted as to be thoroughly curative in its methods. They are in fact custodial. In their annual reports they never call special attention to the increasingly large percentage successfully taught, cured, reformed, and discharged. They do not appear before the Legislature asking appropriations for better facilities for teaching the idiot, curing the insane, and reforming the criminal, using as an argument the 75 per cent. taught, cured, and reformed the past year, and promising with improved facilities to raise the percentage to 95 per cent. On the contrary the constant demand upon the State is for more buildings to accommodate the ever-increasing number to be added to the fixed population of these institutions.

I am aware that opinions so favorable to the far more successful treatment of the mentally affected classes will be received with doubt and incredulity by those who have had long experience in these institutions. Those connected with asylums for the idiots and feeble-minded will point to the great array of statistics of these institutions showing a fixed population with few discharged except by death; the managers of the State Hospitals for the Insane will refer to the statistics of Earle, collected a half century ago, which prove that scarcely any insane permanently recover, confirming the old maxim, "once insane, always insane;" the managers of the prisons will refer to innumerable incorrigibles who have resisted all of their methods of discipline—even starvation, whipping, and the dungeon.

But that first lesson of Wilbur, rightly interpreted, is a promise and a prophesy of a coming era of far more successful treatment of those laboring under the disability of dormant or perverted brain cells. When we recall the enthusiasm with which he patiently labored, day after day, month after month, year after year, to arouse to activity the inanimate brain of a helpless, hopeless idiot, and was rewarded by the addition to his corps of helpers of a useful man, we must recognize a beacon light showing us a new and better way.

There is on the grounds of this institution a concrete example of the scientific application of Wilbur's method. Among the laborers is a young man who was transferred from another State institution as unteachable. That verdict meant to this boy, equipped with brain and muscle for activity if he could be set in motion, a mere vegetative life. Moved by an impulse to determine experimentally what possibilities there might be in an effort to teach this idiot self-care, the superintendent undertook, personally, the task of education. Well versed in the anatomy and physiology of the brain, he began to stimulate to functional activity one nerve-center after another, with the final result that he built a brain, and converted a helpless burden upon the State for, perhaps, half a century, into a self-supporting citizen. Indeed, the animal trainer, who, stimulating patiently and persistently its feeble responsive brain-cells, creates the "learned pig," the "educated seal," and numerous other prodigies of learning among animals, ought to teach us that we have nearly unlimited power, if rightly directed, of educating the human brain, however defective.

The practical question arises, "How can such a scheme of education be realized?" An incident in

my official inquiries is to the point. I visited a family of fifteen children under the care of a foster-father and foster-mother, the former being a highly educated practising physician, and the latter a very intelligent and cultivated woman, but both were lovers of children, and actuated by the most profound religious motives. Having no children of their own, they began many years ago to gather a family, selecting by preference destitute orphans, without regard to color, race, or nationality. At my visit there were in the family circle, Americans, Irish, Welsh, Mexicans, Porto Ricans, and Negroes; their ages ranging from 8 to 22 years. They represented the poorest class of people of their respective nationalities, and several were from the city slums. These children were under a rigid system of personal training by their foster parents, as to their diet, exercise, bathing, conduct, and studies. The brain capacity of each was precisely gauged and every possible means employed to repress vicious tendencies by removing excitants thereto, and substituting the rewards of virtuous conduct. Here was a large, united, and devoted family circle, the individual elements of which were as diverse as human society could make them, in which scientific individual training was surely overcoming the disabilities of heredity, stimulating to active development dormant nervous systems, establishing that equilibrium of cerebral functions which insures against insanity, and repressing the tendencies to vice by the allurements of virtue.

My first suggestion is that in organizing the service of an institution for the care and treatment of the dependent classes every possible effort should be made to individualize each inmate from the moment of admission, and to maintain that individuality throughout its residence. My view is that from the first day to the last each inmate should be the subject of special study and record; the first examination should be exhaustive of every organ and function of the body. No rational effort can be made to improve the physical or mental condition of a person until we understand the exact present condition of the organism on which their integrity depends. Such an examination would determine the faults of nutrition from the ingestion of food to its assimilation: the precise waste of the body by tests of the excretions of eliminating organs; the condition of heart, lungs, kidneys, liver; the dynamic power of the muscles; the activity and sensibility of each of the special sense-organs; and such other tests as will give the attendant a scientific basis on which to begin to reconstruct the physical and mental constitution of the inmate.

To maintain the individuality of this patient in an institution the colony plan, with its family organization, is absolutely essential. The vast advantages of the cottage system on ample farming lands, with its diversified forms of simple, out-door industry, its opportunities for unlimited classification and individualizing inmates, and its possibilities for economy of administration, commends the colony plan to the judgment of the highest authorities.

Again, I would suggest the systematic education of attendants along the lines indicated in this paper, in addition to the ordinary instruction of the Training Schools for nurses. The structure and functions of the nervous system, and especially of the brain, as outlined here, can be intelligently appreciated by every person of ordinary education. In my experience with the trained nurses of general hospitals anatomical and physiological explanations which illustrate the nature of the duties they are to perform are received with the keenest interest, and immediately applied in practice. With such knowledge on the part of the attendant every case that comes under care becomes invested with a new and living interest which makes that care a pleasure rather than a task to be perfunctorily discharged.

Finally, it is necessary, in organizing a scheme of more direct personal treatment of inmates by skilled attendants, that there be one or more supervising officers of the highest possible qualifications, who devote their entire time and energies to the personal supervision of the instruction of every class, and, who, through the subordinate teachers, maintain constant familiarity with the progress of every inmate.

It is true that this scheme fully developed would require a very large number of thoroughly qualified and highly educated officers and attendants, with greatly increased salaries. But in the end it would be economy to make the defectives self-supporting, to cure the insane and to reform the criminals, for to the extent that these objects can be accomplished the State will cease to build more buildings, and gradually reduce the ever-increasing population of dependents, and thereby the burden of their support.

Our conclusion of this discussion is that, in these latter days, there is a far more hopeful outlook for the feeble-minded, the insane, and the criminal. Instead of reasoning backward from effect to cause, and thus reaching a vague and indefinite conclusion, skilled and expert anatomists and physiologists, inspired by the scientific spirit of the age, are gradually penetrating and unveiling the mysteries of the brain, the center and source of all mental activities. These constructive students are thus laying the foundations of a true science of psychology in the immutable facts revealed by anatomy and physiology.

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A STATISTICAL STUDY OF RENAL COLIC AND HEPATIC COLIC.*

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RENAL COLIC.

The material for this study was obtained from all the lives insured in the Mutual Life Insurance Company in the thirty-seven years from 1870 to 1907, who showed a history of renal colic, renal or vesical calculus, or gravel. The calculations for the expected mortality were made in accordance with the method adopted by the Actuarial Society in their Specialized Mortality Investigation, except that each life was counted but once, and full allowance was made for the re-entry of a life subsequent to the initial entry.

The first list contained 1742 entrants. This list was then carefully revised by me and 290 doubtful cases were eliminated, leaving 1452 who gave a distinct history of renal colic or calculus. No case was admitted to this list unless there was reasonable evidence to this effect, such evidence as a Medical Director would regard as conclusive. This list showed 108 actual deaths and 109 expected, a mortality of 99 per cent. The material, however, was not homogeneous in respect to physique and residence. I, therefore, eliminated all overweights and those residing in foreign countries and the southern

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states, and also those who had had more than one attack of renal colic. This left a group of 895 lives, practically homogeneous and without impairments other than the record of a single attack of renal calculus.

The following table gives the number of entrants at each age, the actual and expected deaths, and the percentage mortality, all arranged in quinquenniums.

TABLE I.

Age at Issue	Number of Entrants	Deaths		%
		Actual	Expected	
Under 15				
15–19	1		.020	
20–24	12	2	.448	446
25–29	81	2	3 808	53
30–34	139	4	7 365	54
35–39	180	9	10.616	85
40–44	171	9	14.318	63
45–49	131	12	11.284	106
50–54	88	8	11.172	72
55–59	57	13	9 837	132
60–64	24	4	4.716	85
65–69	10	5	2.191	228
70–74	1	1	.162	618
Total...	895	69	75.937	91

This table shows that the young and middle-aged are not seriously affected by this impairment. Below 45, the actual deaths were 26 and the expected 36.5, a mortality of 71 per cent. Above 45, the actual deaths were 43 and the expected 39.5, a mortality of 109 per cent. The Specialized Mortality Investigation of the Actuarial Society, published in 1903, shows a good mortality in this class below age 28, and an increasingly bad mortality above that age.

Does the age at which the attack occurred have any bearing on the risk? It was not difficult to approximate the age in most cases, and the following table gives the cases grouped according to the age at which the attack occurred, the number of risks in each group, the actual and expected deaths, and the percentage mortality, all arranged in quinquenniums. The last two columns give the number of risks in each age-group who were examined within five years of the date at which the attack of renal colic occurred, and the proportion which these bear to the total number of risks in each age-group.

TABLE II.

Age When Attack Occurred	Number of Entrants	Deaths		%	Examined Within 5 Years of Attack	
		Actual	Expected		Number of Risks	% of Total Entrants in Each Age-Group
Under 15	11	1	.560	178		
15–19	32	2	2.200	91	5	16
20–24	123	2	6.920	29	41	33
25–29	158	7	11.513	61	43	27
30–34	190	11	12.837	86	85	45
35–39	156	9	12.303	73	77	49
40–44	98	12	10.601	113	47	48
45–49	71	11	8.814	125	36	51
50–54	33	6	5.749	105	18	55
55–59	13	5	2.186	229	7	54
60–64	3	1	.608	164	3	100
65–69	....	....	.....	....	..	...
70–74	1	1	.162	618	1	100
Total..	889	68	74.454	91	363	41

The mortality curve set forth in this table is quite regular and for that reason reassuring. Under age 20 the mortality is high, probably due to the small number of cases in the group. After that age, the curve is almost uniform and shows a steadily increasing mortality. The point to determine was whether this mortality was anything more than a practical duplication of that furnished by Table I. It was quite natural to assume that the young persons in this table were examined many years after the attack. In the quinquenniums below 30 this may be inferred, owing to the small percentage of risks in these quinquenniums who were examined within five years of the attack. From 30 to 60, however, this inference does not hold true. The proportion of risks in each of these quinquenniums, who were examined within five years of the attack is nearly the same, but the mortality rises from 86 per cent. to 229 per cent. If we group them into decades the mortality is as follows:

DEATHS.

Age	Actual	Expected	%
30 39	20	25	80
40 49	23	19.4	118
50 59	11	.8	137

This looked so promising that it seemed worth while to investigate the point still further. The following table shows those who were between twenty and fifty-nine when the attack occurred, the first half of the table including those who were examined within five years of the attack and the second half including those who were examined more than five years after the attack. Owing to the small number of cases in each class, they have been arranged in decades.

TABLE III.

Those Examined Within Five Years of Attack					Those Examined More Than Five Years After Attack			
Age When Attack Occurred	No. of Entrants	Deaths		%	No. of Entrants	Deaths		%
		Actual	Expected			Actual	Expected	
20–29	84	3	5.011	60	197	6	13.422	45
30–39	162	10	9.599	104	184	10	15.541	64
40–49	83	8	7.150	112	86	15	12.265	122
50–59	25	5	3 606	139	21	6	4.329	139

This table shows that when the attack occurred below age thirty the impairment was trivial, irrespective of the date of the examination. Between thirty and forty those examined within five years of the attack were not good, while those examined at a later time were excellent risks. Above age forty the mortality was bad irrespective of the date of the examination.

In order to determine if this impairment is a continuing one, the mortality was calculated by insurance years. The following table gives the number exposed, the actual and expected deaths, and the percentage mortality, all arranged in quinquenniums.

TABLE IV.

Insurance Years	Number of Exposures	Deaths		%
		Actual	Expected	
1–5	3182	23	30.4164	76
6–10	1575	23	24 1774	95
11–15	721	15	13.4890	111
16–20	222	5	4.9637	101
21–25	52	2	1.5126	122
26–30	24	1	1.1225	89

The mortality curve, as set forth in this table, is most interesting. It is not uniform, owing to the small number of cases, but it rises fairly steadily throughout the insurance life of these risks. This is shown particularly well if they are grouped into decades, as in the following table.

TABLE V.

Insurance Years	Number of Exposures	Deaths		%
		Actual	Expected	
1–10	4,757	46	54.5938	84
11–20	943	20	18.4527	108
21–30	76	3	2.6351	114

In the Specialized Mortality Investigation of the Actuarial Society of America, published in 1903, Class 53 is composed of those risks who gave a history of having had renal colic, calculus, or gravel. The material in it was not as carefully selected as the class on which this report is based, for many of the cases of so-called gravel undoubtedly referred to trivial conditions of no importance. Furthermore, it is not homogeneous, for it includes many cases which showed other impairments. On the other hand, it is much larger than my class, as it numbers 6,934 entrants, and its size tends to correct the inequalities due to the above-mentioned conditions. The following table gives the number of exposures by insurance years, the actual and expected deaths, and the mortality percentage, all arranged in quinquenniums.

TABLE VI.

Insurance Years	Number of Exposures	Deaths		%
		Actual	Expected	
1–5	22,791	206	200.0	103
6–10	9,715	148	140.8	105
11–15	3,752	71	70.7	100
16–20	1,286	47	31.5	148
21–25	438	19	14.2	134
26–30	121	4	4.5	89

This shows the increasing mortality as the years pass. The rising curve is not entirely uniform, but when the deaths are grouped into decades it becomes smoother, as in the following table.

TABLE VII.

Insurance Years	Number of Exposures	Deaths		%
		Actual	Expected	
1–10	32506	354	341.8	104
11–20	5038	118	102.2	115
21–30	559	23	18.7	123

From these results, I think we can now say that renal colic or calculus is an expression of a pathological condition, which is permanent and progressive in a sufficient proportion of cases to make the mortality of this class one which increases with lapse of years.

On studying the causes of death as grouped in Table V., we found that there were forty-six deaths in the first decade of insurance, of which ten (22%) were due to Bright's disease, or arteriosclerosis. In the second decade of insurance there were twenty deaths, of which nine (45%) were due to Bright's disease, or arteriosclerosis. This is a large increase, even allowing for the fact that the second decade represented older lives, who are naturally more liable to these diseases. Other chronic diseases did not increase in the same proportion. Heart-diseases, for example, remained at 15% in each decade. It is this increasing percentage of renal and arterial disease which makes these cases so bad. If the second decade had no greater proportion of them than the first decade its mortality would be as good as the first.

TABLE VIII.

Date of Examination Subsequent to Attack of Renal Colic	Number of Entrants	Deaths		%
		Actual	Expected	
During first year	20	2	2.4912	80
" second "	72	5	4.8698	103
" third "	98	4	7.2091	55
" fourth "	82	10	5.3878	186
" fifth "	92	8	6.4649	124
Sixth year to eighth year (incl.)	207	8	15.6856	51
Ninth year to twelfth year (incl.)	168	21	15.9518	132
Beyond twelfth year	150	10	16.6965	60

It is of interest to see whether the interval which elapsed between the attack of renal colic and the medical examination has any bearing upon the mortality. Table VIII shows this, six cases being omitted in which the interval was not definitely stated.

The mortality curve in this table is very irregular, owing, doubtless, to the small number of cases in the individual groups. The first five years together give twenty-nine actual deaths and twenty-six expected, a mortality of 111%, but the first three years give only eleven actual and 14.5 expected deaths, a mortality of only 80%, while the fourth and fifth years together give eighteen actual and 11.8 expected deaths, a mortality of 153%. Altogether a careful study of this table is not productive of any definite conclusions, but a study of the causes of death as affecting this table is quite fruitful.

Among those insured within four years of the attack, there were twenty-one deaths, but only one of these was due to Bright's disease, dead eleven years after the examination, and only one to arteriosclerosis, this death occurring seventeen years after examination. Among those insured more than four years after the attack, there were forty-seven deaths. Of these deaths seven were due to Bright's and eleven to arteriosclerosis, eight of the eighteen dying within five years of examination. These facts show that for four years after the attack we were especially careful in excluding all doubtful renal conditions, by thorough urinary examination. After that time we naturally relaxed our care a little in this respect, not realizing that in some cases the effect of this impairment is permanent, and therefore our mortality from these renal and arterial conditions promptly increased. It is very likely that a more thorough urinary and arterial examination would have kept out some of these untimely deaths. Perhaps it is fair to assume also that the high mortality among those insured within five years of the attack may be accidental and due to the limited number of entrants.

The following table shows the causes of the deaths which occurred in these 895 selected lives.

TABLE IX.

Causes of Death		*Totals*
CLASS I—General Diseases. A		6
Typhoid	2	
Influenza	3	
Dengue	1	
CLASS II—General Diseases. B		10
Pulmonary Tuberculosis	2	
Cancer	3	
Other Tumors	1	
Leucæmia and Anæmia	4	
CLASS III—Nervous System		10
Cerebral Congestion and Hemorrhage	7	
Cerebral Softening	3	
CLASS IV—Circulatory System		14
Pericarditis	1	
Organic Disease of Heart	11	
Angina Pectoris	1	
Disease of Arteries	1	
CLASS V—Respiratory System		8
Pneumonia	8	
CLASS VI—Digestive System		5
Intestinal Obstruction	2	
Cirrhosis Liver	1	
Biliary Calculi	1	
Other Diseases, Liver and Gall Bladder	1	
CLASS VII—Genitourinary System		10
Nephritis	8	
Disease of Bladder	1	
Pyelonephritis	1	
CLASS IX—Skin and Cellular Tissue		2
Abscess	1	
Disease of Skin and Adnexa	1	
CLASS XII—Violent Causes		3
Casualties	1	
Suicide	2	
CLASS XIII—Ill Defined		1
Sudden	1	
Totals	69	69

Class I., acute general diseases, is about normal. Class II., chronic general diseases, is below normal, owing to the very small amount of tuberculosis.

This may be accounted for by the entire absence of a tuberculous family history in any of the cases. The percentage of leucemia and anemia is enormous, being twenty times what it ought to be. Perhaps this indicates some etiological connection between these diseases of the blood-glandular system and renal colic. In Class III., diseases of the nervous system, we find only deaths indicating some arteriosclerotic changes in the brain, and these are in excess of the normal. Class IV. is nearly twice as large as it ought to be, owing chiefly to the increase in the organic diseases of the heart. It is possible that this is due indirectly to the nephritis, which is the primary disease, but which is overlooked in the later years of life, when heart failure becomes pronounced. Pneumonia is normal in amount. Diseases of the digestive system are only one-half the normal. Diseases of the genitourinary system are nearly double the normal, and this is almost entirely due to the various forms of Bright's disease. The remaining classes are too small to permit analysis.

Among these 895 selected risks were twenty-two who were more than 20% below the standard weight. These gave two actual deaths and 2.2 expected, a result which was so satisfactory that they were included in the select group.

Among those risks who had only one attack of renal colic there were ninety-two who were overweight. These have not been included in the selected group which we have been analyzing. The actual deaths among them were twelve, while the expected were eight, a mortality of 150%. The cases are too few to analyze in detail, but this result shows that the combination of overweight and renal colic is very short-lived.

There were 147 cases who had had more than one attack of renal calculus. These gave six actual deaths and ten expected, a mortality of only 60%. None of these deaths was from nephritis, and only one from cerebral paralysis. The following table shows the detailed results, the cases being grouped into two classes as indicated:

TABLE X.

CASES WHO HAD MORE THAN ONE ATTACK OF RENAL COLIC.

	THOSE EXAMINED WITHIN FIVE YEARS OF ATTACK				THOSE EXAMINED MORE THAN FIVE YEARS AFTER ATTACK			
Age at Issue	No. of Entrants	DEATHS Actual	DEATHS Expected	%	No. of Entrants	DEATHS Actual	DEATHS Expected	%
20–29	4	.	189	.	8	1	219	457
30–39	21	1	834	120	26	1	753	133
40–49	11		648	...	34	.	1.755	
50–59	8		1.040	...	29	3	3.500	86
60–69			..	..	6		1.337	
Total.	44	1	2.711	37	103	5	7.564	66

The number of cases in either group is too small to make any positive deductions. It is not unfair to assume that our selection was very rigid during the first five years and that we relaxed a little afterwards. Doubtless we were always more careful in examining and selecting these cases than when only one attack had occurred, and perhaps this will account for the lower mortality.

Reviewing now the whole series of statistical tables which have been presented in this study, we can arrive at some fair conclusions in spite of the scanty amount of material which we have had to work with.

1st.—Renal colic is an impairment, the effect of which becomes more pronounced with each year of age, and of insurance. This seems to be due to the fact that in some cases it is an indication of a permanent and progressive lesion. The causes of death indicate that this lesion is in the kidneys and arteries.

2d.—It is not unfair to assume that care in testing the urine and in determining the blood-pressure would exclude many of the cases which are thus permanently affected.

3d.—The time which elapses between the attack and the examination seems to be of comparatively small consequence in determining the value of the risk.

4th.—When the attack occurs below age forty, the mortality will probably be good if our examination has been carefully made.

5th.—When the attack occurs above age forty, it is a question whether a rigid examination will secure satisfactory results, though I am of the opinion that modern methods of diagnosis will give us a reasonable mortality.

6th.—The combination of overweight and renal colic is very serious.

7th.—Any person who has had an attack of renal colic should regularly every few months have his urine examined and his blood-pressure determined. He is sitting under a sword of Damocles which only constant watchfulness may prevent from falling. The profession generally regard a renal calculus as an acute condition which may be serious while it lasts, but which is generally recovered from with no permanent damage, when the stone has been passed in the urine. They should realize that this is not so in all cases, but that some are left with a permanent lesion of an insidious character which is progressive and ultimately fatal.

HEPATIC COLIC.

The material for the following study was obtained from all the lives insured in The Mutual Life Insurance Company in the thirty-seven years, from 1870 to 1907, who showed a history of bilious colic, biliary colic, hepatic colic, biliary calculus, hepatic calculus, or gallstone. The calculations for the expected mortality were made in accordance with the method adopted by the Actuarial Society in their Specialized Mortality Investigation, except that each life was counted but once and full allowance was made for the re-entry of a life, subsequent to the initial entry.

The first list contained 924 entrants. This list was then carefully revised by me and the doubtful cases eliminated. This was a harder task than with renal colic, for the diagnostic criteria of hepatic colic are much less distinct. In the vast majority of cases, for instance, in which the term "Bilious Colic" is used, it refers to some acute painful lesion of an abdominal viscus other than the gall-bladder, such as acute enteritis or colitis, enteralgia, appendicitis, etc. When these doubtful cases were eliminated, it left 413 risks in which there was a reasonably definite history of gallstone, such a history as would be accepted by a medical director as conclusive. This list of cases gave forty-five actual deaths and 34.3 expected, a mortality of 131%. In order to make the material homogeneous, I then eliminated those who had had more than one attack, the overweights and those living in foreign countries and the southern states. This left only 223 cases who showed a single attack of hepatic colic without other impairments.

The following table is based upon these selected cases, arranged according to age at issue:

TABLE I.

Age at Issue	Number of Entrants	Deaths		%
		Actual	Expected	
15–19	1		.027	
20–24	6	1	.232	432
25–29	27	2	.980	204
30–34	27	1	1.047	95
35–39	35	6	3.730	161
40–44	39	6	2.486	241
45–49	38	4	3.068	131
50–54	23	2	2.725	74
55–59	17	3	6.465	46
60–64	5	2	.947	211
65–69	4		.297	
70–74	1		.904	
Total	223	27	22.908	118

This table shows a high mortality at practically all ages with some irregularities due to the small number of cases.

In the Specialized Mortality Investigation, Class 52—those who have had hepatic colic or gallstone—shows favorable results at all ages, except from forty-three to fifty-six. The mortality of the entire Class 52 is only 107%. This comparatively favorable mortality is undoubtedly due to the fact that many cases of so-called "Bilious Colic" were included in the list. The discards from my primary list amounted to 511, more than one-half. These discards consisted almost entirely of "Bilious Colic" in which no evidence of genuine hepatic colic or gallstone could be found. They gave a mortality of 96%, while the other 413, who were admitted as having had hepatic colic or gallstone, gave a general mortality of 131%.

The following table gives the cases grouped according to the age at which the attack occurred. It shows a high mortality at practically all ages:

TABLE II.

Age When Attack Occurred	Number of Entrants	Deaths		%
		Actual	Expected	
15–19	12		.356	
20–24	40	3	1.509	199
25–29	41	3	1.919	157
30–34	36	4	3.341	120
35–39	27	5	2.943	170
40–44	32	8	7.771	103
45–49	17	3	2.294	131
50–54	14	1	1.989	50
55–59	4		.785	
Total	223	27	22.908	118

The following table shows the cases grouped according to the time which intervened between the attack and the examination:

TABLE III.

Date of Examination Subsequent to Attack of Hepatic Colic	No. of Entrants	Deaths		%
		Actual	Expected	
First year	6	1	883	113
Second year	24	4	1.647	243
Third year	29	4	2.458	163
Fourth year	13		1.126	
Fifth year	29	4	2.285	175
Sixth to eighth year	39	6	4.214	142
Ninth to twelfth year	35	3	5.497	55
Over twelfth year	48	5	4.798	104
Total	223	27	22.908	118

We can see from this table that from those examined in the first five years after the attack there were thirteen actual deaths and 8.4 expected, a mortality of 155%. One of these deaths was due to acute hepatitis, one to peritonitis, one to gallstone, and one to some disease of stomach not specified. In other words, four out of the thirteen deaths, nearly one-third, were due to diseases in whose etiology the gallstone colic may have been an important factor. Even down to the eighth year, the mortality is high, there being nineteen actual deaths and 12.5 expected, a mortality of 152%. After the eighth year the mortality is good, there being eight actual deaths and ten expected, a mortality of 80%.

The following table shows the cases arranged by years of insurance:

TABLE IV.

Insurance Years	Number of Exposures	Deaths		%
		Actual	Expected	
1–5	775	9	7.881	114
6–10	381	9	6.684	135
11–15	158	2	3.343	60
16–20	50	1	1.322	76
21–25	23	3	1.030	291
26–30	15		1.171	
31–35	12	3	1.494	201

This is very interesting, as it shows a high mortality in the first decade and a much lower mortality in the second decade. It is also of interest to note that of the nine deaths in the first quinquennium of insurance, three were due to peritonitis, gallstones, and acute hepatitis. Class 52 in the Specialized Mortality Investigation presents a similar mortality curve as shown in the following table:

TABLE V.

Insurance Years	Number of Exposures	Deaths		%
		Actual	Expected	
1–5	17,216	165	141.6	117
6–10	8,334	114	109.4	104
11–15	4,029	66	67.3	98
16–20	1,751	35	37.2	94
21–25	825	27	22.4	121
26–30	251	9	9.3	97

In both Tables IV. and V. there is a curious rise of mortality in the third decade for which I am unable to offer any explanation, as my own material was too small to admit of any definite conclusion.

The following table shows the causes of death:

TABLE VI.

Causes of Death		*Totals*
CLASS I—General Diseases—A		2
Typhoid	1	
Influenza	1	
CLASS II—General Diseases—B		4
Pulmonary Tuberculosis	3	
Cancer—Gall-bladder	1	
CLASS III—Nervous System		5
Meningitis	1	
Cerebral Congestion and Hemorrhage	4	
CLASS IV—Circulatory System		3
Organic Disease of Heart	3	
CLASS V—Respiratory System		1
Pleurisy	1	
CLASS VI—Digestive System		6
Other Diseases of Stomach	1	
Biliary Colic	1	
Other Diseases of Liver	2	
Peritonitis	1	
Appendicitis	1	
CLASS VII—Genitourinary System		2
Nephritis	1	
Renal Calculi	1	
CLASS IX—Diseases of Skin and Cellular Tissue		1
Carbuncle-neck	1	
CLASS XII—Violent Causes		3
Casualties	2	
Suicide	1	
Total	27	27

Class VI., diseases of the digestive system, is twice the normal, showing the intimate relationship of the gall-bladder to other abdominal viscera. There is one death from appendicitis, and one from renal calculi. It is hardly possible in either case that the previous diagnosis of hepatic colic was incorrect, for in both examinations the facts set forth point quite clearly to gallstone.

Besides these cases in which there was only one attack of hepatic colic, there were seventy-four who showed a history of two or more attacks. These

gave five actual deaths and 4.8 expected, a mortality of 104%. The number is too small to warrant any deductions except that doubtless we exercised greater care in selecting these risks than those who showed only one attack.

The overweights with hepatic colic who numbered thirty and gave a mortality of 122% are too few to analyze.

Altogether one fact stands out quite clearly, and that is the rarity of this impairment in insurance risks. In thirty-seven years the Mutual Life issued insurance to 413 persons only, who gave a definite history of hepatic colic or gallstone. That averages only a little over ten a year.

As a result of the scantiness of material, our conclusions must be general and rather indefinite.

1st.—The lesion is more serious than renal colic, and the mortality is higher.

2d.—The mortality is not influenced by age.

3d.—A careful study of Tables III., IV., and V., shows that the effect of the impairment disappears in a certain numbers of years, about ten.

4th.—Prior to about ten years after the attack, the mortality is high, and it is not now apparent how any methods of diagnosis will materially modify this result.

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THE ILEOCOLIC CIRCLE.

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During the dissection of some 65 consecutive subjects I made the observation that there is one constant mesenteric arch, or rather one constant mesenteric circle, viz., that which I shall term the "*ileocolic circle*." The "ileocolic circle" is formed by the bifurcation of the jejunal artery into the ileocolic artery and ileal artery and completed by their distal inosculation. In other words, the jejunal artery divides into the ileocolic and ileal arteries

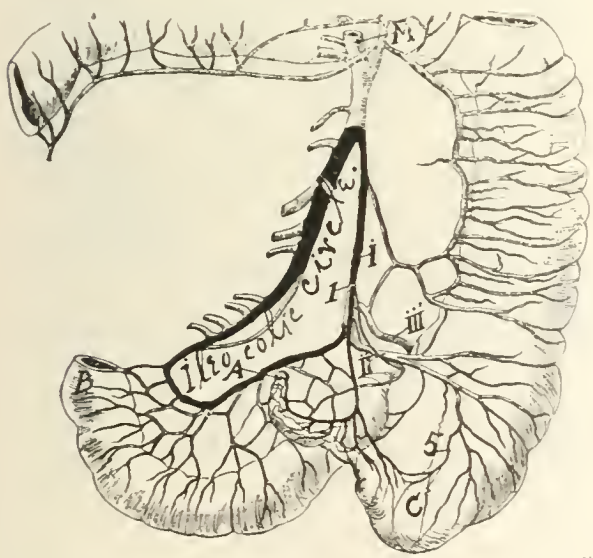

Fig. 1.—This illustration represents a dorsal view of the "ileocolic circle." The single appendicular artery (1) arises from its right circumference.

which reunite some 5 inches distalward forming a constant mesenteric vascular circle—a constant fixed primordial circular vascular landmark. The ileocolic circle is located in the ileocolic angle and is a constant structure. It may be accompanied by mesenteric apertures, from insufficient vascular nourishment, which may serve for hernial strangulation. The ileocolic circle is frequently divided into compartments by arteries of varied dimensions which are destined to nourish the mesentery within the circle or are bifurcated loops, branches of the main circle. The clinical significance of the ileo-

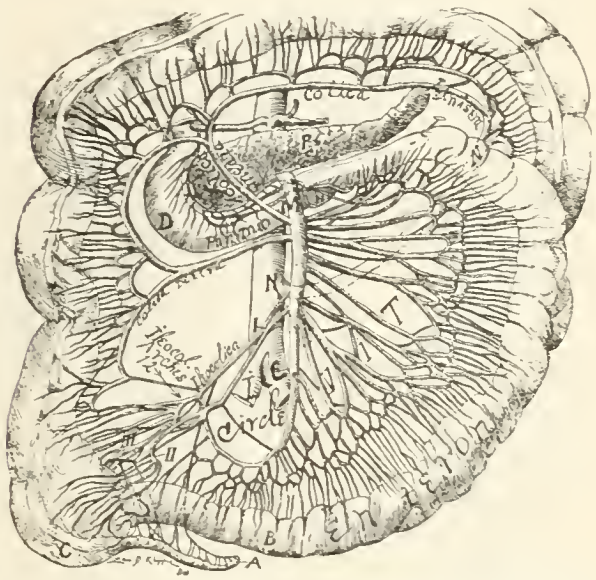

Fig. 2.—The "ileocolic circle" in this drawing is duplicated on the right side (*i.e.* the ileocolic artery). The primary appendicular artery arises from the "ileocolic circle." The secondary and tertiary appendicular arteries arise from the "ileocolic arches" or dorsal ileocecal artery.

colic circle is that its right circumference—96 per cent. (*i.e.* the ileocolic artery)—is the main source, or the origin of the arteria appendicularis which alone will immortalize it. The ileocolic circle, existing in the form of an oval, measures practically 2 x 6 inches. The dimension of the ileocolic circle depends upon the location of the bifurcation of the jejunal artery and the length of the ileal artery. The jejunal artery may bifurcate proximal, on a level or distal to the origin of the distal mesenteric artery, *i.e.* in the region of the iii. lumber vertebra.

The ileocolic circle may possess, imposed on its periphery a series of minor vascular arches. It is a primordial vascular landmark destined to nourish the ileum and cecum (with appendix as an ancient stomach). The ileocolic circle is associated and in relation with the right psoas, distal ileum, cecum, right ovary, right oviduct, ureter, common iliac, and the treacherous, dangerous appendix to which it primarily, chiefly, and directly emits the vascular supply. It is directly associated with the ileocolic arches. By placing it mesenteron on a leftward tension one may view plainly the "ileocolic circle" though not injected.

The ileal artery extends from the distal end of the jejunal artery to its distal anastomosis with its opposite fellow, the ileocolic artery. The ileal artery forms the left circumference and the ileocolic artery forms the right circumference of the ileocolic circle. The ileal artery emits branches (a dozen and a quarter) to nourish the ileum of such limited caliber (as compared with the jejunal artery—possessing a half dozen maximum branches) with consequent limited blood volume, especially at the distant ileum, that it is subject to ulceration and perforation (in typhoid fever and tuberculosis). Blood volume cures and is a prophylactic against disease. Hence the jejunum with its maximum calibered branches (rami jejunales) and consequent maximum blood volume is not only the chief digestive segment of the tractus intestinalis, but is rarely subject to disease (ulceration or perforation). The

emergence of the ileocolic artery is the point of division between the jejunal artery and ileal artery. The ileocolic artery is destined to nourish the cecum and appendix. The ileal artery is destined to nourish the ileum.

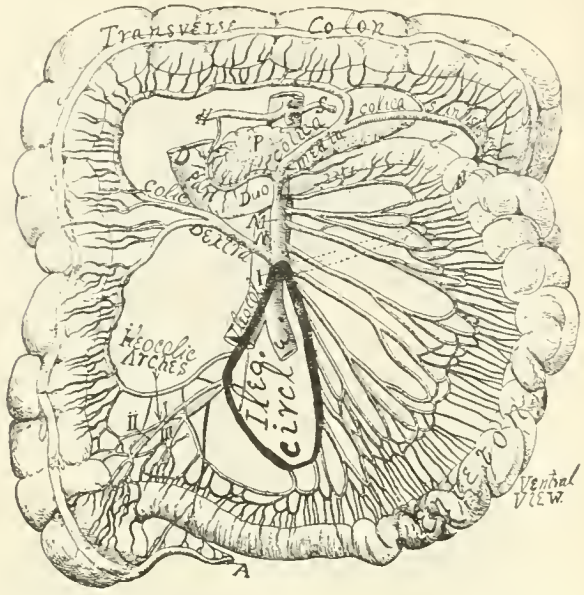

FIG. 3.—This illustration represents an "ileocolic circle" which possesses a large arch on its right circumference. The ileocolic artery arises at the junction of the jejunal and ileal arteries. The single appendicular artery arises from the ileocolic arches.

The ileocolic circle, one of the constant mesenteric arches, is located practically in the ileocolic angle. It is a circle of considerable dimension (2 x 6 inches), resembling the proximal and distal gastric circles. It is marked by a smaller dimension than the utero ovarian vascular circle; however greater than that of Willis. The "ilecolic circle" will in its due time become dignified into a recognized vascular circle like that of the philosophic Willis, which has held undisputed sway for 250 years. However, one fact will immortalize the "ileocolic circle," and that is in the majority of subjects (96 per cent.) the appendicular artery arises from its right circumference. The "ileocolic circle" is an important landmark for consideration, anatomical, physiological, pathological.

The ileocolic circle will serve as an anatomical vascular landmark. It will simplify the vascular anatomy in the ileocolic region. Its right circumference—the ileocolic artery—the origin of which will mark the division between the jejunal and ileal arteries, and hence indicate the jejunal and ileal segments of the enteron.

By the aid of the ileocolic circle the anatomist can unfold with greater practicality the vascular relations of the ileum and cecum, but especially those of the appendix.

The ileocolic circle is an important practical physiological vascular landmark. The great crux, the central rock and base of circulation is anastomosis, which is here indicated in its typical form—that of a circle; collateral anastomosis is complete, perfect. Our chief means to control the blood current for therapeutic purposes is through the "inosculating circle," *e.g.* the uteroovarian circle.

Physiologically the ileocolic circle is supplied with such numerous radiating branches of marked dimensions that if it were ligated ample collateral circulation would preserve tissue-nutrition and furnish sufficient blood volume for function of the tractus intestinalis (sensation, absorption, secretion, peristalsis).

The ileocolic circle presents practical pathological conditions. Apertures of the peritoneum within the ileocolic circle may produce (atrophic) peritoneal apertures from lack of blood supply, sufficient to allow intestinal coils to become strangulated.

Arterial sclerosis of the ileocolic circle may occur to sufficient degree to interfere with nutrition of tissue and enterocolonic function (sensation, absorption, peristalsis, secretion), particularly that of the appendix. Should an embolus appear in any segment of the ileocolic circle the collateral circulation is sufficiently abundant to preserve tissue and function and reestablish collateral circulation with focility.

The ileocolic circle is one of the most important vascular landmarks especially in relation to the dangerous and treacherous appendix—dangerous because perityphlitis kills, and treacherous because its capricious course cannot be prognosed.

I find no reference in literature to this ileocolic circle. It is a result of my personal original investigations. I launch it in the professional current to begin its endless journey. I predict that it will withstand the uncertain vicissitudes of fortune equally well with the circle of Willis and be of more practical value to mankind. Utility is the standard of value.

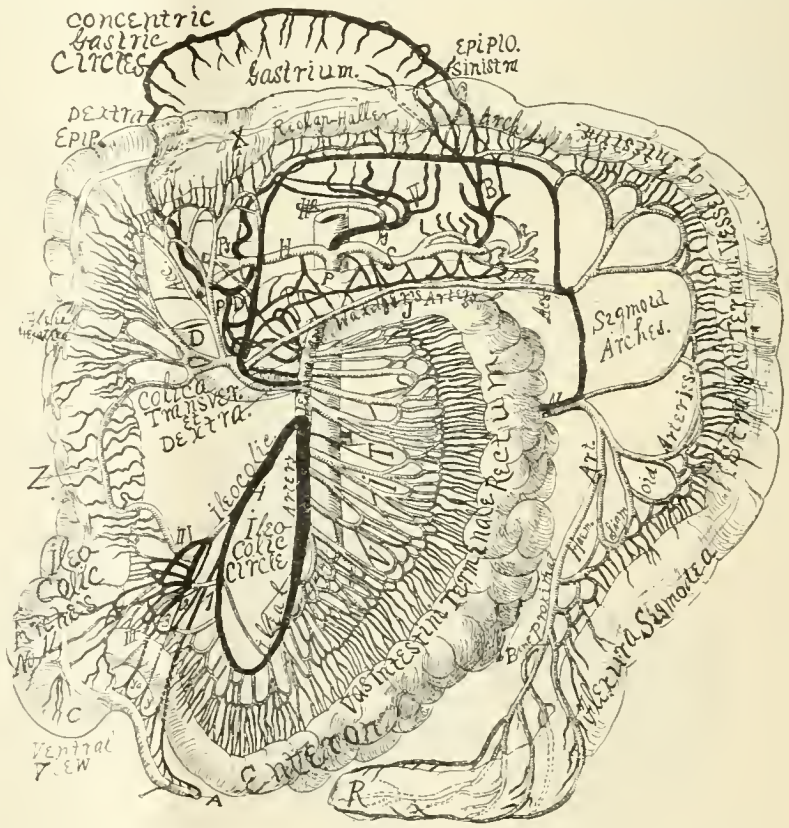

FIG. 4.—This illustration presents the "ileocolic circle," the "ileocolic arches," and the three appendicular arteries (1, primary; 2, secondary; 3, tertiary) in black. Note the richness of radiating branches from the "ileocolic circle." The ileocolic artery arises at the junction of the jejunal artery with the ileal artery, and on a level with the origin of the mesenteric artery. Observe the minor vascular arches imposed on the "ileocolic circle."

The control of blood volume to definite localities is doubtless the most important and practicable agent in therapeutics. It rests on the axiom that *blood cures disease.* This is not new, neither did Bier discover it. He introduced successful system-

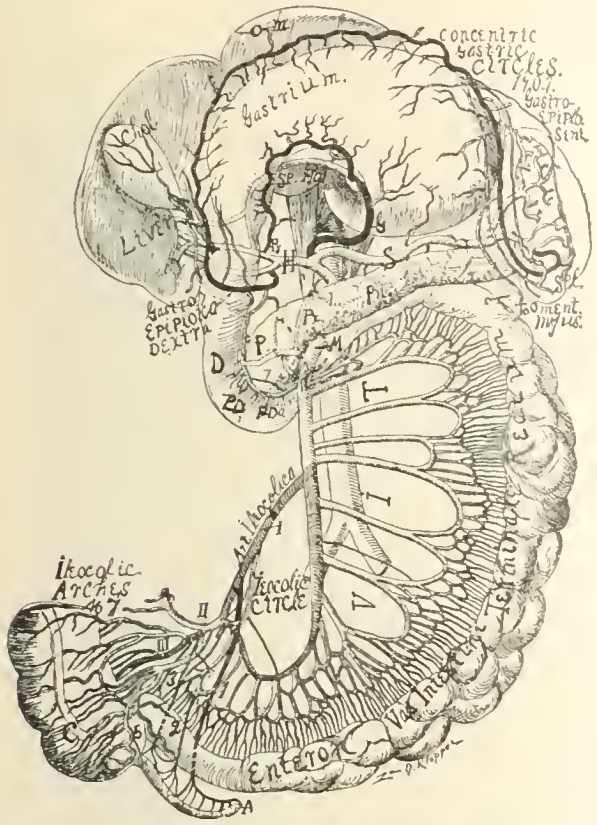

FIG. 5.—This illustration represents the "ileocolic circle" and its associated relations. Observe that the primary appendicular artery (1) arises from the right circumference (ileocolic artery) of the "ileocolic circle." The secondary appendicular artery (2) arises from the mesenteric arches; the tertiary appendicular artery arises from the dorsal ileocecal artery (or its "ileocolic arches"). The ileocolic artery originates at the junction of the ileal artery and jejunal artery.

atic practical application of congestion curing disease. For 50 years gyneologists have made practical application of congestion curing disease. For example, the uteroovarian artery, the genital vascular circle (sometimes called the circle of Byron Robinson) is the typical "*inosculation circle*" where blood current and blood volume can be maintained and controlled for therapeutic purposes. If the genital ganglia (pelvic brain hypogastric plexus, etc.) be stimulated the uteroovarian artery (genital vascular circle) along which the automatic genital ganglia are located becomes dilated and the blood volume in the artery becomes increased, the genitals become congested and many forms of genital disease are cured (especially the inflammatory kinds) —myometritis, pelvic peritoneal exudates. The stimulus to the genital ganglia and consequent marked dilatation of the uteroovarian artery may be by (1) heat (vaginal douche), (2) hygroscopy (boroglyceridetampon), (3) electricity (irritation), (4) stempessary (irritation), (5) massage (irritation), (6) gestation (irritation), (7) copulation (irritation), cathartics, and diuretics. (Stimulation to adjacent visceral tracts congests the tractus genitalis (uteroovarian artery). The uteroovarian artery, the genital vascular circle, is the one vascular circle (however, to application accessible), by controlling the blood volume of which extensive, solid, reliable advances have been established in curing genital disease. Controlling blood volume is the most rational agent of therapeutics. It may be hoped that the day is not far distant when we can control the blood current and volume in the "ileocolic circle" to cure disease—especially perityphlitis. The successful accomplishment of control of blood current and volume in the "ileocolic circle" will be equal to the established control of the blood current and volume in the uteroovarian circle. The control of blood current and volume in the ileocolic circle would aid in curing some prevalent diseases, viz., (*a*) perityphlitis, (*b*) mesoappendicular adhesions, (*c*) ileal disease (tuberculosis, typhoid ulceration).

Practically the cause of the majority of cases of perityphilitis is trauma of the psoas muscle, inducing germs or their products to migrate through the appendicular muscosa, the appendicular muscularis, and appendicular serosa causing periappendicular peritoneal adhesions, mesoperityphlitis, which compromise the appendicular blood-vessels and flex the appendix checking drainage. If the blood current and volume of the ileocolic circle could be controlled, concentrated, increased by therapeutics the mesoappendicular adhesions would absorb, whence the compromised mesoappendicular vessels would be released, and the flexed appendix would enjoy ample drainage.

The nerve ganglia associated with the periphery of the ileocolic circle are those of Auerbach, with Billroth-Meissner, and the stimulation of these automatic ganglia (with consequent congestion of the ileocolic circle) may be accomplished by numerous agents, viz.: (*a*) heat, (*b*) massage, (*c*) foods which result in extensive residue, (*d*) electricity, (*e*) exercise, (*f*) cathartics, etc.

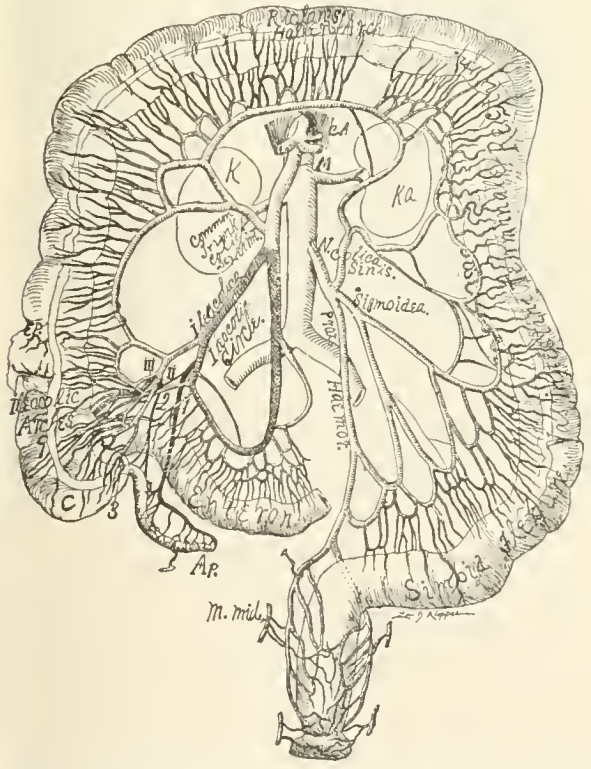

FIG. 6.—This illustration represents the "ileocolic circle" and associated relations. The "ileocolic circle" originates the primary (1) appendicular artery, while the "ileocolic arches," *i.e.* the ventral ileocecal artery (ii). The ileocolic artery arises from the junction of the jejunal artery (m) and the ileal artery.

By cathartics a partial congestion of the ileocolic circle is accomplished, however insufficiently intense to absorb completely dense compromising peritoneal adhesions, with persistent visceral drainage (*i.e.*, stimulation of the function of the tractus intestinalis—sensation, peristalsis, absorption, se-

cretion). By fluids, food, and cathartics producing two bowel evacuations daily sufficient blood may be enticed to the parts, not only for the maintenance of health but practically to absorb existing peritoneal adhesions. However it may be hopefully expected that therapeutics will discover a method of controlling the blood current and volume of the ileocolic circle and consequently of not only curing but furnishing a prophylaxis for perityphlitis and other diseases in adjacent structures. Blood cures disease. The noble Rokitansky observed that in subjects with cardiac valvular disease, tuberculosis was a rarity, the lung was congested and blood protected it from tuberculosis. In short a regurgitating aortic valve (with consequent pulmonary congestion) will cure or protect the pulmonary apices from tuberculosis.

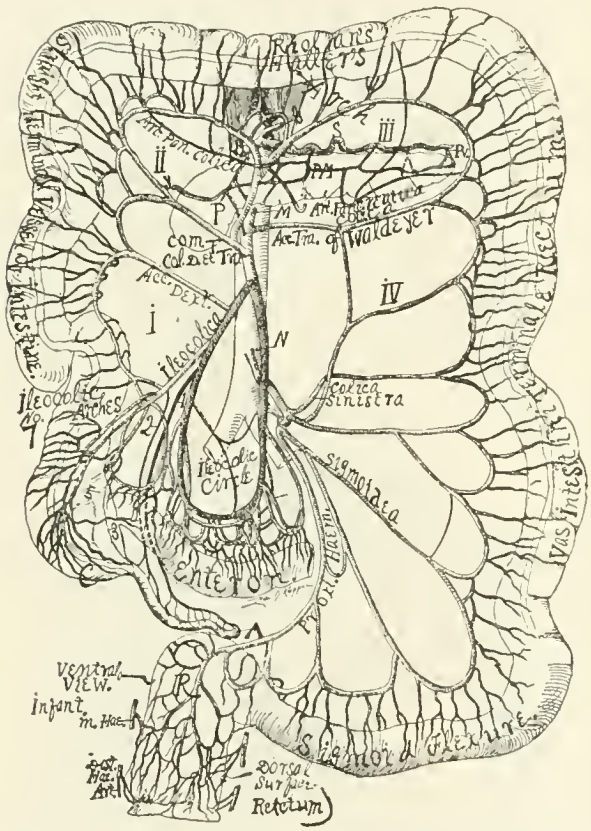

Fig. 7.—This illustration represents the "ileocolic circle," with adjacent relations. Note the primary appendicular artery (1) arises from the right border of the "ileocolic circle." The ileocolic artery originates at the junction of the jejunal artery and ileal artery. The secondary appendicular artery (2) arises from the "ileocolic arches" or "ileocolic circles." The tertiary appendicular artery (3) arises from the dorsal ileocolic artery.

Conclusions.—An inosculation circle consists of (1) a vascular arc, (2) automatic peripheral ganglia, (3) a peripheral viscus.

The *ileocolic circle* is a typical inosculation circle. The apparatus used for executing hyperemia is the inosculation circle.

The means of functionating (controlling the blood volume) the inosculation circle is by stimulating its automatic specialized peripheral ganglia, resulting in dilatation of its vessels.

The function of an inosculation circle is to congest its peripheral viscus and to transport blood from one viscus to another. The ileocolic circle is associated with important viscera, viz., distal ileum, appendix, cecum, the blood supply of which it influences. The rational therapeusis is *visceral drainage*, which induces maximum blood volume in the inosculation circle and consequent maximum visceral elimination.

THE TUBERCULOSIS PROBLEM IN THE PHILIPPINES AND THE ELIMINATION OF INTESTINAL PARASITES AS THE FIRST STEP IN ITS SOLUTION.*

By VICTOR G. HEISER, M.D.,

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In recommending to any government a measure which has for its object the improvement of the public health, not only the medical men directly concerned, but the whole medical profession as well, share in the responsibility involved. Success following the adoption of a recommendation redounds to the credit of the whole profession; a failure is often cited as evidence of the unreliability of medical advice. It is therefore believed that those medical men who are charged with the duty of recommending legislation to legislative bodies should, whenever possible, consult with their medical brethren in order that crystalized ideas submitted should have the support of their majority.

Before a government, be it national, State, or municipal, is asked to give any very substantial support to a health measure it is desirable that it be shown with reasonable certainty that the public health will be improved, that the estimated cost be stated, that the economic value is apparent, and that it is backed up by experimental or other evidence. With the foregoing conditions in mind the following is respectfully submitted.

It has only been within the past few years that serious attention has been given to the rôle which intestinal parasites, and more particularly the ankylostoma or hookworm, play in the morbidity and mortality statistics of tropical and semitropical countries. Most striking evidence of their importance has recently become available in Manila. In the large insular prison called Bilibid over three thousand prisoners are constantly confined. From 1902 to 1905 there was an uninterrupted increase in the death rate until a mortality of over two hundred per thousand per annum was reached. Tuberculosis claimed over 50 per cent. of the victims during 1904. On December 1, 1904, all prisoners afflicted with pulmonary tuberculosis were isolated in a separate hospital located in another portion of the city. During the year 1905 the number of deaths from tuberculosis still increased, although the number of new infections was growing less. The general mortality figures of the prison were also still ascending. The sanitation of the prison was then transferred from the control of laymen to the Bureau of Health. The regularly recognized sanitary measures were at once put into effect, overcrowding was relieved, sewage disposal improved, the sick placed under treatment more promptly, and other well-known measures adopted. The death rate soon fell to about seventy-five per thousand per annum, but further reduction seemed impossible. A study of the prison's sick showed that they were dying with ailments to which they should not have succumbed. Their powers of resistance were evidently impaired. The evidence pointed to some extraordinary drain on the system. There was plenty of food, but evidently imperfect nourishment. With a view to discovering the cause, a routine practice of microscopically examining the feces of every prisoner was inaugurated. Eighty-four per cent. were found infected with intes-

*Read before the International Congress on Tuberculosis, Washington, D. C., September 29, 1908.

tinal parasites. Of these, 60 per cent. or 52 per cent. of the total number of prisoners had hookworms, 59 per cent. had whipworms, 23 per cent. amœbæ, and 21 per cent. harbored some other species of parasite.

Over half of the prisoners were hosts for at least two kinds of worms. Active therapeutic measures were inaugurated to rid the prisoners of the causes of these debilitating troubles and result was immediately satisfactory—the death rate fell to less than twenty per thousand. The following table giving the deaths from tuberculosis at Bilibid by months and years, considered in connection with the foregoing, shows that even after isolation of tuberculous patients has been carried out, still further reduction in the incidence of tuberculosis may be brought about by increasing the resistance of the individual; that is, by removing the intestinal parasites. For instance, in 1905, the year after the system of isolation was put into effect, there were still 179 deaths from tuberculosis. Much improvement, however, could perhaps not be expected until the following year, and an examination of the figures shows that the tuberculosis mortality did drop to 51. In view of the fact that the elimination of the intestinal parasites was actively begun during the second half of this year (1906) a part of the credit for this satisfactory result must be attributed to their removal, and that this assumption is correct is shown by the fact that in the year 1907, when the elimination of the intestinal parasite was the only remedy used, the deaths fell to 35, and for the present year, based upon the rate of the earlier months, the number should be 28. It is therefore apparent that in a prison which has an average population of about 3,000, and in which there were as many as 179 deaths per annum from tuberculosis, the number of cases was reduced to 28 per annum, and that this was brought about by isolating the tuberculous sick, by providing more light and air, and removing the intestinal parasites of the remainder, the latter measure having largely contributed to the result. It is perhaps also worthy of mention in passing that the statistics show that the greatest number of deaths during each year occurred between the months of June and October, which correspond to the rainy season.

DEATHS FROM TUBERCULOSIS, BILIBID PRISON.

	1904	1905	1906	1907	1908	Total
January	25	8	3	2	0	38
February	32	0	2	4	0	38
March	5	17	7	7	8	44
April	6	4	1	4	2	17
May	10	11	6	0	2	29
June	10	17	3	4	2	36
July	5	13	3	4		25
August	13	29	3	3		48
September	17	45	8	1		71
October	16	21	7	2		46
November	9	7	3	1		20
December	13	7	5	3		28
Total	161	179	51	35	14	440

Some thousands of stool examinations made in the Philippines outside of Bilibid show that about the same percentage of infections may be expected among the general population.

If then we have a prophylactic measure which will effect a marked reduction in tuberculosis mortality and at the same time diminish the incidence of a considerable number of other diseases (see sick report published in Annual Reports of the Bureau of Health during the past four years), it would appear only rational that this should receive first consideration. There is no desire whatsoever to ignore those measures which have already done so much to curtail the ravages of tuberculosis in other parts of the world; when funds are available, these should all be tried. If not, then it would undoubtedly be best to choose that which will give the greatest results. In a city like Manila, a reduction in the mortality of five per thousand would mean a saving of 1,125 lives annually; at least 150 of these would be rescued from tuberculosis. These figures are for one city. If other tropical countries with similar conditions adopted the same measures for their millions of population, the result is self-evident.

It is believed that the foregoing facts make concrete proof of what may be accomplished in a tropical country and are sufficient evidence to lay before a legislative body in order that the necessary authority and funds may be provided to put into effect the measures which are indicated.

It may be of interest to present the following table, which shows that tuberculosis steadily increased in the city of Manila until June 30, 1907, and that since that date there has been a decline:

TUBERCULOSIS IN THE CITY OF MANILA BY YEARS.

Year Ending	Total Deaths From All Causes	Deaths From Tuberculosis								
		Larynx	Lungs	Meninges	Abdomen	Spine	Other Organs	General	Total	Percentage
8-31-03	8,892	45	789	20	35	1	7	5	902	10.1
8-31-04	10,781	59	958	32	35	2	3	13	1,102	10.2
8-31-05	8,926	59	971	31	45	2	7	17	1,132	12.7
6-30-06	9,486	23	1,209	41	43	1	8	29	1,354	14.3
6-30-07	8,251	18	1,146	44	45	..	9	23	1,287	15.6
6-30-08	8,945	12	1,036	37	37	3	6	36	1,167	13.0
Total.	55,281	216	6,111	205	240	9	40	123	6,944	12 6

The increase in the disease prior to 1907 was in all probability due indirectly to the increase in rents, which resulted in the poorer classes crowding together more and more; in consequence, the light and ventilation per capita in each habitation constantly decreased.

About two years ago an active educational campaign for the prophylaxis and treatment of tuberculosis was begun. A pamphlet was prepared, the contents of which are taught in every public school throughout the Philippine Islands. Popular articles are frequently published in the daily press. Rigid inspection is made of all meat and other food products likely to contain tubercle bacilli, anti-spitting ordinances were passed and are being gradually more and more rigidly enforced, overcrowding, especially in tenement houses, has been prohibited, and light and ventilation have been provided for hundreds of houses. Whether these measures are responsible for the reduction in the number of deaths is, of course, not positively known, but it is not unreasonable to infer that much of the credit is due to the improved sanitation. The foregoing shows that at least a start has been made in combating this disease in the Philippines.

If the conclusion of this Congress should justify it, it is proposed in the coming year, in addition to the measures specifically directed against intestinal parasites, to open a free dispensary in the city of Manila for tuberculous cases and to spend about $20,000 for the treatment of the tuberculous sick by the open-air method.

Summary.—1. Before legislation on public health measures is requested, certain conditions should exist. Among these is reasonable certainty that the public health will be improved; that the cost of putting it into effect be estimated; that the economic value be made apparent; and that it is backed up by experimental or other reliable evidence.

2. The annual mortality among 3,000 prisoners was reduced from 75 to 20 by the elimination of intestinal parasites; 50 per cent. of this number formerly died of tuberculosis. This was accomplished after the measures heretofore recommended by good authorities had been faithfully but unsuccessfully offered.

3. Increasing the resistance of an individual to tuberculosis by the elimination of intestinal parasites has proven very effective in reducing the incidence of the disease.

4. As a result of a campaign of education and by providing more hygienic houses, the number of cases among the general population of Manila was apparently reduced from 15.6 to 13 per cent. of the total mortality.

Conclusion.—It is believed that the foregoing facts warrant the assertion that in tropical countries where tuberculosis and bookworm diseases are coexistent, the elimination of the hookworm will produce better results in diminishing the mortality from tuberculosis than any measure that has as yet been tried upon a large scale; at the same time the general mortality can be markedly reduced.

NEUROSES OF THE NOSE.

By CHARLES PREVOST GRAYSON, M.D.,

PHILADELPHIA, PA.

I HAVE the somewhat uncomfortable feeling that you will discover within the next few minutes that you have been made the victims of misplaced confidence on the part of your committee who did me the honor to invite me to present this paper. I shall make no attempt to be ponderously scientific, nor have I any intention of yielding to the temptation that this opportunity offers to add something new and startling to the already formidable list of reflex nerve disturbances for which the nose has been held responsible. On the contrary, I am very much of the opinion that before any further addition is made to this list the foundation upon which it rests should be critically examined to see if it be secure enough to support even the strain to which it has already been subjected. I am conscious that there is in this statement at least a suggestion of doubt on my part as to whether the nose is really accountable for all those ills of reflex nature that have been attributed to it. I know that whenever it has been charged with any offense of this kind more or less evidence has been forthcoming to substantiate the charge, but, although I do not venture to say in the majority, yet in many cases at least this evidence has been of a purely circumstantial character and has seldom been sufficient to induce me as one of the large jury of rhinologists to concur in a verdict of "guilty." In almost if not all of them the "neurotic temperament" has formed a more or less conspicuous background to the various manifestations of nerve irritation, and the vagaries of this irresponsible temperament are unfortunately apt to be as misleading as they are notorious. In the absence of this powerful contributing factor, I should regard the prompt and permanent cure of an asthma, for instance, by the removal of a septal spur as forming a *prima facie* proof of nasal guilt, but whenever its presence can be demonstrated or even fairly suspected, the possible indirect and psychic effect of the operation would lead my conscience to decline any greater responsibility than would be involved in rendering against the nose the shifty Scotch verdict of "not proven." In the face, therefore, of the adverse criticism that I may perchance draw upon my head, I say without equivocation that to my mind whenever this troublesome temperament forms one of the premises in any proposition of a pathological nature, it vitiates and lays open to suspicion and dispute any positive conclusion that may be drawn. It is because of this embarrassing uncertainty that must always confront one in that class of nasal neuroses in which the nose is presumed to be the excitant of a reflex disturbance, that I find much greater satisfaction in dealing with that other class in which the nose itself is the site of the disturbance of innervation, that class, in other words, in which symptomatically the nose is the victim rather than the aggressor. The clinical features of these affections are so distinctive, so almost unique, that it is probably extremely seldom that we encounter any difficulty in the matter of diagnosis. How fortunate it would be, both for us and our patients, if our pathway to a complete understanding of the pathogenesis were as free from obstacles! I shall not occupy your time with any consideration of the functional derangements of the olfactory nerve. Ordinarily, these are of comparatively slight clinical interest and importance. It is rather to the vasomotor neuroses as they are exemplified in the nose that I would venture to ask your attention, and I can clearly foresee the shudder with which you will suspect me of an intention to rake over the ashes of past discussions of hay fever. But this is not my principal purpose. My chief wish is to assist, simply as a mark of respect, at the obsequies of the latest "specific" for the treatment of that disease. I am not privileged to sit with the mourners, for almost from the moment of its birth I anticipated, predicted, and was prepared for its early death. And yet, I wish to lay a flower upon its grave because it was conceived in a scientific spirit, the methods by which it was made were equally scientific, and the reasoning that led to its production was, so far as it went, perfectly sound. But it went neither far enough nor deep enough. If it had, it is highly probable that no claim of specific virtue would have been made for the remedy. If the etiology of hay fever comprised no more than two factors—a predisposing idiosyncrasy and an atmospheric excitant—there would have been nothing illogical in the expectation that "pollantin" might take its place beside the antitoxin of diphtheria, but when we recognize the existence and fully appreciate the nature of the systemic condition that, it seems to me, forms a more or less prominent background in every case of this disease, we will not be surprised at the percentage of cases that have been reported as but slightly improved or absolutely unimproved. For many years I have believed that a fundamental disturbance of the nutritive processes, of normal metabolism, if you please, was responsible for the essential nervous element in the causation of hay fever. So long as we have a blood current contaminated with a number of toxic materials, the products presumably of suboxidation, so long are we almost certain to have nerve centers that are poorly nourished, oversensitive to disturbing influences, and of reduced power to neutralize the effects of such influences. It seems to be, at least in hay fever, the vasomotor centers that are earliest and most markedly affected, and when we have added to this not only the idiosyncrasy, but possibly also a long precedent intranasal lesion that has helped to make the pituitary mucous membrane particularly intolerant of any form of irritant, we have but to await the floating of some variety of pollen or other obnoxious

material within the nostrils to witness the speedy evolution of the symptom complex of this disease. If there is one fact connected with hay fever that, to my mind, throws a stronger light upon its remote causation than any other, it is that the affection is preeminently one of that class of people who lead the strenuous rather than the simple life. Why is it, may I ask, that these people have an almost exclusive monopoly of what we are pleased to term idiosyncrasies? Why is it that the laboring class is practically exempt from this species of affliction? Is it not because of the facts that its members go to bed with the chickens and rise with the lark, that they have their three frugal meals each day on the stroke of the clock, that, plain as it is, their supply of food is more often inadequate even to satisfy their appetites than to satiate them, that each day's labor involves wholesome muscle work that induces wholesome fatigue and brings dreamless sleep, and that, finally, their brains and nerves know nothing of emotional strain, of vaulting ambition, of crushing disappointment, or of sleep-destroying passions of any kind? Is it not possible, think you, that if, instead of fulfilling her natural destiny, barefooted, short-skirted, uncorsetted Maud Muller had married the Judge, if she had flung aside her rake, had abandoned the cows that she had milked, the churn that had helped to make her broad of shoulder and deep of chest, and if she had substituted for these all the nerve shattering follies and vices of the modern society woman—Heaven forbid that I should attempt to enumerate them!—might there not have come a time and a condition, I ask you, when even the dim memory of raking hay would have sufficed to throw her into a paroxysm of sneezing? It may seem useless to speculate about the nature of idiosyncrasies, but I have often thought that if we, as we all of us do, have certain conscious likes and dislikes, is it not possible that we have others, also, that are subconscious? Cannot our respective mucous membranes, for instance, owing to some individual peculiarity of structure or innervation, have certain antipathies of their own of which we may be wholly unconscious until lowered vitality, increased peripheral nerve irritability and lessened central control permit them to emerge from the obscurity of the back of the stage into the glare of the limelight at the front? I have fancied that we may either inherit or acquire in some way the seeds of these idiosyncrasies, but that they may lie fallow and inert until they are fertilized by and spring into life and offensive activity from a soil of poisoned and debilitated nerves. What a sublimely sanguine nature it must be, then, that still clings to the hope that a remedy of specific power may yet be discovered for hay fever! When a man so qualified by exceptional experience and unimpeachable judgment as Holbrook Curtis commits himself to the statement that "hay fever is a disorder amenable to no specific treatment," it seems to me that there is nothing left for the rest of us but to accept his opinion and to finally abandon that fatuous hope to which I have just alluded. And so, upon my tributary wreath I would write the inscription "*Sic semper* specifics." One more word relative to the treatment of this disease and I will take my leave of it. With no lack of respect for the profound laboratory studies that have dealt with the secretions of the hay fever sufferer, I fail to find in their results anything that is of genuinely practical value to us. It may be of some academic interest to know that the sweat contains an excess of something, that the tears that flow so abundantly during the attack contain too much or too little of something else, or that the saliva, perhaps, shows the presence of some material that is foreign to it, but of infinitely greater importance is it to remember and to remove the basic nutritive fault that is accountable for such alterations. This is a matter, I think, to which the maxim *Immanente causa non cessabit effectus* is clearly applicable. Surely the drug treatment of hay fever, from a curative point of view, is utterly irrational and fallacious. Nothing short of a drastic and radical reform of each patient's personal hygiene can effect and maintain the normality of the body tissues and secretions. I speak feelingly because as an ex-victim of the disease of some years' standing, I am confident that if I were to renounce systematic exercise and to return to indolence and the flesh-pots, the coming of August would find me once more a refugee in some mountainous region or upon the rag-weedless bosom of the Atlantic. If I were asked, therefore, in which of the two places, the laboratory or the gymnasium, a cure for this disease were the more likely to be found, you probably know what my answer would be. To put it in a nutshell, it is my belief that if a man takes care of his muscles, with all that this implies, his nerves and vasomotor centers will take care of themselves.

Another nasal neurosis very closely allied to hay fever, in fact, almost identical with it symptomatically, is that termed "rhinorrhœa spasmodica," or "paroxysmal sneezing." Pathologically, it seems to be hay fever minus the latter's idiosyncrasy to external irritants. The irritants of internal production are no doubt precisely the same in the two affections, and in both, also, the secondary nervous element is equally in evidence. This latter, however, in rhinorrhœa spasmodica is more often temporary than temperamental. In other words, the disturbance of vasomotor equilibrium is the result in most of these cases of some accidental and transient stress of an emotional nature, and it is this which may partially account for the absence of any periodicity in connection with repeated attacks of this disturbance. In illustration of this statement, I may be permitted to refer briefly to three cases that I have seen within the past two months, in none of which could any evidence be found that would justify the patient being regarded as either an hereditary or an habitual neurotic, and in none of which had there ever been a previous attack of this nature. The first was a man of middle age who was deeply involved in the stock market last fall and who throughout the winter was compelled, for want of margin, to let his holdings go one by one until, with the coming of spring, he was as much a nervous as a financial bankrupt. The second, a woman who, during several weeks of her child's critical illness, could scarcely be dragged from its bedside. And, finally, a trained nurse of rather frail physique who, for an unbroken period of six weeks, had been vigilantly watching a patient possessed of a suicidal mania. The pathogenic fact that was common to these three cases was a prolonged and flagrant violation of the laws of personal hygiene relating to food, sleep, and exercise, and the result, common also to all of them, was a most pronounced impairment of nutrition and of nervous vitality. Associated with the autotoxemia and nutritive failure were both unusual phosphatic waste and defective elimination. Although in each of them there was only such intranasal abnormality as would, under ordinary circumstances, have produced no discomfort, yet aided and abetted by the foregoing conditions it proved quite suffi-

cient to induce indignant Nature to select the nose as the medium for her protest.

In conclusion, gentlemen, I am going to recall to your attention a third neurosis of the nose that has its origin in disordered sexual functions. In the first place, we are all familiar with the fact that during the menstrual period not only is any coincident affection of the female nose apt to be aggravated, but even if it be normal it is often apt to reflect to some extent the ovarian excitement. It was perhaps his knowledge of this fact that led Fliess to seek a cure for dysmenorrhea through the cauterization of those areas in the nose that showed most plainly the secondary hyperemia and hyperesthesia. Shortly after the publication of his observation in 1897, probably many of us through the kindness of our obstetrical and gynecological friends had opportunities for testing his conclusions, but I must confess that the results of my own series of cases developed little more than the opinion on my part that while in women functional derangement of the pelvic viscera was capable of producing more or less disturbance of the neurovascular mechanism of the nasal mucosa, yet that the control of this latter would have little or no appreciable effect upon the former. Always excepting, of course, the highly neurotic woman, and upon her there is scarcely anything in the fields of medicine, surgery, Christian science, or osteopathy that may not produce the most extraordinary cures. In close connection with this, it is just barely possible that some few of you may have a dim recollection of a paper that I read at the semicentennial meeting of the American Medical Association in 1897, concerning the influence of sexual excitement upon the intranasal circulation. The two cases that I then reported have since been followed by many others, and could I conquer my aversion to hair-splitting distinctions in the subclassification of disease types, I would venture to suggest to the author of the next text-book on diseases of the nose that he devote a section to "The Rhinitis of the Newly-Married," or, perhaps, "Honeymoon Rhinitis" would be shorter and more euphuistic. I have not introduced this subject in order to discuss its treatment, because as a consistent bachelor I could scarcely do otherwise than advocate preventive rather than curative measures, but I refer to it once more simply to express the opinion that the cause of this neurosis of the nose is as frequently overlooked or viewed with the same indulgent indifferenec to-day as it was ten years ago.

251 South Sixteenth Street.

PRELIMINARY NOTE ON THE TREATMENT OF AMEBIC DYSENTERY AS CONDUCTED ON THE ISTHMUS OF PANAMA.

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It has not yet been determined that there is a specific organism responsible for the symptom-complex known as amebic dysentery. This is, however, either a specific ameba or some symbiotic organism or condition which initiates the pathological lesion. This may be some ulcer or injury to the mucosa, such as might be caused by the *Trichocephalus dispar* which is so common in the tropics. A variety of methods for the treatment of the condition have been tried. Irrigations of quinine, thymol, silver nitrate, boracic acid, etc., have been used. By the mouth, opiates, ipecac, intestinal antiseptics, etc. All these methods, however, have proved to be of little or no value. The present method which has given brilliant results with rarely a fatality consists in what might be called the rest supportive treatment. The patient is put to bed, absolute rest is enjoined, a purely milk diet is administered, and when great tenesmus is present warm saline irrigations are given two or three times daily. A preliminary dose of castor oil is usually advisable. The only internal medication which is given is the subnitrate of bismuth, which is administered in somewhat heroic doses, from a dram to a dram and a half every three hours. In the milder cases improvement begins in from three to five days; in the severer cases, in from ten to fourteen days. The stools then lessen in number and begin to form and in a comparatively short time, one to three weeks, twelve to twenty-four hours are passed without a movement. The diet is then gradually increased and the bismuth lessened in dosage. Usually the proteids, meat and eggs, are the last to be added to the full dietary. In from one to four weeks, depending upon the severity of the case, the patients are perfectly well. It is then well to give tonics and advise change of air for a week or ten days longer so as to increase the general resistance of the patient. If this be done there is practically little danger of recurrence; in fact, the only recurrences are associated with some conditions which again lower the general vitality and resistance of the patient. In only two cases during the past year has it been found necessary to perform cecostomy in order to carry on irrigations.

I consider it bad practice to give irritating injections, such as quinine, thymol, etc., which cannot possibly reach the amebae in the submucous ulcers, and I have even seen several instances in which the use of such injections given to patients (the accidental examination of whose stools had shown amebae, but in whom no dysentery was present) gave rise to attacks of true amebic dysentery.

Opiates are considered equally bad, as they tend to retain the irritating discharges and further the ulcerating process, although a preliminary hypodermic of morphine and atropine is sometimes of value.

Another feature which was observed in amebic dysentery, particularly the severer cases, is the condition of the skin, which loses its elasticity and can be drawn up into folds which will persist for a longer or shorter time, very slowly returning to the normal. It has a doughy feel, somewhat myxoid in character. When present it indicates a grave condition, though recoveries do take place even then. This condition of the skin has been noted particularly in grave abdominal conditions of different kinds, and if present when tubercle bacilli are found in the sputum indicates the involvement of the abdominal viscera. It also occurs in severe cases of typhoid fever and carcinoma of the abdominal viscera. The clinical significance of this skin condition has not been absolutely determined.

Charitable Bequests.—The will of the late Mrs. F. R. Halsey, which was filed recently, provides for the gift of $5,000 to the Stony Wold Sanatorium, of $50,000 to St. Thomas' Church for the exclusive use of the Halsey Day Nursery, and of $10,000 to Flower Hospital. The Pittsfield House of Mercy Hospital receives $26,000 under the will of the late Franklin W. Russell of Pittsfield, Mass., and the Pittsfield Nurses' Association, $5,000.

MEDICAL RECORD.

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LEUCOCYTE EXTRACTS IN THERAPEUTICS.

ONE of the greatest disappointments in medicine has been the failure to find a specific remedy for each of the infectious diseases. When, in spite of much scepticism and obstinate opposition even in the face of facts, the value of antitoxin in the treatment of diphtheria was indubitably established, it was confidently believed that it would be only a matter of time, and of very short time, before an antitoxin would be found for every bacillary disease. The disappointment came when it was discovered that the mechanism of all infectious processes was by no means the same and that it was only in the case of diseases in which the morbid phenomena were produced by diffusible toxins that an efficacious antitoxin could be prepared. The other diseases, in which the poisonous products were found, or assumed, to be chiefly endotoxins, remained intractable to specific treatment. So those who still believed in therapeutics continued to treat pneumonia and typhoid fever in the old way with more or less success, and the therapeutic nihilists acted upon the "self-limited" theory with no success at all.

According to the more generally accepted theories, the natural cure of microparasitic diseases is effected in one of two ways—by the action of antibodies thrown off in excess by the cells, and therefore free in the body fluids, or by the phagocytic action of the leucocytes. The first-named method is effective in the case of diseases due to the presence of microorganisms which excrete soluble toxins, but in the second class of diseases, those in which the symptoms are assumed to be due to poisoning by endotoxins, the body fluids are less protective, and the organism is defended by the intervention of the leucocytes. The phagocytic action of the leucocytes in these cases is assumed to be effected by means of internal secretions, digestive and antitoxic, which act only upon the ingested bacteria and are not thrown out into the blood stream. Starting from this hypothesis, Dr. Philip Hanson Hiss *(Journal of Medical Research,* November, 1908) conceived the idea of extracting these protective substances from the white cells and introducing them in a free state into infected animals. If his assumption were correct these substances should then act in protecting not only the leucocytes, exhausted in their struggle against an overwhelming host of the invading microbes, but also the more specialized cells exposed to attack through the failure of the leucocytes.

The theory was tested in a number of experiments and the results were quite confirmatory of Hiss's assumption. Extracts of leucocytes from normal rabbits were injected into a number of animals suffering severely from infection by staphylococci, pneumococci, typhoid bacilli, or meningococci. Some of the animals died, but many survived infections fatal to the control animals in 36 hours, even though the injection of the leucocyte extracts was delayed as late as 24 hours after inoculation. The immediate effect was, in certain of the experiments, rather disquieting, for the animals receiving treatment often became sicker than the controls; this, however, was for a short time only, and chiefly in typhoid and meningococcic infections, and the good effects were almost immediately shown by a decided fall in temperature and a return to normal of the animal's weight. This primary increase in the symptoms of intoxication might indicate that the leucocyte extract had a bacteriolytic action, the consequent liberation of endotoxins increasing the toxemia, but the rapid fall in temperature and the quick return to normal weight led the experimenters to believe rather that the principal substance at work is one active in neutralizing bacterial poisons.

This was shown more strikingly in a further series of experiments made by Drs. Zinsser and Hiss, who injected leucocyte extracts intraperitoneally into guinea-pigs infected simultaneously with the vibrio of Asiatic cholera or with the pneumococcus. In these experiments it was curious to note that, although the animal receiving the leucocyte extract seemed well, eating and running about as usual, while the control was crouching in a corner of the cage with ruffled fur, showing extreme weakness, nevertheless there was a remarkable similarity in the exudates in both cases, and there was nothing to show that the bacteria were either immediately destroyed or even greatly hindered in their growth by the injected extracts; there was also no immediate change in the degree of phagocytosis taking place. In other words, the infection ran its course, but no untoward symptoms were produced because the toxins were seemingly neutralized as soon as elaborated.

The results of these animal experiments were so satisfactory that Drs. Hiss and Zinsser were encouraged to test the therapeutic worth of leucocyte extracts in man. The cases in which the experiments were made upon which the report is based numbered 32; of these 24 were epidemic meningitis, seven were pneumonia, and one was a chronic pneumococcus empyema. We cannot here go into the details of these experiments, all of which are reported, together with the animal experiments referred to, in the *Journal of Medical Research* for November, 1908, but will note only the results. Of the 24 patients with cerebrospinal meningitis, 14 were discharged cured without sequelæ, eight died, and two left the hospital during treatment and before the outcome could be foretold with any certainty. Of seven cases in which treatment was begun during the first week of the disease complete recovery without sequelæ occurred in all. The seven patients with pneumonia and the one with pneumococcus empyema all recovered, but so of course might any seven consecutive cases of pneumonia, and the number is too small to warrant any very positive conclusions

as to the value of leucocyte extracts in this disease. Nevertheless the uniformly favorable outcome, together with the results of the animal experiments, offers considerable encouragement for a continuance of the trials. Furthermore, even in these few cases, the uniformity with which the temperature fell and the subjective symptoms were improved after the injection of the leucocyte juice seemed to indicate cause and effect rather than coincidence. One would certainly not be accused of undue optimism in agreeing with the authors in their modest conclusion that "all these changes give the impression, at least, that we are dealing with an agent which further clinical tests will not unlikely prove of definite therapeutic value."

MEDICAL PRACTICE IN NEW YORK.

A DISCUSSION was started recently in the columns of the *New York Times*, by a writer signing himself "Emdee," on the difficulty encountered by the recent graduate in medicine in establishing himself in practice in this city. The writer lifts the veil of anonymity so far as to announce that he is a "weekly editorial writer on one of the oldest medical journals in New York," by which we suppose he means the *New York Medical Journal*, but this fact does not, as he seems to think it does, prove his assertion that "the medical journals studiously avoid nearly everything relating to the financial part of a physician's work"—a statement he could not have made had he had the privilege of reading the MEDICAL RECORD for any considerable period. The financial side of medical practice has been frequently discussed in this journal, both in signed communications and editorially.

There is nothing new in the fact that a young professional man without influence or a settled income finds it very difficult to range himself in New York, or any other large city. "Emdee" seems, however, to think that there is, and asks what the matter is with the profession of medicine, his question being prompted by the fact that "many excellent and cultured physicians are still struggling along after ten years of active attempt to practise in New York City." The matter with the profession of medicine here is simply that there are too many doctors for the amount of work to be done—the supply is greater than the demand.

Why the demand is not greater is another question. One reason is that the dispensaries and hospitals treat a great many persons who could very well afford to pay a moderate fee. Another reason is that the Board of Health does a great deal of work, such as vaccination, without charge, much of which would be done for compensation by the physicians of the city if the Board of Health did not do it. Still another reason is to be found in the "club practice" so common in certain sections of the city, in which medical treatment is secured for a ridiculously small annual fee. The last two factors are not so strong as the first, for while the Board of Health work and the "clubs" take away or keep away more or less "business" that would otherwise go to the private practitioner, they also give work at a definite salary to a number of medical men who would else go to swell the ranks of the feeless physicians.

But even with the demand much greater than it is, the supply would still be too large to meet it. The proportion of physicians to the general population is probably greater in New York City than anywhere else in the country. In the United States, for example, taking the estimated population of the Census Bureau for 1908 as a basis, there is one licensed physician to every 709 persons; in New York State there is one to 672, and in New York City one to only 653. It has been estimated that the physician in general practice must have a clientèle of 750 persons, or 150 families, to support himself and his family in comfort and in the style of cultured persons of moderate means in his own class, so if this estimate is accurate the New York doctor is short an average of 100 patients, and many of course are further behind than that. Conditions are better in Connecticut, where there is but one physician to 754 persons, but even there the *Times* correspondent would probably find it difficult to make a living unless he was more willing to get down to hard work and "scratch gravel" than he appears to be in the letter of complaint to which we have referred.

A NEW WRINKLE IN ETHER INDUCTION.

PERHAPS the greatest single factor in diminishing the danger of anesthesia of whatever character is the use of as little anesthetic as is necessary to produce unconsciousness to pain or abolish the reflexes of the patient. The administration of narcotics before anesthesia is one of the methods adopted to reach this end while all improvements in the technique of narcosis aim at a similar result. To these two methods Klapp had recently added a third, namely, the artificial diminution of the circulating blood during anesthesia by stopping the circulation in the extremities with the help of elastic bandages. Experimental work on animals has uniformly shown that such diminution of the circulating blood enables the production of anesthesia with a much smaller amount of the anesthetic, while the awakening from unconsciousness very rapidly follows the admission of the circulating blood to the vessels of the extremities. Dr. zur Verth had an opportunity to try this method in Bier's clinic in Berlin, and reports very favorably upon it in the *Münchener medizinische Wochenschrift* for November 17, 1908. He administered anesthetics in over one hundred cases after preliminary bandaging of the lower extremities; the arms were never cut off from the circulation because of the greater danger of injury to the nerves in the upper extremities. The results fully bore out the data of experimental work: Less anesthetic was used in all these cases than usually, strong individuals being easily anesthetized by means of the ether drop method; the recovery from anesthesia followed almost immediately the removal of the bandages from the legs; no injurious after-effects were noted. Besides these manifest advantages of the new method one more is mentioned by zur Verth, the possibility, namely, of performing what may be called autotransfusion in case of any accidents during anesthesia; in case of chloroform especially the blood of the extremities rich in carbonic acid gas may act as a powerful physiological stimulus to the respiratory centers that are so powerfully depressed by this narcotic. Further trial with this limitation of the circulating blood in anesthesia will be awaited with interest proportionate to the importance of any logical proposal aimed at the diminution of the risks that are ever present in the administration of anesthetics.

The Cause of Peristalsis.

The English physiologist, Starling, has increased our knowledge of the interdependence of organs by showing that not only nervous stimuli serve to connect the functions of one organ with another but that in addition certain specific chemical substances exert a similar action. These substances or "hormones" are produced by an organ in the beginning of its physiological activity and reach other organs by way of the blood, thus insuring a proper synchronism or sequence of action. Thus, secretin is such a hormone having a specific stimulating action upon the pancreas. The well-known changes that take place in the mammary glands of animals in the beginning of pregnancy are likewise occasioned by the presence of a specific hormone in the blood; in proof of this Starling has succeeded in producing similar changes in the mammary glands of virgin rabbits by injecting into their blood extracts of very young fetuses. In the *Berliner klinische Wochenschrift* for November 16, 1908, Zuelzer reports the discovery of a new hormone, a substance, namely, that excites peristalsis. This substance was obtained from the mucosa of the stomach at the height of digestive activity; when injected into the bloodstream it quickly caused a peristaltic movement of the intestines simulating in every particular the normal action, and ending with the expulsion of fecal masses from the rectum. All animals that were examined by Zuelzer showed the presence of this specific substance, an interesting detail being the existence of the hormone in only one of the four stomachs of a ruminant. It may be that the discovery of Zuelzer will prove of use in the therapy of gastrointestinal disorders; it certainly suggests that there may be a cause for chronic constipation not considered in the present theories of the etiology of this condition.

The North American's Apology to Dr. Knopf.

In the course of a discussion which took place during the meeting of the National Association for the Study and Prevention of Tuberculosis in 1907, Dr. S. A. Knopf of this city remarked that he would not hesitate to give a dying consumptive morphine to relieve his pain and distress. A reporter of *The North American* of Philadelphia distorted this remark into a plea for what the newspapers miscall euthanasia, that is hastening the patient's death, and the paper published the charge with scare heads, adding that these remarks were so hotly disputed that the meeting broke up in confusion. When the falsity of this report was brought to the attention of the editor of the offending journal he refused to retract or correct the accusation, and Dr. Knopf thereupon brought suit against the paper. After much wriggling *The North American*, rather than be mulcted in heavy damages, as it was evident it had no case, has now published a complete retraction and made apology to the injured physician. "This report," it says in its issue of November 29, "did Dr. Knopf a great injustice. The alleged confusion following the doctor's remarks had its existence only in the imagination of the reporter, and the authorized version of the speech, as the same appears in the official report of the proceedings of the Association, shows that he did not advise that morphine should be administered in quantities so large as to hasten death, but only for the purpose of relieving pain, which is the general practice of physicians." We congratulate Dr. Knopf upon his success in bringing to terms the promulgators of this false report.

What is the Matter with the Chicago Doctors?

The Weekly Bulletin of the Chicago Department of Health for November 28 says: "The medical profession is suffering from overcrowding. The condition is patent. They are writhing under it, and they grasp at remedies. It is unfortunate that this small group hit upon contagion in their blind groping and narrow view. The community demands protection. Each year sees the standard higher. Now that politicians, the clergy, and all society is enlisting to fight preventable diseases, it is unfortunate that even a small group of doctors should enlist under other banners. Of course, the medical profession in the main is for the right now, as always." This is terrible, and mysterious as well. Are the Chicago doctors spreading contagion in order to make patients? If not, what are they doing? The Three Guardsmen, Lieutenants U. S. A. Medical Corps Reserve, who conserve the morals of the A. M. A., should get busy.

News of the Week

Tuberculosis Exhibit.—The exhibit at the Museum of Natural History, New York, has proved very popular, and already many thousands have viewed it. An interesting meeting was that on the evening of December 4, when the physicians of the city were addressed by Dr. Simon Flexner, who spoke of the possibility of securing immunity against tuberculosis, and by others. The following is the official record of attendance for the first week, beginning Monday, November 30, the day the exhibit opened: Monday, 10,068; Tuesday, 14,199; Wednesday, 13,919; Thursday, 14,102; Friday, 18,141; Saturday, 29,809; Sunday, 43,713. Total, 143,951.

A Renewed Antivivisection Campaign.—The Committees on Legislation (Frank Van Fleet, Chairman) and on Experimental Medicine (Joseph D. Bryant, Chairman; John G. Curtis, Secretary), of the Medical Society of the State of New York, have issued the following notice to the practitioners of medicine of the State of New York: "The Society for the Prevention and Abuse in Animal Experimentation last year caused to be introduced into the Legislature of this State a bill seriously restricting experiments on living animals. The above named society now enters the field again and proposes another bill of the same general character as that of last year. The Medical Society of the State, through its committees on legislation and experimental medicine, successfully opposed the passage of last year's measure. Acting under the resolution referring to animal experimentation, which was passed at the last annual meeting of the State Society, its committees on legislation and experimental medicine will oppose the passage of the proposed bill. We therefore urge all members of the medical profession to disapprove the measure and on its introduction into the Legislature, to work in all legitimate ways for its defeat. Specific objections to it will be presented later."

Faculty Changes at Columbia.—Two retirements from the Faculty of the College of Physicians and Surgeons, Columbia University, New York, have just been announced. The Professor of Physiology, Dr. John G. Curtis, and the Professor of Pathology, Dr. T. Mitchell Prudden, have resigned to take effect on July 1, 1909. Prof. Curtis is the senior member of the Faculty, his connection with the college dating back to 1870. Dr. Prudden was appointed the first professor of pathology in

1897, his connection with the college having begun in 1878.

Birth Rate in New York.—The recent alarming statements in regard to the birth rate in the United States have called forth a counter statement to the effect that the birth rate in New York is remarkably high, far exceeding the death rate. It is thought that the foreign-born population with its large families is to be credited with this keeping up of the rate.

Reception to Delegates.—The delegates to the annual convention of Sanitary Officers of New York State, held at Albany last week, were received by Governor Hughes in the Executive Chamber on December 2, being introduced by Commissioner Porter. Governor Hughes, in addressing the delegates, said that questions of public health were destined to receive a great deal more attention in the next few years than they had in the past, since the great importance of preventing the spread of infection and disease was becoming more widely realized.

Typhoid Fever in Pennsylvania.—A serious epidemic of typhoid fever has been reported from Reading, Pa., where over four hundred persons are said to be ill of the disease. The State Board of Health has been called upon to aid in overcoming the epidemic, which is thought to be due entirely to the unfiltered and unwholesome water furnished to the city from Maiden Creek.

War on Diphtheria.—After a separation of a quarter of a century, the Health and Police departments of the city of Chicago have been reunited in an offensive and defensive alliance for a perpetual war on disease in general and ten years' war on diphtheria in particular. The new scheme of operation provides for the keeping of culture tubes and antitoxin at the police stations. A physician reporting a case of diphtheria will receive a culture tube through a policeman. After the culture is taken the police will forward it to the laboratory for examination, and will notify the physician of the result and of the amount of antitoxin which the examination has determined to be necessary.

Cancer Research.—An investigation into the cause of cancer and its possible prevention and cure has been begun in the College of Physicians and Surgeons, New York, under the direction of a committee consisting of Dr. Samuel W. Lambert, Dean, Dr. William J. Gies, Professor of Biological Chemistry, Dr. Philip Hanson Hiss, Jr., Professor of Bacteriology, Dr. Francis Carter Wood, Professor of Clinical Pathology, Dr. Gary N. Calkins, Professor of Protozoology, and Dr. Eugene H. Pool, Instructor in the Department of Surgery.

Death of a Centenarian.—Catherine Van Allen, the oldest resident of Oneida County, New York, died recently at the age of 102 years. Her father was a full-blooded Mohawk Indian, and her mother a mixture of Indian and negro. One of her uncles was said to have lived to be 115 years old.

Open Air Schools.—London is experimenting with open air schools, the session being from June 1 to October 31. Last summer the appropriation provided for only one, but its success was so great that next year three schools will be in session. Seventy-five children will be accommodated in each. Shelter is provided for unpleasant weather as well as for a part of each day, but the greater part of the time is to be spent in the open. The physical improvement among the children attending the school last summer was said to be very marked. The pupils are from the poorer classes and most of them are quite small; they have their meals at the school and spend the entire day there.

Blaze in Hospital.—A small fire in the basement of the building occupied by the New York Medical College and Hospital for Women was prevented from becoming serious by the good work of the superintendent, physicians, and nurses, and the thirty-five patients in the hospital were not alarmed.

Fees at Bellevue.—The rule of Bellevue Hospital to charge $1.50 a day to any patient who has more than $50 in his possession when he is admitted, has again been called in question, and a bill is to be introduced in the next Legislature providing that residents of the city admitted to Bellevue and the Allied Hospital shall be treated free of charge, and that no money in the possession of these patients shall be taken from them and charged to treatment. The rule was adopted two years ago to prevent persons able to pay from getting free treatment. The city charter already provides for the reception into the hospital of persons not residents of the city and the payment by them of such sums as may be fixed upon by the Board of Trustees.

Hebrew Infant Asylum.—Plans have been filed with the building department for the new home of the Hebrew Orphan Asylum, which is to be erected on a plot at Aqueduct Avenue and Kingsbridge Road, New York. The building will be four stories high, of ornamental brick and stone, with a frontage of 169 feet and a depth of 102 feet, and will cost $320,000.

The Chicago Presbyterian Hospital Annex was formally opened last week. The buildings dedicated were the private pavilion and a large powerhouse. The latter will greatly increase the efficiency of the whole hospital, and the private rooms in the new annex are expected to furnish enough revenue to enable the hospital to nearly double its free list. The private pavilion is six stories high, of the most modern brick, steel, and reinforced concrete sanitary construction, and with the latest conveniences. One of its features is the sun parlor on the roof, half of which is enclosed in glass and half open, so that patients may enjoy the sun in any kind of weather.

New York Red Cross.—The New York State Branch of the American National Red Cross at its annual meeting on November 24, elected the following officers for the ensuing year: *President*, William Cary Sanger; *Vice-President*, Elihu Root; *Secretary*, Mrs. William Kinnicutt Draper; *Treasurer*, Jacob H. Schiff; *Executive Committee*, the Governor of the State, C. H. Dodge, G. C. Boldt, Samuel Woolverton, W. C. Reick, R. W. De Forest, Gherardi Davis, Mrs. T. R. French, Mrs. John Birdsall, and Mrs. F. H. Potter. The Branch adopted the Red Cross Christmas stamp as a means of raising funds for its peace work among patients with tuberculosis, and recommended its general use.

New Medical Association.—Plans are under way for the organization of a Northwest Association to meet in Seattle in July of next year, and to comprise approximately 1,500 physicians who are members of the State Associations of Washington, Oregon, Idaho, and British Columbia. The Alaska-Yukon-Pacific Exposition, to be held in Seattle next summer, will draw large numbers of people to that city, and add greatly to the interest of the meetings of the Association.

Dr. Charles J. Finlay, since 1902 chief of the Department of Sanitation in Havana, Cuba, has

requested to be retired from active service on account of his advanced age, and has been appointed by Governor Magoon, honorary chief of the department in recognition of his services. Through the French Minister he has also been decorated with the Order of the Legion of Honor in recognition of his discovery of the rôle of the stegomyia mosquito in the propagation of yellow fever.

Last Medicine Man.—Hut-cho Nu-pah, last of the medicine men of the Five Tribes, died recently in Oklahoma at the age of 95 years. The influence of this old Indian, who was supposed to possess supernatural healing powers, was so great that even when he was condemned to death on the capture of his faction during the rebellion among the Creeks in 880, no one could be found to be his executioner. With his adherents dead and himself in prison, he was able to compel the election of a friend as chief, and received a pardon. There are no more medicine men in the Five Tribes.

The Annual Plea for the Army Canteen.—Brig.-Gen. George B. Davis, Judge Advocate General of the Army, in his annual report indirectly recommends the reestablishment of the canteen. He says: "The operation of the act of February 2, 1901, prohibiting the sale of beer in any post exchange, has undoubtedly caused the location near military reservations of resorts for the sale of intoxicating liquors, and which pander to the appetites and passions of those enlisted men who, largely by reason of the prohibition in question, frequent the same. These resorts are beyond the control of the military authorities and their presence near the military posts is highly detrimental to military discipline. From an examination of the evidence in general courts-martial trials made by this office," he continues, "it is evident that a large percentage of the offenses, although not charged as drunkenness, is either directly or indirectly traceable to the use of intoxicating liquors."

The American National Red Cross.—At the annual meeting of the Red Cross Society in Washington on December 8, Mr. Taft was unanimously reelected president. Mrs. Russell Sage and Dr. Louis Klopsch were elected honorary members. Officers for the ensuing year were elected as follows: *President,* William H. Taft; *Vice-President,* R. W. De Forest of New York; *Treasurer,* Beekman Winthrop, Assistant Secretary of the Treasury; *Counselor,* Henry M. Hoyt, United States Solicitor General; *Secretary,* Charles L. Magee.

The Brookfield (Mass.) Medical Club, at its regular meeting at West Brookfield on November 18, elected the following officers for the ensuing year: *President,* Dr. A. F. Peck; *Vice-President,* Dr. Lawrence T. Newhall, Brookfield; *Secretary and Treasurer,* Dr. W. J. Heffner, Gilbertville; *Executive Committee,* Dr. M. W. Pearson, Ware; Dr. Charles A. Blake, West Brookfield, Dr. A. H. Prouty, North Brookfield.

The Whitman County (Wash.) Medical Society, at its annual meeting on November 16, elected the following officers: *President,* Dr. W. B. Palamountain; *Vice-President,* Dr. A. J. Nelson; *Secretary and Treasurer,* Dr. Else.

The Stratford County (N. H.) Medical Society, at its one hundredth annual meeting, held at Dover on October 29, elected the following officers: *President,* Dr. Lewis W. Flanders, Dover; *Vice-President,* Dr. T. J. Dougherty, Somersworth; *Secretary,* Dr. H. O. Chesley, Dover; *Treasurer,* Dr. A. N. Smith, Dover.

The Pasadena Branch of the Los Angeles (Cal.) Medical Society held its annual meeting on November 16, at which the following officers were elected: *President,* Dr. A. T. Newcomb; *Secretary,* Dr. J. E. Janes.

The Fifth District Medical Society of Ohio at its fifth annual meeting on November 16, in Cincinnati, elected the following officers for the ensuing year: *President,* Dr. Hugh Death, Franklin, O.; *Vice-President,* Dr. J. C. Larkin, Hillsboro, O., and *Secretary,* Dr. John Miller, Cincinnati.

The Late Dr. Henry Denton Nicoll.—The Medical Board of the Woman's Hospital, at a recent meeting, adopted the following minute and resolution: "In the recent death of Dr. Nicoll on October 26 at New Windsor, New York, in the sixty-fifth year of his life, there has been removed from the medical profession of New York City one of its leading practitioners. His active work in the Woman's Hospital, with which he was connected for thirty years as visiting surgeon and as consulting surgeon, also his valuable services in the organization and administration of the New York Infant Asylum, will make his loss keenly felt by both of these institutions. During the last few years of his life Dr. Nicoll had to an extent retired from active practice, though still giving unstintingly to the above institutions his mature counsel and warm interest. During these later years he enthusiastically joined with others in the vicinity of his country home at New Windsor, New York, in surrounding the young men and young women of that locality with elevating and refining influences. In such a capacity he was the President of the Law and Order League of New Windsor Township, and in the village of Moodna, near his country home, he built a chapel, the center of the practical uplifting and of the moral work of the community.

"Resolved, That in the death of Dr. Nicoll the Woman's Hospital has lost one who uniformly placed its interests above that of self, considering at all times its welfare.

"That in the loss of his prudent, conservative counsel the Medical Board feel deeply his death and recognize that in his faithful administration of the office of President it has lost a devoted friend, a wise adviser and one whose influence has been and will be felt throughout the Hospital.

"That as a small token of our love and admiration for our colleague, we present this to the Governing Board of the Hospital and direct that a copy be sent to the Medical Journals of New York City for publication, and also to the family of Dr. Nicoll.

"(Signed) Clement Cleveland, B. McE. Emmet, P. F. Chambers, J. Riddle Goffe, LeRoy Broun, Austin Flint, Jr."

Obituary Notes.— Dr. William Whitfield Miller, Assistant Surgeon, U. S. Public Health and Marine-Hospital Service, died of typhoid fever in Providence Hospital, Washington, November 24, 1908, after an illness of eight weeks. He was born at Water Valley, Miss., June 26, 1880. He studied medicine in the Medical Department of the University of Virginia, and received his degree in 1901. After graduation he took a special course in pathology at Harvard University. Later he went to New York and was assistant in bacteriology in Columbia University, and assistant pathologist in Roosevelt Hospital. Subsequently he served for two years on the resident staff of that hospital. In 1905 he went to Memphis to engage in private practice, and was demonstrator of pathology at the College of

Physicians and Surgeons in that city. Dr. Miller was commissioned an Assistant Surgeon in the U. S. Public Health and Marine-Hospital Service September 4, 1906. In August, 1907, he was assigned to the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Washington, D. C. In connection with the investigation of the origin and prevalence of typhoid fever in the District of Columbia he made many of the bacteriological examinations of water and milk, and during the last summer made over a thousand bacteriological examinations in the search for bacillus carriers. He discovered a pathogenic hemogregarine in the blood of white rats, and described its life cycle and the mechanism of infection by the digestive tract. A preliminary note of this discovery was published in the weekly Public Health Reports, July 24, 1908. The completed work forms Hygienic Laboratory Bulletin No. 46. Dr. Miller was married in 1906, and leaves a widow and infant daughter. Personally he was modest, had an exceptionally winning and lovable disposition, and commanded the respect and affectionate regard of those with whom he was intimately associated.

Dr. John T. Wheeler, Director of the Division of Communicable Diseases of the New York State Department of Health, died at his home in Chatham, N. Y., on December 3, aged 58 years. Dr. Wheeler was graduated from Bellevue Medical College in 1876. He was vice-president of the State Medical Society, and a member of the local Board of Education, on which he had served for twenty-seven years.

Dr. Louis P. Knapp of Hackensack, N. J., died at his home on December 3, after a short illness. Dr. Knapp was born in 1868, and was graduated from the College of Physicians and Surgeons, New York, in 1891, after which he studied in Berlin and Heidelberg.

Dr. Ella A. Jennings of Brooklyn, New York, well known as an editor, author, and lecturer, died on November 30, at the King's County Hospital. Dr. Jennings, who was by birth a Canadian, received her medical education in New York, graduating in 1878. Shortly after she founded the Provident Dispensaries which during the time they were in existence treated more than half a million patients. For a number of years she also edited the magazine, *Humanity and Life,* and lectured on health subjects.

Dr. Frank L. Adams of Oakland, California, died suddenly on November 20, of angina pectoris, aged 50 years. Dr. Adams was graduated from Cooper Medical College, San Francisco, in 1883, and after one year in a hospital, began the practice of medicine in Oakland. He was one of the founders, president, and professor of clinical surgery of the Oakland College of Medicine and Surgery, a member of the American Medical Association and of the Medical Society of the State of California, and president of the Oakland Board of Health.

Dr. John Homer of Newburyport, Massachusetts, died at his home on November 24, aged 72 years. Dr. Homer was graduated from Harvard Medical College in 1865, and was a member of the Massachusetts State Medical Association and of the State Pharmaceutical Association.

Dr. Walter A. Bacon of Central Falls, R. I., died in Pawtucket on November 22, after a long illness, in his thirty-sixth year.

Dr. John C. Hupp of Wheeling, West Virginia, died at his home on November 18, aged 88 years. Dr. Hupp was graduated from Jefferson Medical College, Philadelphia, in 1847. He was a member of the American Medical Association, and of the State Society, city physician, and secretary of the Wheeling Board of Health in 1864; president of the Ohio County Board of Supervisors from 1863 to 1866; a member of the district Board of Education from 1873 to 1879, and consulting physician to the city hospital.

Dr. George R. Graham of Baltimore, Maryland, died on November 19 of pneumonia, aged 64 years. Dr. Graham was graduated from the University of Maryland in 1883, and was a member of the Medical and Chirurgical Faculty of Maryland, a veteran of the Civil War, and a member of the Board of United States Pension Examiners of Baltimore since 1889.

Correspondence.

THE FOURTH IMPORTANT SYMPTOM IN EXOPHTHALMIC GOITER.

To the Editor of the Medical Record:

Sir:—In addition to the three chief symptoms that are regarded as pathognomonic of exophthalmic goiter, there is a fourth whose presence is no less constant than the three now generally recognized and which are as follows: (a) the swelling at the root of the neck; (b) the protrusion of the eyeballs; (c) the cardiac irritability, often very marked.

This fourth manifestation was first observed and described by Dr. Louise Fisk-Bryson of New York as far back as 1888, and the only reference to it in the literature that has come to my notice is found in Dana's work on "Nervous Diseases."

This symptom is inability on the part of the patient to expand the chest under forced inspiration more than three-quarters of an inch to an inch. Since my attention was first called to the matter, about eighteen years ago, I have had occasion to put it to the test in more than thirty well-marked cases—many of these being at the Craig Colony for Epileptics—and it has been a distinct feature in every case without exception. The most recent case was that of an Italian woman of about 40 years, who was referred to me by Dr. Julius Friedenwald of this city. Careful measurement next the skin showed three-quarters of an inch expansion only. Among the thirty odd cases the greatest expansion was 1¼ inches.

Baltimore, Md.

William P. Spratling, M.D.,
Professor of Nervous Diseases,
College of Physicians and Surgeons.

OUR LONDON LETTER.

(From Our Special Correspondent.)

NAVAL REPORT—MITCHELL BANKS LECTURE—EXTENSIVE OPERATIONS FOR CANCER—CULTURES OF LACTIC ACID BACILLI—TRELOAR CRIPPLES' HOME—ALBUMIN AND RENAL DISEASES—SLEEPING SICKNESS.

London, November 20, 1908.

The "Blue Book," dealing with the health of the navy for 1907, was issued last week, and shows further improvement on that of the previous year. The average loss of service has fallen to 10.46 days per man. The total cases of disease and injury are 85.23 per 1,000 less than the average for five years. There was a marked decrease of malarial cases, partly due to the use of mosquito curtains and the prophylactic use of quinine in malarial districts. An investigation of ear cases was made in the home division to see if a connection with gun fire could be traced. Though the result was negative as far as disability goes, it is remarked that it has been previously shown that a certain degree of deafness or a decrease in the acuteness of hearing, especially in a crowd, is noticeable among men who have been exposed to the shock of gun fire, and this greater in proportion to the duration of the fire. Officers and men should, therefore, the report says, as far as practicable, take advantage of one of the methods of ear protection now in use. On this I may remark that the facts may be added to those which are employed to urge the abatement of noises in our large towns.

The Mitchell Banks memorial lecture was delivered on the 3d inst. by Mr. Henry Morris, president of the Royal College of Surgeons, on the council of which the subject of the memorial lecture served for eight

years. The name of Mitchell Banks is known wherever modern surgeons are found. Those who knew him well speak of his attractive personality, his impressive earnestness as a teacher and remarkable attainments. Your readers will remember his address at Montreal in 1897, when his views on cancer had been accepted by those who long opposed them, and accepted cordially when offered as original by German surgeons, though they had been held for a generation by his own countrymen. On the radical cure of hernia and on urethral fever also Banks did splendid work, to which Mr. Morris did justice in his lecture, but I will confine my remarks to what he effected in regard to the operative treatment of cancer of the breast, as it illustrates the way in which a prophet gets no honor in his own country, as well as the greatness of his surgical acumen, operative skill and perseverance in a proceeding of the value of which he was firmly convinced. Banks made no undue claim to originality. From the first he referred to Charles Moore's historic paper on "Inadequate Operations in Cancer," published in 1867, as one that "made me think." And he thought to good purpose. He adopted the routine removal of the whole of the paths and lymphatic contents of the axilla, and the skin covering the mammary gland, as well as very wide resection of the fascia connected with the muscles upon which the gland rests. He arrived, continued Mr. Morris, at his own conclusions through witnessing many imperfect operations and by observing the frequency of early recurrences and the situations and tissues in which they appeared. He brought no fresh microscopical information to bear, but his conviction as to the proper operative procedure was entirely an induction from clinical experience, and this quite apart from the advances in aseptic and antiseptic surgery, which have given others the courage to follow him. His first paper was in 1877. Gross of Philadelphia supported the more extensive removal in his work on "Tumors of the Breast" (1880). In 1882 Banks communicated a paper to the British Medical Association, with notes of forty-six cases. In 1887 he brought the subject before the Harveian Society of London and reported eighty-two operations. Prominent surgeons present questioned the practice and others held by the old views, notwithstanding the authority of Banks and Gross. The constitutional theory of cancer to which the elders clung receded before the microbic theory and in 1889-1892 additions to our knowledge of the minute anatomy of the lymphatics of the breast and pectoral fascia were published, showing that the entire mammary gland was not removed in the usual operations. In 1900 Banks delivered the Lettsonian lectures and gave analyses of his 213 operations. In them, too, "with the courtesy which softens controversy, but with the candor and straightforwardness which command respect," he commented on the work of others and quietly remarked that, in justice to himself and the memory of his friend Gross, he thought it rather hard that a group of surgeons should date this treatment to the labors of Haidenhain and themselves. Mr. Morris hereupon quoted the appreciation of Jacobson, who said that if honor is to be given where due a fair share must fall to Banks. Mr. Morris touched briefly his own practice, which has followed that of Moore and De Morgan, but adding, "for many years I have been in the habit of removing the fascia over the serratus magnus and often a layer, and, on occasions, in places, the whole thickness of the muscle." He had also, he said, as a teacher at the hospital and examiner at the Royal Colleges and the University, pointed out to students and candidates that a good half of the gland is in contact with the serratus magnus, and only the rest with the pectoralis major, for he had found a general impression that the mamma rested entirely on the pectoralis. He thought too much importance is attached to clearing the axilla from above downwards, the essential precaution being to avoid cutting across lymphatics or leaving behind any glands or fatty tissue. "Nor do I believe," continued the lecturer, "in the danger of making a direct cut into, or even of removing a slice from, a cancer tumor, for the purpose of diagnosis, before the operation is commenced, provided the wound is stuffed with a little aseptic gauze and covered with collodion previous to proceeding with the excision, and the knife used for the incision is laid aside. The danger lies in inadvertently dividing affected infiltrated tissues, which was so frequently done in the days of inadequate operative measures."

On Friday last a case of pernicious anemia was shown in the Clinical Section of the Royal Society of Medicine, which led to some remarks on the use of cultures of lactic acid bacilli, of which various preparations are being tried for rather different conditions. The case itself is interesting from several points of view. It is that of a man of 34, admitted to hospital October 10, 1907, with tenderness over colon and extreme anemia. There were enormous numbers of *Streptococcus fæcalis* and Gaertner's bacilli in the feces. Liver and spleen not enlarged. The patient had suffered from diarrhea for several years, but kept at work until palpitation and dyspnea came on. Blood count 1,468,000 per c.mm. red corpuscles, leucocytes 3,500. He was treated four months with arsenic, intestinal antiseptics, vaccines of streptococci, etc., after which, January 23, 1908, the blood count was 1,568,000 to 3,000 per c.mm. He was put on a culture of lactic acid bacilli from January 19 to March 2. On March 19 the red corpuscles were 1,725,000, the white 1,750. The lactic bacilli were omitted a month, when the reds fell to 1,392,000. The lactic bacilli were again given and on April 23 the reds were 1,000,000. From then the remedy was continued to the end of September, when the count gave 4,800,000, white 6,400.

Dr. Herschell pointed out the importance of the activity of the ferment being ascertained. Many of the preparations are inert, some perhaps injurious. Most of them are made by drying a milk culture of the bacillus and in the lengthy process the chances of contaminations are innumerable. They do not readily dissolve and so some makers have added effervescing powders. Moreover, instead of containing the true Bulgarian bacillus, which can most readily be acclimatized in the intestine, some tablets are made up with rennet for curdling the milk, and one of the weaker lactic bacilli which are at once destroyed in the stomach. A tablet should dissolve in three or four minutes in water, be neutral, odorless, and when incubated on Cohendy's milk serum should give a culture of Bulgarian bacillus, with perhaps one other organism added to improve the flavor of the milk curdled by it.

Dr. Gordon Dill, who showed the case, agreed with Dr. Herschell and said he was now examining the various products on the market, and many of them he had already found to be inert.

Sir William Treloar, when Lord Mayor in 1907, devoted much labor to the establishment of an institution for poor cripples, in whose welfare he had long been interested. He is now appealing for subscriptions to send a Christmas dinner to many, a custom he has observed for several years. This is as a little treat for them in their own homes, but the institution he has set on foot is a kind of home and college in the country, where cases which cannot be dealt with in children's or orthopedic hospitals can be received and if possible benefited. In October Sir William received a party of medical men at his institution at Alton. Dr. Biscol gave an address on cripples, in which he pointed out how much we owe to Percival Pott, whose acumen was so remarkable, and, as he lived 129 years ago, had no help from the scientific instruments of research now at our disposal. The visitors were guided over the "Home and College" by Dr. Gauvain. The buildings are very simple, in fact, they were constructed originally for a military hospital, but have been reroofed and altered and largely equipped, so that in a few months they may be brought up to date. The notable features in going over the grounds are the large amount of cubical space in the pavilions, the verandas with covering, the system of heating, effected by a couple of engines of 80 horsepower, the pleasant views and appearance of forethought for the comfort of patients.

Professor Foxwell of Birmingham says it is fallacious to regard albumin in the urine as always indicating serious disease. The amount of urea excreted is of greater import, as the normal relation between the intake or output of nitrogen is essential. The subjects of surgical operations which may properly be delayed should be under observation for at least a fortnight, the urine being daily examined and the percentage of urea estimated. This he regards as the only way of assuring onself that a patient is fit to undergo an important operation without the risk of fatal postoperative renal trouble. Pathological reports on the kidney are apt to be misleading if sections are only taken from the parts which appear to be diseased and no attention given to the rest of the organ, which may look healthy.

The text was published on Wednesday of an agreement and protocol between this country and Germany as to sleeping sickness. It provides that each Government shall take such steps as are practicable to prevent natives of their respective domains who may be suffering from sleeping sickness from passing into each other's territories. The agreement also deals with notification and is to remain in force for three years.

Progress of Medical Science.

Boston Medicol and Surgical Journal, November 26, 1908.

The Relation Between Human and Animal Tuberculosis, with Special Reference to the Question of the Transformation of Human and Other Types of the Tubercle Bacillus.—Theobald Smith discusses the differences between the human and bovine bacillus. He notes that bovine infections are essentially alimentary in origin and localization and largely restricted to childhood. Much energy has been expended on the study of transformation of type between the two organisms. Smith does not think that the time has yet come for us to state positively that one type can or cannot be transformed into the other. Evidence is conflicting. We may safely take the ground that any regular or wholesale transformation conversion of bovine into human bacilli in the human body is out of the question. We know that human tuberculosis can exist without the aid of bovine tuberculosis and an important aid in the final solution of this question will be the study of human tuberculosis in those regions in which the bovine disease does not exist, and into which dairy products are not shipped from regions in which the bovine disease does exist. The author suggests, as pertinent line of inquiry and experimentation, the following: (1) A continued study of cases of pulmonary tuberculosis with the view of ascertaining if the bovine type is exclusively responsible for any cases in which a regular discharge of tubercle bacilli takes place. (2) A further study of the transformability of tubercle bacilli by passage of tissues containing bacilli and guarded from all possible sources of error, together with a most careful examination of the nature and permanency of the changes induced. (3) A study of the varieties of tubercle bacilli among populations where dairy products coming from tuberculous cattle can be excluded as a contribntory cause.

The Comparative Value of Change of Climate and of Treatment in Sanatoria Near at Hand in Cases of Pulmonary Tuberculosis.—C. E. Edson advances the following propositions: As outdoor life is one of the essential aids to the cure of pulmonary tuberculosis. The climate surroundings of the patient have to be considered. Consciously or unconsciously we select a climate for every patient, even when we keep him at home. That climate is most favorable which most readily permits an outdoor life. A change of climate will be of advantage to a patient if we can thereby place him under meteorologic conditions which, to a greater degree than before, and more constantly, permit him to lead the necessary outdoor life with ease, safety, and economy of vital expenditure. The accompanying change of scene and surroundings may be expected to act advantageously in an indirect way. In making any proposed change of climate attention must be given to the facilities in the new region for obtaining suitable food, accommodation, care, and medical supervision. If these conditions can be as well met as at home in a better climate, the patient should be advised to make the change. If the patient's financial, social, or domestic circumstances are such that he cannot in the new climate secure proper and sufficient food, accommodation, care, and medical attention, or if his mental attitude is such as to make separation from home inadvisable, he should not be sent away.

New York Medical Journal, November 28, 1908.

A New Method for the Transfusion of Blood.—A preliminary communication on this subject is presented by R. T. Frank, who illustrates his ideas by several diagrams. In essence the plan strives to do away with the delay and annoyance in freeing the radial artery of the donor of the blood, ligation of minute side branches, stripping off of the adventitia, suturing etc., and the dissecting out of the vein of the recipient, cutting it across, etc. A portion of a vessel from some animal (dog's carotid) is prepared beforehand and used as a connecting vascular bridge. Thus far the author's experience has been entirely with animals in whom the procedure seems entirely feasible.

Adiposis Dolorosa with Involvement of the Large Nerve Trunks.—One case, that of a woman of 45 years of age is reported by P. N. Bergeron. The features of the case were the marked pain elicited by pressure over the nerve trunks, the sensitiveness of all the subcutaneous adipose tissue and the presence of so few circumscribed masses of adipose tissue. The patient's present illness was of three years' duration and began with pain in the outer surface of the right arm and shoulder. Later it spread to the forearm, hand, outer right thigh, leg, and foot, later in the left leg. In two or three months general abnormal sensations appeared and some loss of power in the arms and hands with various systemic disturbances. There were circumscribed collections of adipose tissue about the bursæ of the elbow joint and two right metacarpophalangeal joints of the right hand. The subcutaneous tissue lacked firmness and imparted to the palpating finger the impression of masses of worms. There was no apparent muscular atrophy though all the muscles seemed weak. Marked improvement followed the use of six grains of thyroid extract and twenty-five grains of aspirin daily, with light massage. The case is still under treatment.

Journal of the American Medical Association, November 28, 1908.

Causes of Eczema.—M. B. Hartzell rejects other than local causes for eczema in most cases. It seems to him that eczema may occur in any one if the local causal irritation is prolonged or sufficiently often repeated, as is shown in many cases of occupation eczema, in which the skin inflammation appears only after a shorter or longer period of immunity. It is often, moreover, in local eczemas difficult to detect the exciting cause, and he thinks, unless we can entirely exclude such, the assumption of an internal cause is not justified. While he is not prepared to accept the theory of a parasitic origin of the disease, Hartzell is willing to admit an important rôle to microorganisms, which he believes may often transform a simple local inflammation into a chronic eczema. The fact that antiseptic substances, like tar, resorcin, etc., are often of great service, supports this view. He does not deny that eczema may arise from causes within the body, but he thinks that by far the greater proportion of cases arise from external irritation. He emphasizes the fact that our knowledge of the internal causes is extremely shadowy and ill defined, seldom accurate enough to afford any rational basis for internal treatment. All physicians have seen eczema get well under local treatment, but few, he thinks, would expect very good results from internal treatment.

Abnormal Lactation.—G. Gellhorn reviews the subject of abnormal lactation, referring first to the secretion from the mammary glands sometimes observed in newborn infants, and of which a satisfactory explanation has not yet been given. The theories of Starling and of Halban that it is due to some chemical substance formed during pregnancy are noticed but not fully accepted by the author. Whatever the cause, the phenomenon soon disappears and the glandular activity only reappears at puberty. The appearance of the mammary secretion at menstruation, for which it may even be substituted, and the full establishment of the function of lactation occasionally in virgins, old women, and even in males has been observed both in man and in the lower animals. Prolonged lactation, its occurrence in association with false pregnancy and with pathological conditions, operations, and the close relations of the uterus and ovaries to the function are noticed at length, and there are a number of striking illustrative cases of the different abnormal conditions reported in the text. Gellhorn, from the experiments of Ribbert and of Basch, concludes that it may be accepted as fairly established that the specific function of the mammary gland is independent of the nervous system. The object of the paper is stated by its author to be to call attention to the fact that further accurate observations are still needed to settle some of the questions regarding the physiology and pathology of this function. Especially he mentions the connection between lactation and certain pathological states as calling for careful consideration, and hopes that a discussion on this subject will bring out facts observed in this country. Aside from its scientific interest, the etiology of the lactal secretion has a considerable practical importance, and Gellhorn specially mentions the importance of a thorough knowledge of the atypical functioning of these organs to the expert in medicolegal practice.

Mercury in Tuberculosis.—B. L. Wright remarks on the resemblance between tuberculosis and syphilis in their pathological histology, and suggests that the authentic cases of syphilis in which Lustgarten and others found his bacillus were complicated with tuberculosis and that the germs found were really tubercle bacilli. That these organisms disappeared under mercury wat at that time a strong argument that they were the bacilli of syphilis. Now that we know the real organism of syphilis, it would seem probable that the disappearance of the Lustgarten bacillus under mercury occurred because this drug had an antituberculous as well as antisyphilitic action. Wright's attention was first drawn to the action of mercury in tuberculosis while on duty in the U. S. Naval Hospital, Pensacola, in the spring of 1905. Mercury was employed in several cases with a mixed tuberculous and specific infection with remarkable results, the tubercle bacilli disappearing and the lungs showing marked improvement on physical examination. This suggested an antituberculous action of mercury which seemed to him on reflection to be reasonable, and since assignment to the hospital at New Fort Lyon, Colo., he has resumed the experiment of this medication, now giving mercury by deep muscular injections to avoid the gastrointestinal symptoms which were an annoyance when it was exhibited by the mouth. Since its use the death rate

has been reduced from 11.29 per cent. in the first quarter of 1908 to 4.76 per cent. in the second quarter, and 0.95 per cent. in the third quarter of the year ending September 30. Considering the fact that 60 per cent. of the patients were advanced cases, this result seems the more remarkable. Of the total number of patients under treatment 85.5 per cent. have been improved and there have been two cases counted as cures. Two officers, not included in the above, have recovered so far as to return to duty and are holding their improvement. Of the remaining 13.5 per cent., 2 patients have held their own, 6 have failed and one has died. The contrast between the patients who refused the mercury treatment and those who received it, all under the same conditions otherwise, was very marked, only 33 per cent. of those refusing having improved and this chiefly in the general condition rather than in the pulmonary lesions. Wright believes that mercury acts as a tonic and as a bactericide in the blood. His method is to give an injection of 1-5 grain of hydrargyrum succinimidum every other day until thirty injections have been given. Then the patient is placed for two weeks on iodide of potassium, followed by a week without medication. Then the mercury is resumed with slightly reduced doses for another thirty days, and so on. The drug should never be pushed to the point of salivation and the doses given above are not absolute, but must be determined by close observation of each individual patient.

Rupture of the Urethra.—Rexwald Brown insists on the importance of avoiding the use of the catheter or sound as a diagnostic or therapeutic measure in case of traumatic rupture of the urethra. This is not so much on account of the danger of making false passages, an accident that is serious enough to be guarded against for its own sake, but chiefly on account of the danger of infection. The passage of even a sterile catheter along the urethra carries the microorganisms that have their habitat there along to the laceration and increases their virulence. Minor grades of urethral tear, causing only slight hemorrhage and little pain or difficulty in micturition, call for only watchful expectant treatment. Nature will probably repair the injury. In severer cases, where there is great pain, very difficult or impossible urination, hypogastric distress and signs of hemorrhage, immediate simple urethrotomy on a grooved staff should be performed. The two ends of the torn urethra are approximated over a catheter with catgut sutures and the catheter fastened, to be retained a few days. The perineal wound should then be closed around a drainage tube, to remain forty-eight or sixty hours. If several hours have elapsed before the case is seen, and there is great distension and distress and the patient is in a serious condition, incise the perineum deeply at once and put in tube drainage. After several days, when the parts have almost reached normal again, the torn urethra can be repaired as above. Dixon's advise of immediate suprapubic cystotomy with retrograde catheterization seems to the author hardly advisable, save in very rare cases, simple perineal section being usually sufficient as an immediate operation, with perhaps the shelling out of clots.

Lumbar Appendicectomy.—C. G. Levison reports two cases in which the appendix occupied a retrocolic position and was operated on by the lumbar route. He says the rule to be observed in the surgery of the appendix is to make the incision correspond to its localization, and McBurney's point must sometimes be ignored to a certain extent. When the exudate is situated in the loin, the diagnosis of a retrocecal appendix should be made, excluding as far as possible paranephritic abscess and gall-bladder disease. If low down, the differentiation from pelvic disease should be made. Naturally, the classic form should be first thought of. He finds this subject almost completely overlooked in the literature. It is his conviction that in cases in which the appendix cannot be found at operation, it is situated in the retrocecal space. This has been his experience in several cases, and he believes that other surgeons must have had the same fortune.

The Lancet, November 21, 1908.

Vicious Circles Associated with Disorders of the Digestive System.—J. B. Hurry groups these circles as follows: (1) Those associated with the mouth as oral sepsis leading to dental disorders and gastrointestinal catarrh with resulting malnutrition. The resulting systemic disturbance will tend to lower local oral resistance and encourage the continuance of infection and absorption. (2) Circles associated with the stomach, as atomic dyspepsia with anemia, weakened peristalsis with hindered absorption from the stomach walls, gastric imitation or catarrh caused by irritating ingesta, etc. (3) Circles associated with the intestine visceral congestion and a failing myocardium with defective peristalsis and fermentation of the ingester with enfeebled nutrition and dyspepsia, etc., intussusception where the vigorous peristalsis of the intussuscipiens increases the length of the invaginated intussusceptum, the descent of a hernia enlarging the ring and thus encouraging redescent, etc. (4) Circles in connection with constipation, and defecation, as dilated rectum encouraging constipation, thread worms encouraging scratching and leading to the catching of the worms or their ova under the nails and conveyance to the mouth and swallowing by the host. When a circle is present a recognition of the reciprocally acting forces will solve many an enigma in obscure disease and pave the way for rational treatment.

The Influence of Heredity in Tuberculosis.—A. Latham's conclusions are as follows: (1) The hereditary transmission of the germ is so infrequent that it is a negligible factor. (2) The incidence of tuberculosis depends in the main on two factors: (a) exposure to infection which in turn is governed by the dose received and the virulence of the particular strain of bacillus, and (b) the undermining of the resistance of the individual by unsanitary conditions and disease. (3) The more adequate the preventive measures taken in any community, the less are the incidence and mortality of the disease. (4) The more adequate the medical treatment, that is, the greater the proportion of persons in whom the disease has been arrested and who have acquired thereby a partial immunity, the less are the mortality and incidence of the disease. (5) As at death, we all or nearly all show evidence of having at some time been infected with tuberculosis, and, as most of us are able to overcome the infection, it is clear that the diminished opportunity for repeated infection brought about by preventive measures and better medical treatment, cannot wholly account for the diminishing incidence and mortality of the disease. (6) There is some evidence to suggest that the diminishing incidence and mortality of the disease may be due in part to a partial immunity inherited in the course of generations from tuberculous ancestors in whom the disease has been cured. (7) The theory that there is an inherited predisposition to tuberculosis is based on insufficient evidence.

Heredity in Cancer.—The paper of E. F. Bashford is largely statistical. The author says if experiment does not as yet support the conception of an inherited predisposition, why does cancer arise in one individual and not in another who has been subjected to the same irritant in the same region of the body? Cancer is primarily circumscribed. Conditions of origin are fundamentally distinct from conditions of mere growth into a tumor. The soil provided by a rat or mouse can be modified in two directions. It can be rendered absolutely unsuitable or more than normally suitable for the growth of transplantable carcinomata and sarcomata. Another form of constitutional influence which is of moment, at any rate in the case of some transplantable tumors, is that the presence of a primary tumor can effect a secondary modification favorable to dissemination and metastasis formation. A tumor can be modified by the influence of the soil. There are, therefore, constitutional conditions which are favorable and others which are unfavorable to the growth of cancer and they can be induced experimentally at will. In conclusion the author says that with nothing but negative evidence of the part played by inherited constitutional conditions before us and with positive evidence of the importance acquired constitutional conditions can play in furthering the growth, and perhaps the development of cancer, we shall more profitably spend our time if we frankly seek to ascertain how they are acquired than if we continue to preach the doctrine that they are inherited and that it is hopeless to contend against them.

Heredity in Diseases of the Nervous System.—W. R. Gowers says that many diseases commonly called "nervous" diseases are really in the nervous system but not of it. Yet there are special growths, such as glioma and certain endotheliomata, which seem to have a predilection for true nervous tissue. But all such affections are so rare that one cannot claim that they are in any sense hereditary. Other diseases, such as sudden cerebral seizures, apoplexy, etc., depend on causes which take their heredity far away from the brain in which the seizure occurs. Heredity may play an important part in the secondary production of chemical agents from organisms acting on somatic processes. Endogenous toxins, as in diabetes, may give definite nervous disturbances. Heredity in nervous diseases seems to work along certain lines. We may have early abiotrophies, a convenient instance of typical form being pseudohypertrophic paralysis. A second class may include the hereditary maladies which begin later in life, after the period of growth is over. Seldom, but yet sometimes remarkably, can heredity be traced in paralysis agitans, tremors, Graves' disease. A third class in which heredity is operative consists of the so-called functional affections. Heredity applies

only to a portion of the cases of epilepsy. Those resulting solely from organic lesions of the brain, from disease, trauma, or difficult birth, are not concerned with heredity.

British Medical Journal, November 21, 1908.

A Specific Skin Eruption in Pneumonia.—F. M. Pope records the case of a young man of twenty years admitted to hospital with a pleurisy and pneumonia of the base of the right lung. He had a temperature of 104° F. and delirium, grew worse for three days, showed a dilated heart, and a crop of papules on the upper back. They were of a deep rose color, circular and about 3 to 4 mm. in diameter, darker than the average typhoid spot, and disappeared completely on pressure. Six days later the first spots were fading and a second crop identical with the first had appeared. The man was now very ill and had extensive consolidation of the base of the left lung. Three days later still the spots were observed to be pustular. A smear of the pus was stained, and the only organisms to be seen were pneumococci. A small abscess behind the right ear was opened on November 3. A culture was made from the pus; the growth consisted of pneumococci and staphylococci. A film taken directly from a pustule on the same day showed also pneumococci and staphylococci. According to the author the eruption seems to resemble that of smallpox to some extent, as it was first papular and then pustular; a vesicular stage was not observed. Infection with staphylococci followed, as often in variola. The abscess appeared too late to be in causal connection with the eruption. The patient made a slow but good recovery.

Pelvic Pathology and Seasickness.—G. V. Elder believes that pelvic abnormalities are at the bottom of many cases of seasickness in women. In the case of a married woman whose stomach had rejected everything for ten days there were no symptoms or signs pointing to a pathological condition, and beyond a "soreness," which could easily be attributed to constant vomiting, she complained of nothing. Nutrient enemata were resorted to in the hope of alleviating also the great thirst which existed, but even they set up a sort of reflex return. On the twelfth day, while making her drink some thin water gruel so as to have something in her stomach to be "sick" with, the author saw her actually vomit for the first time, and was immediately struck by its character—typically cerebral. Being quite certain that no cerebral mischief existed, she was asked, and consented, to have the pelvis examined bimanually, when the following conditions were found: Extreme congestion of parts, a badly torn cervix, an ovarian cyst about the size of a hen's egg on the left side, and finally a retroverted uterus. On closer inquiry the usual facts were elicited. Daily treatment, consisting of mild, warm douches and the insertion of glycerine "tampons" brought about a marked improved condition. In a week solids were kept down with only occasional attacks of vomiting, pelvic pain was relieved, and the patient got steadily better, though the weather continued moderately rough. This patient was also subject to "carsickness"—a peculiarity which, according to the author, adds considerably to the miseries of a sea voyage.

Early Diagnosis of Organic Disease of the Nervous System.—T. R. Bradshaw discusses the significance of knee-jerk, ankle clonus, and exaggerated knee-jerk, absence of the latter, ocular signs, and thoracic, abdominal, and pelvic symptoms, with a relation of several clinical histories. Entire absence of the knee-jerk is always indicative of organic disease. If the patient is able to walk about, this absence generally indicates tabes or neuritis of diabetic origin. Ankle clonus, if sustained, always means organic disease. Absence of the knee-jerk must always be looked on with grave suspicion, as it is never due to hysteria or functional disorders. Occasionally it seems to persist in tabes. Inequality of the pupils is apt to give rise to a suspicion of general paralysis, but it may be normal to the individual. Diplopia, permanent or transitory, is suggestive of organic disease, as is also nystagmus, as suggesting disseminated sclerosis. Slight oscillations of the globe must not be mistaken for true nystagmus, as they may be due to mere fatigue or be a part of a general muscular tremor. The Argyll-Robertson pupil practically means tabes or general paralysis, so that in its absence it is hardly safe to make a diagnosis of these conditions, especially the former, unless the other signs and symptoms are very well marked. Bladder troubles are very common in nervous diseases, but retention of urine may be referred to stricture or prostatic enlargement when the real trouble is loss of vesical reflex, and the opposite is also true. Unconscious nocturnal enuresis may be the only indication of nocturnal epilepsy. A persistent frequency of the pulse in the absence of fever may be present in both the early and late stages of tabes. The visceral crises of this disease often lead to diagnostic errors. They are usually of sudden onset and intensely severe, but between their occurrence gastric symptoms are generally wanting.

Berliner klinische Wochenschrift, November 16, 1908.

Case of Brain Tumor with Operation and Recovery.—Oppenheim and Krause report a remarkable case of a fibrosarcoma of the dura pressing upon the first temporal convolution. The symptoms consisted of aphasia and amnesia, choked disks, differences in tone on percussion of the skull, and a paralysis in the region of the left facial nerve. There was no hemianopsia, and no other motor or sensory abnormal phenomena. Krause operated, after Oppenheim correctly diagnosed the site of the lesion, and removed a tumor the size of a small apple, the operation being performed in two stages. Gradial recession of symptoms and return of speech followed, though a sudden paralysis of the right upper extremity appeared. This soon disappeared, its cause being, according to Krause, edema of the brain substance because of the removal of pressure exerted by the tumor. The patient recovered very well, though a secondary operation was necessary because of necrosis of a small portion of brain tissue, which accounted for a persisting sinus; the latter closed soon after. Several months later a recurrence of the original symptoms with more extensive paralytic phenomena took place, and the patient was again operated upon. Another tumor was removed from the same spot, Krause explaining it not as a recurrence, but as a growth from a minute portion probably left during the first operation. The patient recovered after this second operation and has since been able to go about her household duties with ease; the speech defects, however, were not completely removed, though the improvement was still in progress at the time of the report. Krause adds that such tumors of the dura, though histologically sarcomata, are benign clinically; he had occasion to remove several of them from the spinal cord or the brain without observing recurrences.

Münchener medizinische Wochenschrift, November 10 and 17, 1908.

The Ophthalmoreaction.—Wolff-Eisner concludes his article as follows: The reactions to subcutaneous and cutaneous application of tuberculin are specific for tuberculosis; clinically, however, they must be used with care as positive results give evidence of latent as well as of active disease. Positive ophthalmoreaction shows the existence of active tuberculosis, and its appearance in those clinically well makes them very suspicious cases. Negative ophthalmoreaction in manifestly tuberculous patients is of bad prognosis; such reactions are more and more frequent with the progress of the disease.

Prophylaxis of Tuberculosis.—Harass says that the prophylactic measures in tuberculosis may be divided into general hygienic and specific prevention. Recently, the latter methods have been enriched by the conception of local predisposition to the disease and the management of persons thus predisposed. The most important site of such predisposition is the apex of the lungs, and recent work has shown that it depends upon defective ventilation of the pulmonary tissue because of deformity or premature ossification of the first rib. Such deformity may be congenital or may develop in connection with other serious conditions as, for instance, deformities of the spine. The prophylaxis in early life should consist of proper attention to respiration and the selection of gymnastic exercises aimed at influencing the insufficient expansion of the apices. In selected cases of later life operation may be successful in removing the obstruction to proper ventilation of the apices.

Anesthesia in Ophthalmology.—Messmer says that local anesthesia is best adapted for ophthalmological work. It allows cooperation of the patient with the operator, which is very important in operations like the one for strabismus. Vomiting and nausea are obviated, and there is no danger of dislocating the lens by any sudden movements during certain operations. The operative field is fully exposed because no mask is used. Cocaine hydrochloride is the best anesthetic; fresh solutions are to be made each time and the solution may be sterilized by boiling. Such boiling once just before use does not interfere with the anesthetizing properties of the drug. The strength to be used is 5 per cent. solution. Care should be taken that only the necessary amount of cocaine is used, as

otherwise untoward consequences, such as loss of corneal epithelium, intoxication with the drug, disturbances of accommodation and even glaucoma may follow. Messmer closes his paper by giving details of anesthetizing the eye for the different operations.

Rumination in a Human Being.—Bruegel reports a case of a man twenty-six years old who was in the habit of returning half-digested food from his stomach to the mouth ever since he was seven years old, repeating this process several times after each meal. This occurred for the first time ten to thirty minutes after the meal and at that time the taste of the food little differed from its original taste; as the food became more and more sour the desire for "chewing the cud" decreased and finally the morsel was allowed to stay in the stomach. The phenomenon was somewhat under the control of the will, so that the patient was little embarrassed by his affection when in company of others. Gastric analysis showed the absence of free hydrochloric acid; the esophagus was very sensitive and cocainization was required for the introduction of the tube. An examination with the fluoroscope showed spindle-like enlargement just above the cardia, appearing after the taking of food; the musculature of the esophagus was seen to contract distinctly, thus propelling the food into the stomach. The existence of an obstruction was concluded from this observation, but no further details could be learned, as the patient left the city soon afterward. Bruegel abstracts the literature of the subject.

Deutsche medizinische Wochenschrift, November 12, 1908.

A New Reflex.—Jacobson says that the upper extremity is not as rich in reflexes because it is more highly differentiated and therefore more under the influence of the will than the lower extremity. There is, however, one reflex which may be looked upon as the analogue of the Babinski phenomenon in the lower extremity. This reflex is quite a constant symptom in cases of spastic paralysis of the upper extremity of cerebral origin. The patient is asked to extend the fingers and to place the forearm with the palm directed upwards upon the hand of the examiner. If the lower end of the radius is now struck a smart blow by means of a percussion hammer, the fingers are seen to flex, the movement being especially prominent in the end phalanges, if the affection bears the above-named character. Otherwise, the fingers remain in the extended position.

Passive Hyperemia in Gynecology.—Seeligmann has constructed an apparatus consisting of a cylindrical glass speculum and a rubber ball which enables the physician to apply Bier's methods of suction hyperemia to gynecological cases. The application of this treatment has led to quicker results than with the older methods of therapy. The author has tried it in chronic metritis and endometritis, in amenorrhea, in parametritis, and in the affections of the uterine adnexa. Sometimes he combined the suction with scarification of the cervix and removal of some blood by the suction apparatus; this procedure proved especially valuable in postclimacteric disturbances if performed at the time when menses would have appeared before the climacterium. One case of puerperal fever was very favorably affected by the application of suction, a great deal of purulent secretion being removed out of the uterus in this fashion, the temperature falling after each application.

French and Italian Journals.

A Case of Chronic Hypertrophic Pyloric Stenosis in an Infant of Three Months.—G. Nové-Jesserand and M. Péhu describe an interesting case of pyloric stenosis, due to hypertrophy of the muscular fibers in an infant of three months, a condition which is extremely rare at that age. The infant was normal at birth, but after eight days of life it began to vomit its food, and continued to do so throughout its short life. A complete gastric intolerance was established, and toward the end more food was vomited than was ingested. The stools were few, irregular, and badly digested, but not diarrheral. The case resisted all treatment, gradually lost weight, and finally reached a condition of malnutrition which compelled the consideration of an operation. Shortly before this intermittent tension of the epigastrium was noted, and peristaltic waves in the stomach walls, with a pyloric tumor. An attempt was made to do a posterior gastroenterostomy. The infant died three days after the operation. The autopsy showed a marked hypertrophy of the muscular fibers, not forming a true tumor. There was inflammation of the wall of the stomach. It was intended to do a pyloroplasty, but the enlargement was so great as to render this operation impossible. The gastroenterostomy was easier, there was less shock, and more chance of recovery.—*Lyon Médical,* October 25, 1908.

Hydatid Cysts of the Lung.—Louis Moriquio has seen a number of cases of hydatid cysts of the lung in South America, where this disease is much more frequent than in this country. They occur in children from the country who are in constant contact with the dogs of the family. The diagnosis is easy if the cysts occur at the apex of the lung. There is complete dullness at the apex, absence of fremitus and respiratory sound, and bulging of the apex. There are generally no clinical symptoms. When there is a cyst at the lower part of the lung it is generally possible to detect an area below it in which the lung signs are normal. The contour of the thorax remains normal, but the heart is pushed to the right. There may be cough, expectoration, hemoptysis, and fever. In such cases pleurisy may be suspected. When there is no fever the good general condition of the child will be against a diagnosis of pleurisy or tuberculosis. The radiograph is very important as an aid to the diagnosis, showing a larger area of shadow than the physical signs show of consolidation. An exploratory puncture may be made, and is generally made, but it causes spasmodic cough with dyspnea, fever, and attacks of asphyxia. These are never fatal as far as the author's experience goes. The treatment of the condition should be surgical, as this course gives a definite cure after months of exposure to danger of infection and lung complications.—*Archives de Médecine des Enfants,* October, 1908.

Hebotomy or Symphyseotomy?—Cyrille Jeannin believes that we should always prefer hebotomy to symphyseotomy on account of its superior advantages to the patient. These are that it substitutes for an articular an osseous wound; its technique is easier and it is done in a less dangerous locality; immediate accidents are less frequent, and remote ones still more rare; the mortality of mother and fetus is less; in cases of a repeated intervention the operation may be done on the opposite side of the pelvis, which will lessen the difficulty, since the operator need not cut through cicatricial tissue. The final result in many cases is a permanent widening of the pelvis, due to the fact that the cicatrix is always fibrous instead of osseous.—*La Presse Médicale,* September, 1908.

Recurrences of Bronchopneumonia in Children; Their Relative Benignancy Shown by Statistics.—Guido Biagini has found that in children who have undergone intubation the attacks of pneumonia when repeated have been of less severity than a first attack, and believes that this is due to a certain immunity conferred by the earlier attack. This is not an anibacterial but an antitoxic immunity. In general a first attack of bronchopneumonia renders a child more susceptible to a second attack. The toxic products of the bacillus of diphtheria cause a multiplication of the pneumococci in the blood of adult guinea-pigs. Collecting all the intubated children treated since 1892 from the hospital at Florence, the author found 52 cases, of which eight had recurrent attacks of pneumonia, and of which the author gives histories. He then collected all the cases of bronchopneumonia, numbering 576, seen during that period, of which 113 had recurrent attacks. He found that the recurrences among these children were more fatal than among the intubated children.—*Rivista di Clinica Pediatrica,* October, 1908.

Action of Roentgenized Serum in Leucocytosis and in the Treatment of Leukemia.—Andrea D'Ambrosio finds that the serum of animals that have been submitted to the *x*-rays produces a lessening of leucocytes in an animal into which it is injected, whether it was subject or not to increased leucocytosis. The mononuclears are diminished in numbers, especially the lymphocytes, and the polynuclears are increased. This power is not diminished by low temperatures, but is destroyed by a temperature of 60°. Serum of nonroentgenized animals separated from the other constituents of the blood and roentgenized in a tube acquires no such property. This power continues for several days after the serum has been drawn. Repeated injections of this serum prolong its effect. A greater leucocytic power is caused by repeated applications of the rays. Clinical observations on man show that injection of serum from a healthy man who has been submitted to the rays causes marked leucolysis. With intravenous injections this is lost after twenty-four hours, but with hypodermic injections the condition is produced more slowly, but is more efficacious, lasts longer, and is progressive. This action is accompanied by a general improvement, increased elimination of uric acid by the kidneys, and reduction in the size of the spleen. Probably this serum contains specific antibodies produced by the stimulus of the *x*-rays upon the tissues, which cause all these good effects on the leukemic condition.—*Giornale Internazionale delle Scienze Mediche,* September 30, 1908.

Book Reviews.

Essentials of Refraction. By Thomas G. Atkinson, M.D., Author of "Applied Physiology"; Associate Professor of Physiology and Neurology, American College of Medicine and Surgery, Chicago; Professor of Physiology, Chicago College of Dentistry; Editor of the *Medical Standard*, etc. Chicago: G. P. Engelhard & Company, 1907.

This work belongs to the quasiscientific class. It is an attempt on the part of the author, who is himself inadequately informed in much that is essential concerning the subject of his writings, to furnish the so-called "refractionist," who may or may not be a medical man, with enough information to enable him to correct errors of refraction and to permit him to recognize disease of the eye sufficiently early to advise the patient to seek competent aid.

The volume is one of 235 pages, is well printed, and fairly well illustrated. The illustrations are original. The chapters that have to do with the physics of light and of optics, the properties of lenses, and the mechanical adjustment of glasses present these subjects briefly, in an elementary way, and sufficiently accurately, but the chapters which have to do with the practical correction of errors of refraction, diseases of the eye, muscular imbalance, asthenopia, and the hygiene of the eye are inadequate and often erroneous.

Spectacles and Eyeglasses. Their Forms, Mounting, and Proper Adjustment. By R. J. Phillips, M.D.; Ophthalmologist, Presbyterian Orphanage; Late Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine, etc. Fourth Edition, Revised. With Fifty-six Illustrations. Philadelphia: P. Blakiston's Son & Co., 1908.

Phillips' work is an excellent one. It gives a description of lenses, their mode of manufacture, the properties of various kinds of glass, the various styles of eyeglasses and spectacles, the proper methods of adjusting glasses, values of the prismatic effect of decentering lenses, prisms and their proper application, sets forth the errors that may attend the adjustment of glasses and the methods of remedying them, the importance of a correct understanding of the proper relation of cylindrical lenses to the eye, etc. The work is written by one who fully understands the subject. A mastery of the teachings of this little book will enable the optician to supplement satisfactorily the work of the oculist, or the oculist, if necessary, to perform the duties of the optician. The book should be in the possession of every oculist and optician.

The Principles and Practice of Gynecology. For Students and Practitioners. By E. C. Dudley, A.M., M.D.; ex-President of the American Gynecological Society; Professor of Gynecology, North-Western University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago; ex-President of the Chicago Gynecological Society, etc. Fifth Edition, Revised and Enlarged. With 431 Illustrations and 20 Full-page Plates in Colors and Monochrome. Philadelphia and New York: Lea & Febiger, 1908.

This fifth edition of Dudley's Gynecology follows closely on the same lines as its predecessors. There are two new chapters; one, an introductory chapter, which is a strenuous defense of the existence and plea for the recognition of gynecology as a distinct specialty, and a refutation of the plea of those who would merge, or submerge, gynecology in general surgery. This chapter is brief but forcible, and is admirably reinforced by the rest of the volume. The other new chapter is on the incontinence of urine in women. In this edition the text has been revised throughout, recent advances in the subject have been duly noted, and many parts have been rearranged and rewritten; but at the same time the author has condensed the text so that, in spite of the inclusion of a considerable amount of new matter, the size of the volume is about what it was before. The chapters which have been subjected to special changes and additions are those dealing with the treatment of the following subjects: Salpingitis, Ovaritis, and Pelvic Peritonitis; Myoma Uteri; Carcinoma Uteri; Descent of the Uterus; Retroversion and Retroflexion. The work remains, what it has been from the very first, one of the most sane and serviceable of the textbooks on gynecology; and as such it is heartily recommended both to students and to practitioners.

Hygiene for Nurses. By Isabel McIsaac. Author of "Primary Nursing Technique," Graduate of the Illinois Training School for Nurses, etc. New York: The Macmillan Company, 1908.

This book is a compilation from the writings of numerous authors on the subject of hygiene. Direct quotations are plentiful, and some of them are of considerable length, one extending through twenty-five pages. The subjects treated of in this volume are: Food, air, climate, ventilation, heating, lighting, soil, water, sewage, garbage, causes and dissemination of disease, personal hygiene, household hygiene, school hygiene, medical inspection of schools, hygiene of occupation, employment of women and children, disinfection, and quarantine. Most of the material here presented is well chosen, and will be of service to "the young pupil nurse" or "the first-year nurse," for whom this volume is apparently written; but pages on the duties of medical inspection of schools can hardly be considered necessary for this class of reader. The print and general get-up of the volume are excellent.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. Philadelphia and New York: Lea & Febiger, 1908.

The current number of "Progressive Medicine" commences with W. Ewart's paper on "Diseases of the Thorax and Its Viscera, Including the Heart, Lungs, and Blood-vessels." About one-third of this article is taken up with the important subject of tuberculosis, and is both timely and valuable. W. S. Gottheil discusses the recent advances made in dermatology and syphilis, and several illustrations enhance the value of this contribution. The subject of obstetrics is dealt with by E. P. Davis, and the volume closes with W. G. Spiller's article on "Diseases of the Nervous System." As usual, the whole number is well worth reading and keeping for future reference.

Anatomy, Descriptive and Surgical. By Henry Gray, F.R.S.; Late Lecturer on Anatomy at St. George's Hospital, London. New American Edition. Enlarged and Thoroughly Revised by J. Chalmers Da Costa, M.D., Professor of Surgery and Clinical Surgery, and Edward Anthony Spitzka, M.D., Professor of Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1,625 pages, with 1,149 large and elaborate engravings. Philadelphia and New York: Lea & Febiger, 1908.

When this work was first published, half a century ago, it was seen to be so superior to any other anatomical treatise extant that it was at once accepted as the standard work on the subject in the English language, and many generations of students have been guided by it in their study of this foundation branch of medical knowledge. At the present day there is no dearth of anatomical treatises—indeed, there may be said to be a plethora of such works, and the student must be hard indeed to please who cannot find among so many one that will meet his requirements. Gray no longer holds the supremacy it did, though its successive editors have done their part well in keeping it abreast of its rivals. The present edition, the seventeenth, would hardly be recognized by the student of fifty or even thirty years ago, and we doubt whether he would be altogether pleased with its changed appearance. The illustrations are more artistic, it is true, and many are printed in colors, but somehow one misses the old woodcuts and feels that it isn't the old companion of his student days. It is an excellent work, indeed, but it is no longer *facile princeps*, and its increase in size is a decided drawback to its use as a dissection manual. This is perhaps unavoidable, but the book would be more useful to the student if it were issued in two volumes. The old familiar nomenclature is followed, though the BNA terms are usually given in parentheses.

A Manual of Diseases of the Nose and Throat. By Cornelius Godfrey Coakley, A.M., M.D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York, etc. Fourth Edition, revised and enlarged; illustrated with 126 engravings and 7 colored plates. New York and Philadelphia: Lea and Febiger, 1908.

Four editions of this work in a few years attest better than can anything else its true value. The literature of this special field of medicine is becoming overburdened, but Dr. Coakley has scored a distinct success in producing a manual of value for practitioner and student alike. In the present edition the main changes have been a fuller description of the technique of the radical operations for chronic diseases of the accessory sinuses and a new arrangement of the matter covering the general topic of deformities of the nasal septum. Under this heading the submucous resection operation is fully detailed. We know of no better volume to place in the student's hands than is this, and the practitioner will read it with profit.

Society Reports.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

Eighteenth Annual Meeting, Held in New York City, September 22, 23, and 24, 1908.

HERBERT F. PITCHER OF HAVERHILL, MASS., PRESIDENT, IN THE CHAIR.

The Advancement of the American Electrotherapeutic Association.—Dr. HERBERT F. PITCHER of Haverhill, Mass., delivered this, the Presidential Address. After greeting the association, he said that this was a therapeutic society, the one missing link in the practice of medicine. All the other departments were making satisfactory progress, but when a remedy was sought the profession threw up its hands in despair. They could select a dozen drugs from the United States Pharmacopœia, and practise medicine as successfully as with the thousands of official remedies placed within its sacred pages. The world's most prominent and broad-minded physicians were to-day drug nihilists. He did not wish to be understood as saying that there was no place for drug therapy; but the physician of the future would use fewer drugs and more brains, his training would be more complete, his resources greater. He cautioned against neglecting that which was the stock in trade of the old-time physician, namely, observation. The very best that was in a man must go into his work. Ability, skill, and conscientious effort must not be grudgingly expended. The ultimate aim and duty of the true physician was to prevent disease and cure sickness. Their profession was the legitimate medium through which sanitation and prevention of disease were disseminated. They were not only physicians, they were teachers and philanthropists. Theirs was the only profession who freely gave away their own livelihood. Their incomes might not increase, but their glory as humanitarians would constantly grow brighter. Medical science to be useful must be practical. In becoming electrotherapeutists, they did not necessarily neglect any remedy true and tried. Electrotherapy was a progressive science, and they were as yet beginners in this great study. They should not expect to reach perfection. With a high conception of their profession he asked that they work with a will and the single purpose of elevating the practice of medicine to the science of medicine. This association was established eighteen years ago and was the first of its kind in existence. Until within a few years the membership of this association was limited to one hundred and fifty. At the present time they numbered only about two hundred members. With the splendid opportunity of this association for scientific research and advancement in electrotherapy, he said he could not understand the reason of this stagnation, unless they lacked ambition. Within a few years they should number a thousand members. A subject of the greatest importance to them and which should come up for discussion and be voted upon at once, was changing the association to a corporate body. They did not expect to be defendants in a suit for damages, but it was a wise saying, "In time of peace prepare for war," and they should realize that in the event of adverse litigation every member of this society would be personally liable for the full determined damages. This risk would be avoided by the simple procedure of forming a corporate body. In two years they would celebrate their 20th anniversary, and he said it was not too early to begin to prepare for the event. Investigation and research should be carried on in a scientific manner by all the members. Do not work for personal aggrandizement alone, but for the advancement of science. Give the association the benefit of their studies. Let every theory, however absurd it might appear at the present time, have the opportunity of vindication. Banish all feelings of avarice, prejudice, and jealousy, and he asked that their society become a brotherhood with the motto of "One for all and all for one."

Disruptive High Frequency Discharges, by the Reaction Method, as a New and Important Therapeutic Agent.—Dr. MORRIS W. BRINKMAN of New York read this paper. Since they were perfectly familiar with the fact that any degree of energy might be the source of a sensory impression, and that according to the degree would be the acuteness of the perception, so a tissue at variance with its normal sensory capacity might be hyperesthetic or again anesthetic. He wished to impress upon all contemplating the use of this method the importance of thoroughly controlling and measuring the current employed. The duration of the treatment was brief and was determined by a primary anemia which was perfectly obvious. The cessation of the treatment was followed by a congestion, depending for its vigor upon many conditions, which must present themselves at once to every careful operator. The electrodes must be exactly adapted to the location under treatment, and were invariably provided with an insulator, whose function was to insure the delivery of the spark at the desired point, from the sharp metallic end of the electrode. The metallic electrode should be so adjusted in its glass sheath that a definite spark length would be secured. He had rarely found a current greater than 600 watts necessary. The procedure was obviously valuable for all forms of localized pigmentation, sluggish ulcers, the obliteration of fine blood-vessels when heavily applied, superficial tubercular conditions, etc. The procedure might be applied to a great number of conditions of the mucous membranes. All forms of hypertrophied mucous membranes were instantly controlled by this form of administration. The use of the static spark in the past for somewhat similar conditions was known to every practical worker, but the efficacy was so small as to make it valueless for serious work of this kind.

The Static Brush Discharge Concentrated to a Blue Pencil Point.—Dr. FREDERIC DE KRAFT of New York read this paper. The brush discharge concentrated to a blue pencil flame when obtained from a static machine having sixteen to twenty revolving plates running at a fairly high rate of speed and applied to the bare skin of the patient, had been the means of securing some results in the writer's hand in cases where other measures had failed. This brush discharge might be described as a unidirectional high potential convective discharge and when obtained from the positive side of the machine was of a violet color, very rich in ultra-violet, violet and blue violet rays. Its action was attended with the formation of a great quantity of ozone and nitrous oxide. After describing the technique he said that repeated applications along the entire spine and over the abdomen increased peristalsis of the intestines, as was shown by freer and softer stools. Placing a metal plate in the bottom of the bowl containing a solution of starch and iodide of potassium, and approaching it with the grounded positive electrode, will be turn blue if the twenty plate was running at 500 revolutions per minute. This method of applying the brush discharge had served to alleviate the pain from ulcerated teeth in many instances after a ten-minute seance. They had seen a swollen cheek restored to its natural color in a few minutes. Sprained ankles and other joints had been speedily relieved of swelling and pain. Insomnia had yielded in a very few treatments. In constipation due to deficient secretion, and in those cases where an element of spasm of the muscular layer was present, good results had been obtained. Cases of neurasthenia had been helped, as well as severe cases of inflammation of the sciatic nerve following or due to gonorrhoea.

Roentgen-Ray Diagnosis of Bone Disease.—Dr. M. K. KASSABIAN of Philadelphia gave a lantern slide exhibition of the pathological conditions as they appeared in the radiogram in cases of periostitis, osteitis, tuberculosis, acromegaly, rickets, osteomalacia, epiphysitis, and osseous tumors.

X-Ray in Dental Examinations.—Dr. SINCLAIR

Tousey of New York read this paper and made an exhibition of lantern slides illustrating a number of the conditions determined by dental radiography and by the use of his dental fluoroscope. A radiograph would show whether the permanent teeth were present in the jaw or not. Abscesses were discovered and located. The radiograph would show the direction of the root canals and enable the dentist to afford an opening for the pus through the root canal in cases where the latter were difficult to locate or trace. The cause of facial neuralgia was sometimes discovered by an *x-ray* examination of the teeth. Root fillings might be examined. The condition of the alveolar process surrounding the roots of the teeth and extending up beyond them was an important subject for study. In cases of pyorrhea or Riggs' disease this process was sometimes found to be completely absorbed and very often the tooth was seen to lie in a large pocket produced by the absorption of the bony process around it. Supernumerary teeth might be revealed. The relation of the roots of the teeth to the antrum, and the presence of pus in the antrum, were subjects for study. Pulp stones or concretions in the nerve substance were sometimes found.

The Treatment of the Enlarged Prostate by the High Frequency Current.—Dr. M. M. Johnson of Hartford, Conn., said that Dr. Hunter of Norfolk, Va., brought the Roentgen ray to the foreground as a treatment of this condition, on account of its well-established atrophying power on glandular tissue. There was no doubt that this ray was potent in absorbing glandular tissues, but the difficulty lay in concentrating the rays on the prostate. The patient was placed in the Sims position in using high frequency. It was not necessary to insulate the couch. Snow's vacuum rectal tube was lubricated and passed into the rectum and firmly placed against the prostate, and held there by the operator, who raised and lowered the handle of the tube holder, moving the electrode over the entire surface of the prostate gland. The tube holder was connected with the resonator by a single wire. The strength of the current was indicated by the spark gap. The patient was not conscious of the least discomfort. Of the twelve cases treated, six were senile hypertrophy and six were in men under forty-five years of age, and who were suffering from nervous breakdown. The humane feature of the treatment was so marked; there was no ether, no vomiting, no nervous shock, no tedious convalescence, no loss of valuable time, and no death. It was ideal.

Treatment of Varicose Veins and Varicose Ulcers by the Static Wave Current.—Dr. H. Finkelpearl of Pittsburg, Penn., briefly reviewed the etiology and morbid anatomy of these conditions as well as the treatment. He reported three cases, treated by the static wave current with good results.

The Treatment of Arteriosclerosis and Hypertension.—Dr. William Benham Snow of New York read this paper. Hypertension, or arterial tension above the recognized normal range, was noted to precede the structural changes, and a study of averages showed that with advancing years the changes became more marked and resisting to treatment. Hypertension might be either compensatory or contributing. The conditions necessary to a condition of hypertension were one or more of the following: (1)Resistance in the circulatory channels; (2) increase in the quantity of the circulating fluid; (3) increased heart force. The contributory causes of hypertension arose from toxic or pathological processes in the organism, and were generally associated with intestinal infection or the inception of irritants or chemical poisons. Excessive indulgence in stimulating foods, condiments, alcoholic beverages, together with the products of faulty metabolism, and intestinal infection, played a great rôle in the induction of hypertension. A study of many cases of arterial tension with and without organic change in the structure of the arterioles and large glands through which most or all of the blood must pass, presented a variety of clinical pictures as to prognosis and response to treatment by physical measures, which affected to reduce arterial tension, the results depending upon the extent of pathological change present in the circulatory apparatus and dietetic régime adopted, as shown by comparisons made by the sphygmomanometer. Dr. Snow believed that there was probably no field of investigation which offered more to humanity than the setting forth of the importance of the regulation of habit and diet, balancing the demands of exercise to the quality and quantity of food taken. The intelligent management of these cases would not only include the regulation of the diet, but the employment of such means as would further the reestablishment with maintenance of normal results.

Physiotherapy in the Practice of Medicine.—Dr. William D McFee of Haverhill, Mass., believed that in order to get the best results, they should have many modalties at their command, and choose from these the one particularly indicated and adapted to fight the symptoms of disease; otherwise they would have many failures. Combined methods of treating many of the diseases should be employed.

Electricity in Errors of Refraction.—Dr. Samuel J. Harris of Boston, Mass., read this paper. He said that after an exhaustive study of this subject, based on the study of over five hundred cases, he believed the amelioration of sight by massage might be divided into three groups: (1) Mechanical action as regards the zonule and the crystalline lens. (2) Tonic action upon the ciliary muscle and the accommodation. (3) Trophic action (circulatory, secretory, and excretory) upon all the intraocular tissues and liquids, ciliary glands choriocapillaries, retina, etc. His conclusions were that the persistent elongation of the zonule was so much easier to obtain the younger the subject and the less the accommodation had been exercised (amblyopic eye). That by massage hypermetropia might be considerably diminished often so much as to do without glasses. The younger the subject, the better the results. That visual acuity was sometimes so improved that an eye suffering from amblyopia exanopsia as the result of high hypermetropia might become serviceable for work. That some squinting eyes might thus recover sight enough for stabismus to be cured with the secovery of binocular vision. That different accommodative asthenopias were also susceptible to great improvement, and many cured. That some presbyopias might postpone the wearing of glasses, as in vision near by without the short sight diminishing in any way, that it was the acuteness of vision only that improved. That in progressive myopia in young subjects whose defects augmented 3 to 5 D, they could arrest the increase. That astigmatism was amenable to treatment by massage once the proper apparatus was perfected. He believed then from the study of his cases that a large number of persons, especially children now wearing glasses, could by this treatment carried out by an ophthalmic surgeon and an expert, be relieved of wearing glasses, and others could be so much benefited that glasses could be worn of from one-third to one-half the strength of those previously worn. He believed that electricity in its various forms was one of the greatest additions to the therapeutic armamentarium of the ophthalmologist, and in the future must become his greatest ally.

Catarrhal Deafness and Its Treatment.—Dr. Albert C. Geyser of New York stated that the changes or deviations which took place in catarrhal deafness were as follows: The Eustachian tube was closed, preventing the entrance of air and the hindering of drainage. The membrana tympani was forced inward by the external air pressure, and held there and prevented from vibrating. The ossicles were crowded together with more or less inflammatory changes in their articulations, and their free movement was hindered and no vibration reached the perceptive apparatus. Assuming that the nasopharynx had been properly cleansed, the hihg-frequency current from a glass vacuum electrode delivered to the entire mucous membrane of the nose was probably the best stimulating

measure. An aseptic or antiseptic spray should be used. An attempt should then be made to force air into the Eustachian tube. To break up the fibrous ankylosis that existed between the membrana tympani and the articulations of the chain of ossicles, a pump was used capable of alternating between a suction and compression stroke; this pump was attached to an Otis auroscope. The pump should be so adjusted that the suction stroke only was used.

Tuberculosis and Its Treatment.—Dr. J. D. Gibson of Denver, Colo., said he wished to affirm more than he had ever before the great usefulness of physical modalities as adjuvants in the treatment of pulmonary tuberculosis. In addition to the ordinary treatment of the disease, he had added the *x*-ray, electricity, and ozone. He used the *x*-ray to produce a hyperemia, local congestion or engorgement of the tissues treated. This congestion prepared them for the next step in the process, the inhibition and destruction of the bacilli. Electricity was used by him only for its tonic properties. The static high-tension currents, as the brush discharge and wave currents, were the ones he generally used. Ozonized nebula was a much prized agent as an aid to expectoration, giving relief to the cough.

Possibilities of Radiant Light.—Dr. T. D. Crothers of Hartford, Conn., read this paper Every year the new realm of so-called physical therapeutic measures had become more and more prominent, and in connection with drugs their efforts were most promising. The radiant light bath and concentrated radiant light had attracted his attention. These were agents of great and largely unknown power. The question of the value of light in such conditions as rheumatism, acute and chronic inflammations, neuritis, cirrhosis, and so-called malaria was one of great difficulty and depended very largely upon the accuracy of the diagnosis. In a general way, if the principal derangement was nutritional disturbance and starvation, the light had a variable effect. If the main difficulty was in the circulatory apparatus, its value was more pronounced. In toxemic conditions with congestion and defective circulation, it had a marked action, and in the psychic and functional disturbances, its effects were both startling and disappointing. His conclusions had been, that only from a general clinical study could any reliable estimation be made of the value of light in therapeutics, and this must be made by comparisons and combinations with other measures.

Observations Upon the Employment of the Caldwell Cavity Tube as a Surface Electrode.—Dr. Charles Rea Dickson of Toronto, Canada, believed that we possessed in the Caldwell tube a most useful adjuvant, and that when employed as a low-frequency high-potential vacuum electrode for treatment of lesions on the surface of the body it was a very valuable implement in their armamentarium. The effects produced by the form of procedure he described in detail, were briefly those of a combined *x*-ray, blue-violet, and ultraviolet rays, low-frequency, high-potential static charge, and spark. They thus had the mild irritant and ionizing effects of the *x*-ray and ultraviolet, the sedative action of the violet rays, the markedly tonic effect of low frequency with its relief of congestion and stasis and liberation of ozone and nitrous acid with their oxidizing, ozoning, and antiseptic properties, aided by the germicidal action of the ultraviolet, and lastly the pronounced stimulating action of the static charge and sparks on tissue metabolism.

The Physiological Action and Therapeutic Effect of Vacuum-Tube Discharges.—Dr. John H. Burch of Syracuse, N. Y., made a summary of the physiological effects of vacuum-tube discharges as follows: (1) The more refrangible light frequencies, emanating from the fluorescing tube itself; (2) the chemical effects of nascent ozone; (3) the effects of ionization; (4) heat; (5) mechanical vibratory effects; (6) germicidal effects; (7) the effects of the electrostatic charge itself. Vacuum-tube discharges seemed to be indicated in nearly all conditions depending upon local congestion and stasis. Perhaps no field offered more brilliant opportunities for the employment of vacuum-tube discharges than dermatology.

Anterior Poliomyelitis.—Dr. Henry W. Frauenthal of New York presented some brief records, with photographs, of cases that had shown some unusual manifestations resulting from the epidemic of 1907.

Report of Some Cases of Electrochemical Minor Surgery.—Dr. Edward S. Smith reported three cases, one of fecal fistula following an appendectomy, one of tumor of the cheek of unknown pathology, and another of cervical abscess, treated electrochemically with wonderful success.

The Correction of Flat-Foot.—Dr. Herbert McIntosh of Boston, Mass., read this paper which he illustrated with lantern slides. The indications for curing a flat-foot were (1) to reestablish the injured arch and (2) to restore the ligaments and muscles to their normal conditions. Each muscle that supported the arch should be stimulated. Stimulating vibration should be applied to the plantar fasciæ and the calcaneoastragaloid ligament. The remedy for pain, congestion, heat sweating, and other vasomotor phenomena was the static wave current. Complete rest was essential. The most important factor in the treatment was proper shoeing, and a shoe to be fit should have several characteristics. 1. It should afford perfect freedom of motion. 2. It should permit the toes to exert their prehensile action as nature had taught them to do. 3. It should give the great toe freedom to rise when the foot was thrown forward before the metatarsophalangeal articulations finally touched the ground. 4. It should permit the toes to spread out when they touched the ground. 5. The instep should be amply high so as to permit the foot to arch. 6. It should not bind the leg above the ankle. 7. It should have a flexible shank. 8. To preserve to the foot when covered with a shoe the power to balance and involuntary shifting of lines of weight, it was necessary to supply a modified heel. 9. Shoes should be made with low heels. 10. The floor of the shoe under the metatarsal bones and phalanges should be flat. 11. The shoe should permit a close approximation of the anterior end to the ground. 12. An inner sole should be provided running back to the shank and capable of being loosely attached in front over a fixed point and free at its posterior end.

Electricity in the Relief of Pain.—Dr. F. Howard Humfris of Honolulu, Hawaii, presented this paper. In electricity we had an agent which afforded instant relief in the majority of cases of pain and from its mode of action tended to remove the cause. Electricity was not palliative but was curative. It removed stasis aided metabolism and restored the physiological function which was painless to the pathological painful structure. The different modes of electricity from which they had to choose for the relief of pain were the direct current, the induced current, the static modalities, the sinusoidal, magnetic currents, the various high frequency currents, phototherapy, and perhaps the vibrator since it was driven by an electric motor. The secret of success lay in the choice of the appropriate modality. Unfortunately they had as yet no laws to guide them as to what modality was best suited to each condition. For most of the neuralgias a mild constant current would often succeed where most remedies failed. Static electricity filled an important place as an agent in the relief of pain. The five hundred candle power light had a truly remarkable action in the relief of pain. The use of the *x*-ray for the same purpose was well known to all. When the pain was generalized the radiant light baths, with 1,000 candlepower was very useful. The patient should not be allowed to suffer unnecessary pain when an agent existed which would relieve it, as electricity.

The General Practitioner His Own Radiographer.—Dr. E. Gard Edwards of La Junta, Colo., urged the ad-

vantages of radiography in all cases of fracture and wounds by foreign bodies remaining *in situ* as well as in many obscure diseased conditions. He cited many instances to point out the desirability of all physicians procuring proper apparatus for the work who were not in a position to have such work conveniently done for them.

The Five-Hundred-Candlepower Incandescent Lamp. Dr. S. T. Birdsall of Glens Falls, N. Y., reported a case of chronic cystitis which was relieved of all the previously distressing symptoms by two exposures of the lower abdomen to the five hundred (500) candle power lamp after failure to benefit the patient by irrigations and by use of the Morton wave current with vacuum electrode in the vagina.

So-called Chronic Rheumatism, or Septic Arthritis.—Dr. J. W. Torbett of Marlin, Texas, found many cases of chronic joint inflammation which had yielded to general treatment only after treating an existing urethral stricture. He believed that in all cases of chronic joint inflammation one should examine the various mucous membranes for points of irritation where might occur retention of secretion, putrefaction, and absorption of toxins. Such origin of joint inflammation might be in the urethra ,prostate, uterus, tubes, colon, intestines, gall-bladder nose, or tonsils.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 5, 1908.

The President, Dr. John A. Wyeth, in the Chair.

This meeting was held under the auspices of the Section on Surgery and was devoted to a symposium on the surgery of the biliary passages.

Surgery of the Bile Passages, with Special Reference to End Results.—Dr. John C. Munro of Boston read this paper. In reporting the after results of operations upon the biliary passages he utilized all except recent cases that had come under his care during the last five years; there were somewhat over 300 operations and the end results were known in 198, including the fatal cases. Of the known results 122 patients were reported as being well and entirely free from symptoms referable to the biliary passages. He had lost track of 106, but he thought it was safe to count on a good result in a large majority of these, judging from the nature of the original lesion and the operation employed. Jaundice was present in 90 cases of recovery, absent in 57, and not recorded in 46. It varied in degree from slight to profound. In the 90 in which it was present, 63 were cases of simple gall-bladder stone, while in 43 cases of this type it was noted as absent. This proportion was quite different from that published by others. Fourteen common-duct cases had jaundice and three did not. In three cases of pancreatitis, for which the gall-bladder was drained, jaundice had been present, and in two it had been absent. In the operations for infection of the gall-bladder or the ducts without stone, he found a history of the presence of jaundice in seven, and its absence in seven. He found two cases with jaundice operated upon for symptoms produced by adhesions alone. In analyzing the 46 cases of recovery, where no note was made as to the presence or absence of jaundice, he found that 19 were primarily operated on for some gross lesion elsewhere, such as uterine fibroid, ulcer of the stomach or duodenum, umbilical hernia, etc. The biliary lesion in these cases was discovered accidentally in the routine examination. The duration of the symptoms in the recovery cases might be divided into two general classes, those of short duration (one year or under), and those of long duration (over one year). In the former were 48 cases with an average of four months; five more had symptoms of only a few days' duration. In the longer duration cases there were 111 averaging six years, besides nine in which the duration was of an indefinite number of years. Among the fatal cases the shorter group averaged six months in 12 cases; while the longer group averaged nine years in 14 cases, the longest being 16, 19, and 25 years respectively. The condition of the pancreas was noted as being pathological in 27 cases. He believed that a swollen, indurated pancreas could be differentiated with a fair degree of accuracy from the normal gland. The existence of adhesions had an important bearing on the question of the value of medical treatment in gall-stone patients, and he found that in 127 cases they were noted as being present, while in only 22 was there a note of their nonexistence. Among the postoperative calamities he always dreaded complications occurring in the lungs or bronchi. Three in over 200 cases of recovery had a typical pneumonia; one patient had an acute edema of the lungs; one had a bronchitis following a phlebitis; another was a septic case, while 10 complained of a slight cough that gave no anxiety. When the gall-bladder was functionless as a result of either stricture, impacted stone, acute or chronic infection of the visceral walls, or conditions, he removed it if the condition of the patient warranted. If the gall-bladder was functionating, or if, temporarily out of commission, there seemed a reasonable chance that it would reestablish itself with drainage, he had been content to drain. He found, therefore, in the patients reporting themselves as "well" that drainage had been employed four times as frequently as extirpation. Taking the recovery cases that he had been unable to trace, he drained a little less than three times as often as he removed the gall-bladder. Taking all the recovery cases, he had performed cholecystotomy in 125, cholecystectomy in 35, and choledochostomy in 26 cases. The patients that reported a recurrence of symptoms were divided into several distinct classes: (1) Those in whom the symptoms were probably not due to the presence of stones but to some unrecognized lesion. (2) Those in whom the symptoms were secondary to adhesions following the removal of stones, or the drainage of infected passages. (3) Those in whom stones had been left behind at a previous operation. (4) Those in whom new stones had formed. Including the cases that had come after operation by other surgeons, there were 10 in which stones had been overlooked. These patients either had a biliary fistula that refused to close, or persistent return of the symptoms for which the first operation was undertaken. In every instance but one the overlooked stone was in the gall-bladder or cystic duct. The only reason for overlooking these stones seemed to be a lack of thoroughness at the first operation. That stones might form anew in the gall-bladder was possible, but extremely rare. Cases of death from so-called toxemia, or cessation of the hepatic functions, and from capillary hemorrhage, were the most appalling that fell to the surgeon's lot. In the first class he had lost six cases. The patients did not die of shock, but they died with a high pulse and temperature, dilirium, stupor, and apparent cessation of the hepatic function. On Dr. Leary's suggestion he gave 30 c.c. of rabbit's serum subcutaneously in those cases in which hemorrhage was expected; in almost all the cases there was no tendency to hemorrhage. Dr. Leary had reported the earlier cases in a communication to the Massachusetts Medical Society in June, 1908, and gave the reasons for and methods of securing the fresh serum. Nearly a year had elapsed since the speaker had used the serum for this purpose without a sign of bleeding in jaundiced or purpuric patients, and he felt that there must be some value in the method. In conclusion Dr. Munro said that (1) an analysis of his cases demonstrated that jaundice was present in a majority of all, even the simple gall-bladder cases, at some time. A very large majority of common duct cases had jaundice. (2) The pancreas was not infrequently pathological, as determined by an examination of the opened abdomen. (3) Adhesions were present in a large majority of the cases, and might be the di-

rect cause of the symptoms, rendering all medical treatment worse than futile. (4) Pulmonary complications must be reckoned with in prognosis, but they had been less frequent than anticipated. (5) Cholecystostomy was normally a more suitable operation than cholecystectomy unless the gall-bladder was definitely functionless. (6) Recurrence of symptoms might be due to adhesions or a contracted gall-bladder as well as to overlooked stones. (7) Toxemic cases were best treated medically until the acute stage was passed. (8) Fatal capillary hemorrhage might be controlled to an extent not yet determined by the use of fresh animal serum.

Treatment of Biliary Disease as Determined at the Operation.—Dr. Howard Lilienthal read this paper. He said that embarrassment due to the surprises of abdominal section became less frequent with experience. It was always well to obtain permission for any necessary procedure rather than be too certain as to the exact nature of a contemplated operation. The stomach contents should always be examined before operation upon the bile passages. When symptoms pointed to the gall-bladder, and that viscus was found apparently normal at operation, no disease of other organs being discovered, he said it was best to do a cholecystectomy. The gall-bladder might be found completely embedded in the liver. Thick-walled gall-bladders were liable to cancerous degeneration. When there was a suppurative pericholecystitis the gall-bladder should not be removed primarily. In cases of profound sepsis, with or without jaundice, he advised a quick cholecystostomy, and a radical operation should be done later, thus dividing the work into two stages. The pancreas and the pyloric region should always be examined. In speaking of the technique, he said that one should, first, avoid as far as possible gauze packings. They damaged the peritoneum, rendering it more susceptible to infection, and they also caused adhesions. Secondly, the common duct might be reached more easily, after the gall-bladder had been removed, by drawing the stump of the cystic duct into view by means of traction sutures. Thirdly, these tractors were useful in finding the bleeding place in recurrent hemorrhage.

Cholecystectomy Versus Cholecystotomy.—Dr. John F. Erdmann read this paper. In an article published in 1906 he wrote that the indications for cholecystectomy were as follows: Perforations by trauma, ulceration other than that due to abscess or gangrene, obliteration or stricture of the cystic duct, chronic cholecystitis with thickened walls, atrophy, gangrene, acute suppuration, enlargement of dilatation (these latter being usually due to either calculous obstructions, strictures, or angulations of the gall-bladder), marked adhesions, hour-glass contractions, chronic or recurring cholecystitis, cholelithiasis, and malignancy. The contraindications were: Apparently healthy bladder in cholelithiasis and pericholecystitis, perforation into other viscera when the difficulty of closure of the connection was great, perforations in the suppurative variety when adhesions were extensive, and when life would be jeopardized by such radical interference, malignancy when extensive, and those cases in which hurried operation was indicated to save life. While adhering to those views in the main, Dr. Erdmann said that he was not so radical now and considered his cases more closely before performing cholecystectomy. The reason for this change was the distinctly surgical one of convenience: occasionally one must do a secondary operation upon the common duct, either for an overlooked stone or for a stone that had been concealed or formed in the liver and which had come down, necessitating a choledochotomy, or leaving the patient a chronic invalid in case the stone did not pass. When such secondary operation was called for, one had lost, in the absence of the bladder, the anatomical landmark to the duct. The question of cholecystectomy and cholecystotomy very naturally arose chiefly in the cases of acute cholecystitis, and in a certain percentage only of chronic gall-bladder cases, where upon opening the abdomen the gall-bladder was found atrophied or contracted, thickened, with or without calcareous degeneration, and when the cystic duct had become occluded, resulting in a hydrops of the gall-bladder. In cases of malignancy the question arose as to whether one should do cholecystectomy or close the abdomen without interference. In the acute cases, where the patient's condition demanded a rapid operation, and the bladder was gangrenous, a few minutes more of operative procedure would justify a cholecystectomy: the danger of infection, sloughing, and hemorrhage was removed with a smaller risk by operation than was taken by leaving the diseased viscus. Should the condition be grave, and only a thickened gall-bladder with infection be present, the removal of the bladder contents only was done; this latter step included necessary cystic and common duct work if called for. Where no great consideration of time and shock arose he did a cholecystectomy if the bladder wall was friable, very thick, or the bladder markedly elongated and thick, with patches of gangrene or grayish white sloughs. Evidence of calcareous degeneration in an acute cholecystitis also called for a cholecystectomy. Acute cholecystitis in cases of old contracted gall-bladders demanded cholecystectomy, as they were simply smoldering foci for repeated attacks, and a cholecystotomy in those cases was of no more than temporary benefit. Where the gall-bladder was acutely inflamed and the bladder distended, the walls not over thick or infiltrated, with no mucous membrane destruction by gangrene or ulceration, he said he was now prone to drain. Ulceration perforations of the gall-bladder should have the radical operation done instead of attempts at closure. Finesse of judgment as to the procedure in cases of malignancy could be obtained only by experience. In twenty-six cholecystectomies, out of a hundred and four operative cases of all kinds one case was recorded of death due to malignancy. There were fifty-three cholecystectomies, with three deaths. Excluding the malignancies in both operative procedures and a case of multiple abscesses, in all of which death was inevitable, he had a record of twenty-five cholecystotomies with no deaths and fifty-one cholecystectomies with one death, or less than 2 per cent. These fifty-one cases included associated appendectomies, subphrenic abscesses, two pregnancies, and one post-partum hemorrhage in the second week, making a decidedly complicated set of operations. There was one case of cholecystotomy with choledochotomy, with recovery. There were twenty cholecystectomies with choledochotomies, with five deaths. Choledochotomy was done in four cases, with no deaths. This series of cases, therefore, by excluding three malignancies and one of multiple hepatic abscess, consisted of one hundred cases operated upon, with seven deaths, none of which occurred in twenty-five cholecystotomies, and only one in fifty-one cholecystectomies. A summary of the cases of cholecystotomy and cholecystectomy with those in which additional work was done would show that out of the hundred considered, excluding the malignancies and the one of multiple abscess of the liver, cholecystotomy was done twenty-five times, cholecystotomy with choledochotomy once, making twenty-six cases without a death. Cholecystectomy was done fifty-one times with one death, and cholecystectomy with choledochotomy nineteen times with four deaths, a total of seventy case with five deaths.

Dr. Joseph A. Blake said that one found with experience that there were many difficulties to be en-

countered in operations upon the biliary passages. He was particularly interested in what was said regarding the use of rabbit's serum in arresting hemorrhage. In the badly suppurating cases, a cholecystotomy should be done rather than a cholecystectomy; in many cases the lesion was so walled off by adhesions that cholecystotomy was a very easy operation, and could be done under local anesthesia. Later the gall-bladder could be removed if it was deemed necessary. Many of these gall-bladders would recover if simply drained. For drainage purposes the rubber dam carried down acted well.

Dr. Lucius W. Hotchkiss said that the cigarette drain or the simple rubber dam drain acted effectually.

Dr. Alexander B. Johnson said that during recent years his own experience with gall-bladder disease had been quite large, and he favored the removal of the gall-bladder in nearly all the serious cases. Quite a number of cases came to him during the last few years of acute cholecystitis, some very severe cases, some gangrenous, and some with a complicating stone in the gall-bladder, which obstructed the cystic duct, and these cases had been operated on by other surgeons, who did a cholecystotomy. The subsequent removal of the gall-bladder which became necessary was exceedingly difficult. He had seen a number of fistulæ follow drainage of the gall-bladder. Among thirty cases of cholecystectomy done during the past three years, fistula followed in only one instance, the bile discharging for more than a year. This patient returned to the hospital and was again operated on.

Dr. George E. Brewer said that the statement made by Dr. Munro that sixty-three cases of simple gall-bladder stone were accompanied by jaundice was somewhat contrary to the usual experience; when the stones were limited to the gall-bladder, jaundice was exceedingly rare. All recognized the seriousness of carcinoma of the gall-bladder; even in the early stages carcinoma was a fatal disease. There was one condition which might simulate gall-bladder disease, namely, syphilis of the liver, and it was sometimes almost impossible to differentiate the two. This was a point that should always be considered.

Dr. Willy Meyer asked whether they should drain or extirpate in cases of gall-bladder stones. These stones readily reformed and, therefore, he believed that surgery should be thorough. If the gall-bladder contained mucus and not bile, it should be removed.

Dr. Ellsworth Eliot believed that where the cystic duct was so seriously damaged that subsequent deformity might incapacitate the gall-bladder, cholecystectomy was the best operation to perform. The value of any operative procedure was to be judged by the results obtained.

Dr. Munro said that when the gall-bladder was functionating it was not removed; if it was not able to resume its function, it was taken out.

Dr. Lilienthal believed that in simple gallstone disease, with no infection and no thickening of the walls, cholecystotomy should be the operation of choice except in exceptional cases. The gall-bladder should be removed in all cases where there was serious inflammation.

Stated Meeting, Held November 19, 1908.

The President, Dr. John A. Wyeth, in the Chair.

Medical Service in a Modern Army in War, as Exemplified by the Japanese Army in the Russo-Japanese War.—Major Charles Lynch, Surgeon, U. S. A., late representative of the Medical Department of the United States Army in Manchuria, gave this discourse. He expressed his gratification in finding that the members of the Academy of Medicine had sufficient interest in military matters to desire that an officer of the army should discuss the army medical service with them. He said that his service had comprised the last ten months of the war, nearly all of which was spent at the front in Manchuria with the Second Japanese Army Corps. After giving a brief general description of the war and the geography of Manchuria, whose climate was cold and dry in winter, hot in summer, and had two months of heavy rainfall with almost impassable roads, he referred to the wonderful success of the Japanese and said that this success was nowhere more notable than in their medical department. The Spanish-American and South African wars had shown America and Great Britain lamentably weak so far as their army medical departments were concerned. It was his purpose to tell the reasons which enabled the Japanese to accomplish such noteworthy results. The discussion of any army medical department naturally fell under three general headings: (1) Organization; (2) sanitation; (3) professional care of ill and injured. Administration and organization were placed first because no matter how good medical talent was in the possession of a country it would not be available to the army if it could not be properly distributed and used. First, the medical department must be sufficient in numbers to perform the work required of it. This was one point where Great Britain and America had failed. The Japanese found that they required 1 per cent. of medical officers and 9 per cent. of inferior medical personnel to the total fighting force. The Japanese claimed that all medical officers in war should have had army service in peace, and they were much dissatisfied with the civilian surgeons whom they commissioned for temporary war service, this notwithstanding each of these men were given four months medico-military training before going into the field. He did not consider it necessary that our army should have enough medical officers in the regular army to perform the work in a serious war; there were many posts in a war army that could be well filled by civilian practitioners. If one-fourth of our medical officers in war were trained surgeons of the regular establishment we would be in a fairly safe position. To maintain a less number than this invited disaster. The plan of maintaining only enough medical officers to care for the sick and wounded in time of peace was one which a nation desirous of efficient medical service in war should never tolerate. The Japanese recognized that the quality of their medical officers was quite as important as the quantity. The inducements that they offered were sufficient to secure a good class of men. Russia was far inferior to Japan in this respect. The medical officers of the Japanese army had the highest possible ideal of patriotism while the Russian doctors hardly felt themselves a part of the army. If this country wished to attract the highest class of medical men to the army medical service it was apparent that the inducements to enter the army must be increased, as the present possible rewards in civil life were much greater than they were some years ago. The Japanese medical department had complete autonomy and the Russian did not. Certain duties were required of the Japanese medical department, and it was held responsible for them without let or hindrance. In the Russian Army the responsibility was so divided between the army medical department and the Red Cross that it was a wonder that the results were as good as they were, and at times they were very bad. Our organization was much nearer the Japanese than the Russian, but Major Lynch feared that war would show that our medical department should have absolute control of its own transportation and should supply ambulances and all sanitary apparatus.

In battle, aid to the wounded was given in various stages from front to rear. First was regimental aid on the firing line and at the temporary dressing station, then the dressing station, the field hospitals, the transport department for patients, the stationary hospitals, the line of communication hospitals, the hospital ships, the receiving hospital

at home, hospital trains, rest stations, and reserve hospitals with convalescent camps. This was the Japanese organization, and it varied little from that of other nations which had given serious consideration to the organization of a medical department. While the stream of wounded constantly ran to the rear and ended at home, medical supplies took the contrary direction. He showed how all these organizations worked in connection with the battle of Mukden, which was the greatest battle of which we had record. Various scenes of the battle were illustrated by stereopticon views, as well as the manner of caring for the wounded at the front, of collecting them, and of taking them to the temporary dressing station behind the firing line. Even here they were exposed to artillery firing and it was becoming increasingly difficult to perform medical service in the field owing to the increase in the range of small arms and artillery. Little professional care was given the wounded at the dressing stations, though emergency operations were sometimes performed. On the field of battle transportation could be provided only for those absolutely requiring it. All others had to walk. In the field hospitals only emergency operations were performed because it was necessary to hurry the wounded to the rear as fast as possible to make room for others; time was not available, nor was it possible to make preparations for clean work. Each field hospital was supplied with an *x*-ray apparatus, but it was seldom used at the front. The stationary hospitals were three times as large as the field hospitals and were intended to replace the latter or to receive patients from them. The communication hospitals received the wounded from the stationary hospitals. In showing the illustrations of the field medical supply, Major Lynch called attention to the size of the boxes; there were none larger than could be easily handled by two men.

Although the work of the medical department was extremely complicated during a great battle, as could be seen from this brief description, the Japanese had practically all the wounded on their side under shelter within twelve hours. This was the maximum time. This achievement was simply marvelous considering the duration of the battle of Mukden, which lasted from March 26 to April 10. If any link in the long chain broke or even weakened disaster would have almost inevitably followed. The Japanese used no hospital trains in Manchuria, as they did not have the necessary rolling stock, and if they had possessed it they could not have permitted it to interfere with the supply of their troops; so they resorted to ordinary cars returning from the front. The Japanese were able to have trains for sick and wounded at all times with the necessary attendance. The Russians had some fine hospital trains, so that a man might be very comfortably transported, but there were so few of these trains that the Russian patients were put on trains returning from the front often without any provision being made for food or attendance. This was quite characteristic of the difference between the medical service of the two countries. Japan always provided adequate, though sometimes rough, means for the care of ill and injured, while Russia rejoiced in overabundance at one place and entire lack of everything at another. During the war Japan operated twenty hospital ships, two of which belonged to the Red Cross of Japan. In peace these ships were in commercial service, with the proviso that the company operating them would turn them over to the Red Cross, equipped for hospital use within one week after being notified to do so. It was the policy of Japan to send all injured and ill requiring it to their division districts as soon as possible. Some of the wards in the temporary hospitals were built and ready for patients within 48 hours of the receipt of notification that they would be needed. At one time Hiroshima had excellent accommodations for 22,000 patients. The Japanese provided accommodation for about 70,000 patients in their home hospitals, and for 10,000 convalescents in their convalescent camps. These camps showed a wealth of good care on the part of the Japanese so far as the soldiers were concerned, and the Russians received equally good care at the hospital for prisoners of war at Matsuyama.

In discussing sanitation, Major Lynch said that it was generally known that in all wars, except the Franco-Prussian on the German side, the deaths from disease had greatly exceeded those from wounds. In the past there might have been some justification for this, but fuller knowledge had proved of no benefit to the United States in the Spanish-American War, where, had the need arisen, we could not have put 50 per cent. of the men mobilized into the field against the enemy. The Japanese had made use of present day knowledge regarding sanitation, and in consequence protected their army better from the inroads of disease than had any other nation up to the present time. In the field the Japanese reported one death from wounds to 0.47 of one death from disease. He was of the opinion that these figures were substantially correct. Russian statistics were valueless, but from observation and conversation with Russian surgeons he was quite sure that the Russian loss from disease was at least twice as great as this. The Japanese had not more than one-third as many men constantly ineffective from sickness as their enemy. While the Japanese attained notable success in preventing diseases of known causation or methods of spread, they failed with beriberi. National sentiment had been a great factor in the matter of sanitation. A soldier who returned home suffering from a preventable disease was made to realize by his family and friends that he had been a credit neither to his country nor to them. This was a powerful factor in making soldiers observe sanitary instructions. In Japan a commander whose force suffered from disease to an unwarrantable degree was likely to be called upon for an explanation. A Japanese officer might disregard the advice of his medical officer on sanitary questions just as he might in this country, but in practice he did not do so, as he appreciated how much good hygiene meant to his command. So far as he knew all the high commanders in the Japanese service were not only willing, but anxious, to gain the benefits that would accrue to their troops from the advice of experts on the subject of sanitation. The medical department of the Japanese army pronounced upon the physical fitness of officers and soldiers entering the service, educated them in sanitary matters, supervised their sanitation during the course of their service, and determined when they were no longer fit for active duty. The physical standard maintained was a very high one. The Japanese soldier was not conscripted until he was 20 years of age, which was, in the speaker's opinion, a great benefit. In all the officers' schools almost one-half the time was devoted to physical training. During the whole course of each man's service he was kept in good physical condition by hard drills with much running exercise, and physical contests were encouraged among the men. A pamphlet entitled, "Health Memoranda for the Use of Soldiers in Time of War," prepared by the medical department was issued to the soldiers, but more dependence was placed upon the personal teaching of the surgeons. Frequent sanitary inspections were made by medical officers of all grades in the Japanese service and by these means sanitary faults could not escape detection, and could be corrected before great harm resulted. These inspections were extended to include the inhabitants of the country as well as the troops. A monthly physical examination was made of all Japanese troops which was of value as a means not only of weeding out the unfit, but also of detecting communicable disease. The clothing and equipment of the Japanese soldier were excellent, with the exception of his shoes, and in these some improvement had been made. He carried about 58 pounds, which was too much for any soldier, though the Japanese did not seem to be distressed by it.

No army in a long campaign had been so well supplied

with food as were the Japanese in the Russo-Japanese war. Even during the battle of Mukden the men were almost universally well-fed. The standard established for the soldier's daily allowance of food was 2,580 calories. Four times monthly the surgeons weighed the food as it was served to a few men at table and the number of calories was calculated; if the food was found insufficient the authorities were notified in what respect the ration should be increased. Practically all the water used by the Japanese in the field was sterilized by one method or another, and the speaker was convinced that the United States would have to adopt this principle if its army was not to suffer from water-borne diseases to an unwarranted extent. The Japanese medical department analyzed the water supplies of the troops, but this was only for the purpose of selecting the best; the water was sterilized no matter what the result of the analysis. Boiling was the method of sterilization relied upon to the exclusion of all others whenever it was applicable. Boiling stations were established on the lines of communication. At halts the large kettles used in the preparation of rice were used. During battles the men boiled water in their own water bottles. During the war a water cart was constructed which contained about 60 liters and was a boiler as well as a cart. The fire box was large, which permitted of the water being brought to the boiling point in a very short time. In the field, latrines were invariably pits and their contents were well covered with earth or ashes. The habits of the Japanese soldier were good. Drunkenness was almost unknown. Successful efforts were made to prevent the soldiers from cohabiting with Chinese women unless they were regularly licensed. Love of country and love of family were used to effect this remarkable result. The soldiers had their hot baths every day, and even at the front they rarely missed a day. Both quarantine and disinfection were carried out thoroughly in the army; quarantine stations were established through which returning soldiers had to pass. The Japanese regarded typhoid fever and dysentery as contagious diseases and isolated them as carefully as they did smallpox. This, the speaker believed, was absolutely necessary in an army where the opportunities for contact infection were so numerous. The Japanese clearly recognized the possibility of infection by flies. The only way flies could be prevented from having access to the food was by serving it immediately before it was to be eaten. After being washed the dishes were covered to protect them from flies, and mosquito netting was used to screen all hospitals for contagious diseases, even those well up toward the front. In the field creosote pills were issued to the soldiers in little tin boxes upon which was written: "To defeat the Russians take one three times daily." It was believed that the medical department had made an error in the administration of this intestinal antiseptic, nevertheless the Japanese had only about one case of typhoid fever and dysentery to the Russians six. Typhus fever, though quite common in Manchuria, was rare in the army. It was treated like other contagious diseases. Tuberculosis was not commonly seen in the army; cases were promptly discovered and sent home for discharge. Smallpox was rare. Diphtheria, scarlet fever, mumps and measles occurred only in isolated cases. Whenever we mustered in an army we had hundreds of cases of mumps and measles. Major Lynch thought the Japanese population suffered so generally from these diseases in childhood that all men entering the army were made practically immune by previous attacks. Beriberi proved a terrible scourge to the Japanese army, probably from 40 to 50 per cent. of all diseases resulted from it. In peace 14 per cent. of the army had beriberi, according to the Japanese report; in the Chinese-Japanese war this percentage rose to 18, and in the Russo-Japanese war it reached 16 per cent. His experience with the disease, which had been fairly large, led him to see no reason why beriberi should be regarded as a dietetic disease, and he felt convinced that careful isolation of cases and the proper methods of disinfection could be depended upon to prevent its spread. An increase in the proteids in the diet of the soldiers did not diminish beriberi. He ascribed the great increase of this disease during war to the overcrowding in the barracks, which gave every opportunity for infection from man to man.

It was safe to say that the lesson taught by Japan would be taken to heart, and that within a few years all great armies would require instruction in hygiene of their entire personnel. The United States now has a school for instruction in hygiene at West Point. In regard to the professional care of the sick and wounded, Major Lynch said that the Japanese could teach us nothing on the practice of medicine and surgery. Japan was a young country so far as the scientific study of medicine was concerned, and there was need of good native teachers; the foreign instructors had not kept up in the advances of their profession. The Russian medical department had many poor practitioners and some good surgeons. The Japanese, however, returned a large percentage of sick and wounded men to the ranks. Neither Russians nor Japanese benefited to the greatest possible extent from the first aid packet. It seemed to the speaker that if we desired to profit by the experience of the Japanese we should recognize that we must have a strong force of medical officers in the regular establishment and the only way to attain this result was to create public interest and sentiment. He thought further, that as physicians and citizens, the profession should endeavor to create public opinion. So far as sanitation was concerned we labored under greater difficulties than the Japanese because of the absence of good teaching of personal hygiene to the individual officers in peace. In order to reach the results that the Japanese had attained it was necessary that there should be good instruction in personal hygiene in the schools. This would greatly benefit the public in times of peace. A great deal had already been done in our army, and to-day our military forces were in a state of transition which was gradually approaching a logical organization. The bill to increase the efficiency of the medical department of the army had been passed and attention could be directed to progress in other directions. A Medical Reserve Corps had been created. The American National Red Cross was also making progress.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 26, 1908.

DR. J. RIDDLE GOFFE IN THE CHAIR.

Want to Discontinue the Medical Directory of New York, New Jersey, and Connecticut.—Dr. C. G. COAKLEY read a letter received from the Genesee County Medical Society inviting other county medical societies of this State to instruct its delegates to the coming meeting of the Medical Society of the State of New York to move for a discontinuance of the publication of the medical directory of New York, New Jersey, and Connecticut. It was claimed that four other county societies of this State wished the same action. It was moved, seconded, and carried unanimously that the Medical Society of the County of New York vote for a continuance of this directory and that the Secretary send a copy of this resolution to all the county medical societies of the State asking them to take similar action.

Nominations.—The nominations of officers, censors, and delegates to be elected at the one hundred and third annual meeting, to be held November 23, 1908, were made.

The scientific session was devoted to a symposium on opsonic therapy.

Opsonins, Opsonic Index, and Immunity.—Dr. EUGENE L. OPIE of the Rockefeller Institute for Medical Research reviewed the fundamental facts regarding the relationship of opsonins to immunity. The power of various

cells, particularly leucocytes, to take into their substance bacteria and other organisms had long been recognized as one of the most important factors in the protection of the animal body from infection. The discovery in the serum of the blood of substances capable of destroying and dissolving bacteria had furnished evidence that bacteria might be overcome without the intervention of phagocytes. A comparatively recent discovery had shown that both serum and cells had an essential part in phagocytosis. Wright showed that the number of bacteria which a phagocyte could devour in a given time might be counted under the microscope, and he showed that the leucocytes of the blood were unable to take up bacteria unless the blood serum was present; the normal blood serum contained something which made phagocytosis possible. This body acted by attaching itself to the bacteria. This body in the serum Wright called opsonin. According to Wright, the leucocytes were ready to take up as many bacteria as the serum could prepare for them. To measure the activity of phagocytosis it was necessary to measure the ability of the serum to prepare microorganisms, in other words, to measure the opsonins. These substances were not susceptible of absolute measurement, but by comparing the serum to be tested with that of one or more normal individuals, it was possible to assume how many times its opsonic strength was greater or less than normal. This relative strength had been termed the opsonic index. A low opsonic index indicated that an individual was particularly susceptible to infection by the organism with which the index had been tested. Increase of opsonins in the blood indicated in general terms that the power to resist infection was increased. The opsonic index measured with a fair degree of accuracy the power of the blood serum to promote phagocytosis; but the majority of observers in this country at least had reached the conclusion by comparative tests that the opsonic index was subject to great inaccuracy. There was evidence that immunization with the tubercle bacillus or its products was accompanied by increase of the opsonic power of the blood serum. With localized infectious lesions, such as abscesses, suppurating sinuses, and various forms of tuberculosis limited to a joint, lymphatic glands, or other well-defined locality, the opsonic index had been often found less than normal. It had been assumed that bacterial products were not absorbed in sufficient quantity to set in motion the mechanism of immunity; the injection of killed cultures of bacteria was recommended for the purpose of stimulating the formation of opsonins.

The Treatment of Erysipelas by Bacterial Vaccine.—Dr. George W. Ross of Toronto, Canada, read this paper. His belief was firm from a study of fifty cases of erysipelas, that a vaccine prepared from the *Streptococcus erysipelatis* and properly administered, exercised a specific and controlling influence upon the course of the disease, preventing its spread, lessening its severity, and hastening recovery. The reason for this belief he briefly summarized under two main heads: First, from the standpoint of immunity. The opsonic power of the blood was low during the acute process of the disease and when more or less rapid spread was manifested; again, the subsidence of such symptoms as malaise, mental unrest or apathy, pain and tenderness, and the localization of the inflammatory area were closely associated with an increased immunity as evidenced by a rise of opsonic power. He was prone to attach great importance to these considerations of immunity because he had frequently observed parallel series of events in therapeutic inoculations with bacterial vaccines in many cases of boils, septic hands, tuberculosis of the glands, bladder, etc., and in many other cases of localized bacterial infections. Second, from the standpoint of clinical observation of the course of the disease as apparently influenced by inoculation with their vaccines. Whatever surface might be involved subsequent to inoculation manifested a less severe form of inflammatory process; the mental unrest and physical discomfort were rapidly controlled; the pyrexia seemed to subside more rapidly and long-continued pyrexia had not been met with; the complications and sequelæ seemed to be much less common. He said he would, therefore, submit the evidence adduced in this communication was sufficient to justify the use of a vaccine prepared from *Streptococcus erysipelatos* in the treatment of erysipelas, particularly as there was no recognized remedy for this disease.

The Opsonic Index in Pulmonary Tuberculosis.—Drs. Gerald Bertram Webb and William Whitridge Williams of Colorado Springs, Colo., presented this communication. Their general conclusions as to the value of the opsonic index in pulmonary tuberculosis were as follows: (1) The technique was sufficiently accurate; (2) they found it of very little value in guiding their doses of tuberculin, although their aim had been to keep the index above normal; (3) they regarded fluctuations as almost positive evidence of the presence of tuberculous activity; (4) they thought it of great value in the study of autoinculations, believing it in such cases to be a guide as to the amount of exercise patients should be allowed; (5) they did not believe that the opsonic index by any means told them the whole degree of immunity of their patients to tuberculosis; (6) they believed that complete arrest of pulmonary tuberculosis could only be registered by absence of fluctuation in the opsonic index following exercise.

The Use of "Vaccines" in Gonococcus and Streptococcus Infections.—Dr. Nathaniel Bowditch Potter of New York read this paper, illustrating with lantern slides. The following figures were offered which were of interest. Of the noninoculated cases there were 58 that were surgical and medical, with six recoveries, a percentage of 11 (Libman); 47 medical cases, with eight recoveries, a percentage of 17 (Lenhertz); 28 surgical cases, with 19 recoveries, a percentage of 689 (Bertelsman). Of the inoculated cases there were 30 both medical and surgical, with 14 recoveries, a percentage of 47 (Potter).

Dr. Norman E. Ditman said that the opsonin served the purpose in directing attention to vaccine therapy. The opsonic index measured but one form of immunity, and was of value when done in hundreds and when the average of these was obtained. The value of the opsonins at the present time was largely in the field of research; while that of vaccines was in practical therapeutics.

Dr. C. G. Coakley told of his work in chronic suppurations of the nasal accessory sinuses, the vaccines being obtained from cultures isolated from each individual patient. Thirteen patients were under treatment for a period of four months, and but one was cured; the other cases made no improvement.

Dr. William H. Park said that those in the Health Department were still studying the vaccines, and as yet their opinions might change from week to week and from month to month. He did not know the relative importance of the vaccines; he did not think one could tell the relative importance in any one disease of opsonic substances and other substances. They did not seem to show any quantitative relationship. Wright had convinced many men of the value of vaccines and had caused them to study them more carefully and thoroughly. All were coming to see that they could not in individual cases rely upon the index; in individual cases it was a mistake to have indices.

Heart Disease.—In cases of heart disease we should investigate first the symptoms afforded by the attitude of the patient in bed, by the color of the lips and cheeks, by the pulse, by the jugular veins, or by dropsy, before proceeding to physical examination. For this reason books written before the discovery of auscultation (such as the treatise of Corvisart) are worth reading, if only to show how much the physicians of that day could find out apart from the help of physical signs. Symptoms, and not physical signs, guide our prognosis and treatment.—*Gee's Aphorisms.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DISEASES OF THE EYE. By M. STEPHEN MAYOU, F.R.C.S. 12mo, 388 pages; cloth; illustrated. Oxford University Press, American Branch, New York.

LEHRBUCH DER SPEZIFISCHEN DIAGNOSTIK UND THERAPIE DER TUBERKULOSE. Von Dr. BANDELIER und Dr. ROEPKE. 4to, 177 pages; paper; illustrated; bound, 7 marks; unbound, 6 marks. Curt Kabitzsch (A. Stuber's Verlag), Würzburg.

ARZTLICHE BEREDSAMKEIT. Von Dr. Med. HENRY HUGHES. 8vo, 59 pages; paper; $1.00. Curt Kabitzsch (A. Stuber's Verlag), Würzburg.

INDIANA STATE BOARD OF MEDICAL REGISTRATION AND EXAMINATION, 1907. 8vo, 315 pages; cloth; illustrated. William B. Burford.

A MANUAL OF BACTERIOLOGY. By HERBERT U. WILLIAMS, M.D. 8vo, 466 pages; cloth; illustrated; $2.00. P. Blakiston's Son & Co., Philadelphia.

STATISTIQUE DES PERSONNES ATTEINTES DE CANCER. By le Dr. JULES DOLLINGER. 4to, 167 pages; cloth; illustrated Imprimerie da la Société Anonyme, Atheneum.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D. 8vo, 293 pages; paper; illustrated; $6.00 per annum. Lea & Febiger, Philadelphia.

CONTRIBUTIONS TO THE PHYSIOLOGICAL THEORY OF TUBERCULOSIS. By CHARLES CREIGHTON, M.D. 4to, 242 pages; cloth; illustrated; 12/6 net. Williams & Norgate, London, England.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Edited By W. D. HAGGARD. 8vo, 570 pages; cloth; illustrated. Published by the Association.

A TEXTBOOK OF HUMAN PHYSIOLOGY. By GEO. V. N. DEARBORN, A.M. (Harv.), Ph.D., M.D. (Col.). 8vo, 550 pages; cloth; illustrated. Lea & Febiger, Philadelphia.

HYGIENE FOR NURSES. By ISABEL MCISAAC. 12mo, 208 pages; cloth; illustrated; $1.25 net. The Macmillan Company, New York.

NEUROLOGICAL AND MENTAL DIAGNOSIS. By L. PIERCE CLARK, M.D. 12mo, 188 pages; cloth; illustrated. The Macmillan Company, New York.

CHIRURGIE FÜR ZAHNÄRZTE. Von Prof. Dr. Med. LUDWIG BRANDT. 4to, 458 pages; paper; illustrated; $1.25 net. Verlag von August Hirschwald, Berlin, Germany.

HAY-FEVER, HAY-ASTHMA. By WILLIAM LLOYD. 8vo, 101 pages; cloth; illustrated. Henry J. Glaisher, London, England.

THE PRINCIPLES AND PRACTICE OF GYNECOLOGY. By E. C. DUDLEY, A.M., M.D. 8vo, 806 pages; cloth; illustrated. Lea & Febiger, Philadelphia.

TEXTBOOK OF PHYSIOLOGICAL CHEMISTRY IN THIRTY LECTURES. By EMIL ABDERHALDEN. 8vo, 722 pages; muslin. John Wiley & Sons, New York.

MANUAL OF PSYCHIATRY. By J. ROGUES DE FURSAC, M.D. 8vo, 406 pages; muslin. John Wiley & Sons, New York.

SANATORIA FOR CONSUMPTION AND CERTAIN OTHER ASPECTS OF THE TUBERCULOSIS QUESTION; Supplement in Continuation of the Report of the Medical Officer for 1905-06 to the Thirty-fifth Annual Report of the Local Government Board, 1905-06. 8vo, 670 pages; paper; illustrated; 5/. Darling & Son, London (Compliments of D. Bulstrode, London).

CHRONISCHER MAGENKATARRH. By Dr. FRIEDRICH CRAMER. 8vo, 176 pages; paper; illustrated. J. F. Lehmanns, Munchen.

THE STRUGGLE AGAINST TUBERCULOSIS IN SWEDEN. Edited by STURE CARLSSON, M.D. 4to, 201 pages; illustrated; paper. Central Press, Stockholm.

DISEASES OF THE SPINAL CORD. By R. T. WILLIAMSON, M.D. (Lond.), F.R.C.P. 8vo, 432 pages; illustrated; cloth. Oxford University Press, New York.

GLANDULAR ENLARGEMENT AND OTHER DISEASES OF THE LYMPHATIC SYSTEM. By ARTHUR EDMUNDS, M.B., M.S., B.Sc., Lon., F.R.C.S., Eng. 12mo, 230 pages; cloth; illustrated. Oxford University Press, New York,

THE LAW IN GENERAL MEDICAL PRACTICE. By STANLEY B. ATKINSON, M.A., M.B., B.Sc. 12mo, 240 pages; cloth. Oxford University Press, New York.

FOURTH ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE FOR THE STUDY, TREATMENT, AND PREVENTION OF TUBERCULOSIS. 4to; paper. Edited by JOSEPH WALSH, Henry Phipps Institute.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending December 5, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	574	153
Diphtheria	385	39
Measles	271	10
Scarlet Fever	221	7
Smallpox	—	—
Varicella	179	—
Typhoid Fever	77	11
Whooping Cough	37	1
Cerebrospinal Meningitis	5	1
Malarial Fever	—	—
Totals	1749	222

Medical Students in Germany.—The numbers of medical students in German universities during the summer course of 1907 were as follows: Munich, 1,248; Berlin, 876; Freiburg, 645; Leipzig, 498; Würzburg, 449; Heidelberg, 397; Kiel, 340; Marburg, 291; Bonn, 277; Breslau, 277; Jena, 275; Tübingen, 242; Strassburg, 233; Königsberg, 216; Halle, 210; Greifswald, 201; Erlangen, 199; Göttingen, 176; Giessen, 173; Rostock, 122. Total, 7,345.

Prognosis in Phthisis.—"Never give a definite opinion as to how long a patient suffering from phthisis will live; for the only certainty is that, if you do, you will be wrong." (Gee.)

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending December 4, 1908:

SMALLPOX—UNITED STATES.

		Cases.	Deaths.
California, San Francisco	Nov.' 7–14	8	..
Kansas, Topeka	Nov.' 7–14	7	..
Ohio, Cincinnati	Nov.'13–20	2	..
Tennessee, Nashville	Nov.'14–21	1	..
Texas, Encinal	Oct. 22–Nov.'26	49	..
Washington, Spokane	Oct. 7–14	1	..
Tacoma	Oct. 24–Nov.'1	4	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Oct. 3–10	4	..
Algeria, Algiers	Oct. 1–31	..	22
Arabia, Aden	Oct. 19–Nov.'2	..	19
Brazil, Bahia	Sept. 1–30	174	6
Canada, Halifax	Nov.' 7–14	4	..
Victoria	Nov.' 7–14	1	..
Ceylon, Colombo	Oct. 3–17	56	11
Egypt, Cairo	Oct. 21–28	7	1
France, Paris	Oct. 24–Nov.'7	4	..
India, Bombay	Oct. 20–27	..	2
Calcutta	Sept. 26–Oct. 10	..	3
Italy, General	Nov. 1–8	4	..
Naples	Nov. 1–8	12	..
Russia, Odessa	Sept. 26–Oct. 3	2	..
Warsaw	Oct. 10–17	..	5
Spain, Barcelona	Oct. 31–Nov. 7	..	2
Turkey, Constantinople	Nov. 1–8	..	7

YELLOW FEVER.

Brazil, Bahia	Sept. 1–30	..	1
Para	Oct.' 17–24	3	3
Martinique, Fort de France	Oct. 24–31	1	..
Mexico, Campeche	Nov. 7–14	1	..
Merida	Nov. 7–14	5	3
Veracruz	Nov. 7–14	2	1

CHOLERA—INSULAR.

Philippine Islands, Manila	Oct. 3–10	55	14
Provinces	Oct. 3–10	1,276	738

CHOLERA—FOREIGN.

China, Hankau	Oct. 27	..	Present
India, Bombay	Oct. 20–27	..	1
Calcutta	Sept. 26–Oct. 10	..	20
Madras	Oct. 17–23	..	7
Russia, General	To Oct. 24	25,500	11,962
St. Petersburg	Sept. 26–Oct. 24	7,574	3,121
Straits Settlements, Singapore	Oct. 10–17	1	..
Japan, Moji	To Oct. 28	2	..
Obama	To Oct. 28	1	..
Sasebo	To Oct. 28	2	..
Tsushima	To Oct. 28	7	..
PLAGUE			
Brazil, Bahia	Sept. 1–30	..	8
Para	Oct. 10–17	1	1
Chile, Iquique	Oct. 23–26	3	..
India, General	Oct. 10–17	3,717	2,649
Bombay	Oct. 20–27	..	12
Calcutta	Sept. 26–Oct. 10	..	13
Rangoon	Oct. 10–17	..	6
Peru, General	Oct. 15–28	38	25
Lima	Oct. 15–28	7	1

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Original Articles.

THE PROGNOSIS AND TREATMENT OF THE DEEP LESIONS OF THE EYE, ASSOCIATED WITH GOUT, WITH SPECIAL REFERENCE TO SECONDARY ACUTE GLAUCOMA.*

BY CHARLES STEDMAN BULL, A.M., M.D.,

NEW YORK.

DURING the past year the writer has seen an unusually large number of cases, illustrating grave lesions of the retina and chorioid, associated with chronic gout, and it has seemed to him worth while to put on record some of these cases by bringing them before the members of the Practitioners' Society. These cases are by no means of common occurrence, but they seem to be increasing in frequency, and the lesions are so destructive of vision that the patients need the best skill and widest knowledge which can only come from the combined efforts of the family physician and the ophthalmologist.

The patients were all markedly gouty, were all well past middle life, and were all victims of the modern, ultrastrenuous life. In the treatment and management of these cases I was greatly assisted by the family physician, with his wider knowledge of the patient's general condition.

None of the cases of intraocular inflammation occurred simultaneously with an acute arthritic attack, but they always followed an intestinal attack, and in all of them the urinalysis showed a marked excess of uric acid, and a high percentage of indican. This would seem to prove that the general toxemia resulting from faulty metabolism is of intestinal origin, and due to fermentative processes.

The excess of uric acid present in an acute inflammatory attack of gout acts not only as a toxic agent, but also as a mechanical irritant upon the tissues. The protective cells of the body are not powerful enough to neutralize the excess of uric acid or prevent its partial absorption, and the combined toxic and irritant agent is carried into the general circulation, and may set up an inflammatory process in any part of the body. All these patients showed the well-known cardiovascular changes met with in chronic lithemia, which were well marked in the vessels of the retina and chorioid. It is a recognized fact that the continued perversion of function of any part leads to structural change. Compensatory growth has its limit, and in the altered condition of the vessels, arteriofibrosis constitutes the compensatory stage, while arteriosclerosis forms the secondary process of degeneration.

A close study of many of these cases of retinitis, chorioiditis, and secondary acute glaucoma will show that the strain of increased blood-pressure causes hypertrophy of the muscular tissue of the tunica media. The increased blood-pressure is the cause of both fibrosis and sclerosis, the latter being a degenerative process. This condition once established, time and the question of relative weakness will determine when and where the vessel-wall will yield to dilatation and rupture. Of course high arterial tension does not always mean a fully developed arteriosclerosis, for at first the results are simply functional. The occurrence of the outbreak in the eye simply represents the extension of the diseased arterial condition in one special direction.

The influence of increased blood pressure on the functions of the eye may be recognized by a loss of accommodation, transient blurring of the vision due to a diminished, intermittent blood-current, or to retinal edema; sudden impairment of vision from retinal or vitreous hemorrhage. All these are conditions of recognized toxic origin. But in all these cases, gout is not the direct cause of the vascular lesions. The diseased products of faulty metabolism are the cause of both the arterial degeneration and the gout.

An abnormally high blood-pressure is much more frequently met with in modern life than formerly. It is significant of the modern strenuous life, with its impaired metabolism, its imperfect elimination of the toxic products of metabolism, and the resulting toxemia.

These deep lesions of the retina, chorioid, and sometimes of the iris, are of grave importance, and leave lasting traces behind them in impaired vision, enfeebled or abolished function, and a tendency to degeneration and atrophy. The hemorrhages from the vessels point to the gradual degeneration of the entire vascular system, and any considerable change in the intraocular tension will give rise to hemorrhages into the retina, chorioid or vitreous humor. They may occur in one or both eyes, may be single or multiple, and may be scattered all over the fundus. A recurrence of these hemorrhages under any sudden emotional excitement, or following great physical or mental fatigue, is too often followed by the development of a secondary acute glaucoma, with its intense pain requiring immediate operative interference, with disastrous results as to vision.

It is an interesting fact that this arterial degeneration seems to be distinctly hereditary in certain families, and here the evidence of arteriosclerosis in the retinal vessels is often the first symptom of the hereditary condition, and has been seen in comparatively early life.

We also find a similar condition in the retinal veins, which is often more marked than the change in the arteries. This soon leads to edema of the retina, which is one of the constant symptoms of the early stages of the retinal disease. This edema disappears if the circulation becomes reestablished in the obstructed vessels. This phlebosclerosis is more frequently encountered in the eyes of patients who are the subjects of chronic atypical gout, than

*Read before the Practitioners' Society, November 6, 1908.

in the typical inflammatory form of the disease, and in these cases the diagnosis as to cause and effect is not always easy. The cases of acute inflammatory retinitis naturally come more frequently under the observation of the ophthalmologist, and are, of course, of a much more serious nature, because of the seroplastic exudation, and the recurring retinal and vitreous hemorrhages. The latter I have come to regard as almost pathognomonic of lithemia.

The fundus changes in these cases are retinal edema, patches of yellowish exudation, retinal and vitreous hemorrhages, and a blurring of the outline of the optic disc. The retinal arteries are diminished in calibre, and the white lines along the vessels can be distinctly traced well towards the periphery. The veins show fusiform dilatations. When vitreous opacities are present, they are either the remains of previous hemorrhages, or an evidence of coexisting chorioiditis. These changes are almost always bilateral, though they are rarely symmetrical. In the cases of chronic atypical gout, the degenerative changes in the walls of the vessels are at first very slight, and often overlooked. The hemorrhages occur in the early stage of the disease; but when the walls of the retinal vessels become thickened by deposit, they become stronger, and under ordinary conditions of everyday life, hemorrhages are less likely to occur. There is marked impairment of central vision, which is progressive up to a certain point, but never ends in blindness unless acute glaucoma supervenes.

The microscopic examination of the retina in all these cases confirms the existence of the extensive angiosclerosis, but a full description of the pathological changes would occupy too much time. It suffices to say that such an examination proves the existence of the three factors involved in the process, viz: the shortening of the tunica media, the compensatory endarteritis, and the atrophy of the muscular coat.

The great danger in these cases of retinitis or chorioretinitis is the development of an acute glaucoma. The high blood-pressure with its increased vascular tension tends at once to increase the intraocular tension beyond the normal limits and well within the danger-zone. If this occurs in a hypermetropic or very astigmatic eye, with its shallow interior chamber, the almost inevitable result is a more or less complete obstruction of the channels of filtration, ending in acute glaucoma, with its severe pain, paralysis of the sphincter iridis, engorgement of the deep episcleral vessels, cloudy cornea, and loss of vision.

In the presence of such a complication, our first impulse is to advise the immediate performance of the classical operation of iridectomy. The operation, when properly done, relieves the increased tension, stops the severe pain, and arrests the progress of the symptom-complex known as acute glaucoma. But in these cases of chorioretinitis with exudation and hemorrhages, the sudden lowering of the intraocular tension by the iridectomy almost invariably causes a sudden profuse hemorrhage into the vitreous, which again raises the tension above the normal, causes a return of the severe pain, which cannot be controlled, and ultimately necessitates the enucleation of the eyeball to relieve suffering. Moreover the operation of iridectomy is very painful in acute glaucoma and requires the employment of general anesthesia. These patients with their extensive cardiovascular changes, generally accompanied by cardiac hypertrophy and enfeebled heart action, are not fit subjects for general anesthesia, because of the danger of death during the use of the anesthetic.

It should be fully recognized that an iridectomy should never be done in acute glaucoma, which has been preceded or accompanied by retinal or vitreous hemorrhages, and where the extensive cardiovascular disease makes general anesthesia dangerous to the life of the patient. We have other means at our disposal for allaying the pain, reducing the tension, and arresting the inflammatory process, even if the eye remains permanently blind.

The treatment and management of these cases must vary with the age and general condition of the patient, the nature of the lesion, and the severity of the type. The habits of life must be regulated, of course modified in strictness by the patient's condition and environment. It must be largely dietetic, based on accurate knowledge of the patient's digestive capabilities. The administration of drugs, except to combat certain symptoms as they arise, is of secondary importance. The daily life of the patient should be rendered as quiet as possible, and there should be great moderation in eating and drinking. As an abundant meat-diet raises the blood-pressure, the amount of meat eaten should be curtailed. A certain definite amount of systematic exercise should be insisted upon, preferably in the open air, because it increases oxidation, improves the capillary circulation, and thus aids in the process of elimination. If the patient has been addicted to the use of alcohol in moderation, it is not wise to absolutely interdict its use, but it should be taken largely diluted. Alcohol does dilate the peripheral blood-vessels, but does not increase the blood-pressure to any appreciable extent. The use of tobacco should be forbidden or reduced to a minimum, as it contracts the blood-vessels and raises the blood-pressure. Water should be taken freely between meals in order to aid elimination. The products of faulty metabolism which induce hypertension only cause the toxic effects while they are circulating in the blood. The uric acid group are eliminated largely through the kidneys, and experience has taught us that the best renal eliminants are the salts of lithia, soda, and potash.

To reduce the high blood-pressure, I employ sodium nitrite as a vasodilator, but I always combine with it some reliable heart tonic. I have made it a rule, in this class of cases, to have a thorough examination made of the heart and general circulation, before prescribing any cardiac drugs. We should be especially cautious in administering any of the vasodilator drugs. A rapid, irregular or intermittent pulse, with a rapid pulse rhythm, and with a systolic murmur, probably indicate a cardiac inadequacy with high blood pressure, and in such a condition cardiac stimulants should be combined with vasodilator drugs. Experience teaches us that a high blood-pressure does not necessarily mean the need of the prompt administration of drugs, for nature often maintains a cardiac integrity in spite of the circulatory resistance, and the apparently urgent symptoms yield gradually without the use of drugs to reduce the pressure. If the blood-pressure be over 200 mm. of mercury, the vasodilator should be slowly administered, and its effect on the blood-pressure, the pulse rate, and the sensations of the patient carefully noted. I believe that the subjective sensations of the patient are a better means of judging of the effect produced than the blood pressure or the pulse rate. The administration of a full dose at once may cause very serious consequences to the patient's heart.

The local treatment of these deep-seated ocular lesions is of great importance. An exudative retinitis or chorioretinitis, with or without hemorrhages, occurring in patients of forty years of age

or over, has a tendency to increase the intraocular tension, aside from the increased intravascular tension. As a result the subjective symptoms are impaired central vision, a sense of tension at times amounting to dull pain, and more or less intolerance of light. It is not safe to use atropine for the purpose of putting the accommodation at rest because of its tendency to increase the intraocular tension and aid in the development of glaucoma. Pilocarpine in a half per cent. or one per cent. solution should be used, as it contracts the pupil, draws the iris away from the angle of the anterior chamber, and lowers the intraocular tension. The light should be modified by wearing smoked glasses, but not darker than tint No. 3.

Should hemorrhages into the retina or vitreous occur, the danger of an outbreak of acute glaucoma becomes greater, and the pilocarpine must be used more frequently and in a stronger solution. All use of the eyes must be forbidden, and the patient must be kept as quiet as possible. The danger of the development of acute glaucoma in these cases is always present, and any sudden mental or physical shock may bring it on. This is markedly so in highly hypermatropic or astigmatic eyes, for here the anterior chamber is shallow, and the angle of the anterior chamber is narrow. The onset of the glaucoma is usually sudden, starting with an acute lancinating pain in the ciliary region, which extends upwards on the forehead and inwards towards the nose, accompanied by engorgement of the deep ciliary and episcleral vessels, dilatation of the pupil, rapid diminution of vision, and marked increased intraocular tension, due to closure of the channel of filtration through Schlemm's canal by the increased pressure. The pain is very severe and resists the administration even of strong opiates.

In the uncomplicated acute glaucoma, unaccompanied by retinitis, chorioiditis, or intraocular hemorrhages, the classical operation of iridectomy should be done at once. This relieves the pain, lowers the intraocular tension, and in the great majority of cases ends the attack at once.

But the case is very different when we have to deal with an acute glaucoma, secondary to a retinitis or chorioiditis, and preceded or followed by intraocular hemorrhages. In such a case, if an iridectomy is done, it is invariably followed by a profuse intraocular hemorrhage, either subretinal or into the vitreous; by an immediate increase of the pain and total loss of vision, and enucleation of the eye must be done in order to relieve the patient's suffering. In such a case iridectomy is bad surgery and entirely unjustifiable, and would better be replaced by an immediate enucleation.

There is still another danger to be considered in these cases. The operation of iridectomy, on an acutely inflamed eye, is very painful, and cannot be satisfactorily done without general anesthesia. But in these patients with extensive vascular degeneration and marked cardiac disease, the employment of general anesthesia would be very dangerous, if not fatal to life.

Moreover in these cases of so-called hemorrhagic glaucoma, the operation can be avoided, and other means employed. In the cases, five in number, accompanying this paper, the operation of iridectomy was avoided by the following method: Under the influence of a strong solution of cocaine a paracentesis of the cornea was done, and the aqueous humor allowed to flow out, drop by drop, from the anterior chamber. In this manner the tension was lowered very slowly, and the danger of an extensive intraocular hemorrhage avoided. Two leeches were applied to the temple and allowed to fill themselves until they dropped. A solution of eserine sulphate, one grain, and of pilocarpine, four grains, was instilled every hour, until under the combined influence of the paracentesis of the cornea and the use of miotics, the eye softened and the pain grew less. As the tension subsides and the excessive pain gradually diminishes, the eserine and pilocarpine solution is instilled less and less frequently. The patient is then directed to use hot applications on the eye for half an hour at a time, and to keep these up every two hours until the pain has gone, and twenty drops of the fluid extract of Jaborandi are ordered three times a day, as an additional means of lowering the intravascular tension. Hypodermic injections of pilocarpine will bring about the same result, but in the presence of advanced cardiac disease they are dangerous. It is sometimes necessary to repeat the paracentesis several times in the same cautious way, at varying intervals, but eventually the end is accomplished. As the symptoms subside, the eserine and pilocarpine may be reduced to three times in the day.

Case I.—Gentleman, aged 85, with advanced cardiac hypertrophy and very marked arterial and venous degeneration, who had suffered from arthritic and intestinal attacks of gout for many years. He had had several attacks of transient obscuration of vision, the last one having come on two weeks before I saw him, and still persisted in the right eye. An examination showed punctate and linear opacities in both lenses, and retinitis with numerous retinal hemorrhages in the right eye. The fundus of both eyes showed the most marked case of arteriosclerosis that I had ever seen, the vascular degeneration being traceable to the extreme periphery of the fundus. The urine contained albumen and hyaline and granular casts. I first saw him in April, 1902, and at that time there was no increased tension in either eye. As a precaution pilocarpine was instilled into both eyes and his heart and circulation were carefully regulated. He had been for several years on a strict antigout diet. The symptoms of retinitis slowly subsided and the hemorrhages became gradually absorbed. There was no recurrence of the attack until December, 1903, when a similar obscuration of vision occurred in the left eye, and an examination showed a retinitis with hemorrhages. There was no increase of tension, but the iris was sluggish and the anterior chamber was shallow. The same treatment was carried out, and the patient did very well until February 10, 1904, when he had a sudden loss of vision in the left eye on the nasal side, and an examination showed a large hemorrhage at the macula and several others scattered over the fundus. This was followed the next day by injection of the ciliary vessels, iritis, and increased tension, with severe pain, and this brought on a severe attack of cardiac dyspnea, which yielded very slowly to treatment. A solution of eserine and cocaine combined with hot applications caused a diminution of the pain, but the acute glaucoma called for surgical interference. I opposed an iridectomy, against the advice of two consultants, and advised a careful paracentesis of the cornea, to be repeated if necessary, which was done. The eserine and cocaine was instilled every hour, and leeches were applied to the temple. The patient's heart action was very feeble and strong cardiac stimulants were ordered. As it was not deemed safe to use pilocarpine hypodermically, he was given 30 drops of the fl. extr. jaborandi three times a day. On February 28 there was a profuse hemorrhage into the vitreous, and the tension rose rapidly so that another paracentesis became necessary. From this

time the symptoms of pain and tension slowly subsided. On two occasions in March the patient nearly died from cardiac dyspnea, but rallied. During these attacks the intraocular tension rose rapidly but could be reduced by a strong solution of eserine and pilocarpine. I have seen this patient about once a month ever since, and at the last visit, in June, 1908, he was in good physical condition, and entirely free from pain or discomfort in the eye. The left eye is blind, but he still has useful vision in the right eye. He is now 91 years old.

Case II.—Gentleman, aged 69, a lawyer by profession. Has been an overworked man for many years and has taken but little rest. Is very gouty, and has had numerous inflammatory arthritic attacks. Has a poor digestion and has been on a rather restricted diet for years. Has cardiac hypertrophy with a mitral systolic murmur, and his heart action is very weak. I saw him first, in 1902, when he had an attack of retinitis with hemorrhage in both eyes, most marked in the left eye. As he was both hypermetropic and astigmatic, I ordered a half per cent. solution of pilocarpine and gave him sodium nitrite combined with strophanthus. The retinitis slowly subsided, the hemorrhages did not recur, and vision slowly improved. In 1904 he had a similar attack in the left eye, which yielded more slowly to treatment, and his general health was much impaired. In the summer of 1906 he had a sudden loss of vision in the left eye while away from home which passed away in a few weeks. Early in November, 1906, a similar attack occurred, accompanied by severe pain, vision was reduced to light perception and the eye was acutely inflamed. When I saw him he had all the signs of acute glaucoma, hazy cornea, dilated pupil, ciliary and episcleral injection, greatly increased intraocular tension, and in addition a large hemorrhage into the vitreous. Under the circumstances an iridectomy was out of the question. A paracentesis of the cornea was at once performed, the aqueous being allowed to pass out very slowly. Three leeches were applied to the temple and a solution of eserine and pilocarpine was instilled every two hours into the left eye, and twice a day in the right eye. The pain was lessened in the course of a few hours. The local applications were continued and four days later I did a second paracentesis of the cornea. He was also ordered 20 drops of the fl. extr. jaborandi three times a day. His condition slowly improved and at the end of a month the pain had gone. At the end of three months all signs of inflammation had subsided, and though the eye was blind he was free from discomfort.

Case III.—A gentleman, aged 62, a banker, whose life was made up of harassing cares with no relaxation. He had been a gouty subject for years, who constantly overstepped the bounds of reason in eating and drinking, and who smoked to excess. In 1903, shortly after a severe attack of intestinal gout, he had an attack of retinitis with hemorrhages in the left eye, for which he came to me. All the signs of arterial and venous degeneration were well marked in the retina of both eyes. He was highly hypermetropic, with normal vision in the right eye and only 5/200 in the left eye. He had cardiac hypertrophy, high arterial tension, and a very irregular pulse. The urinalysis showed a great excess both of uric acid and indican, with albumin but no casts. He was put on sodium nitrite and strophanthus; he was advised to drink freely of lithia water between meals; all red meats and all alcohol were cut off, and his tobacco was reduced to two cigars a day. Pilocarpine was instilled three times a day in both eyes. Within three weeks he had a large hemorrhage into the vitreous of the left eye, which was followed within twenty-four hours by acute glaucoma, with very severe pain and total blindness. As an iridectomy was absolutely contraindicated, a paracentesis of the cornea was done immediately, the needle being withdrawn very slowly, and as soon as the anterior chamber had been emptied a solution of eserine, 1 per cent., and pilocarpine, 4 per cent., was instilled into the conjunctival cul-de-sac every two hours. Leeches were applied to the temple and the fl. extr. jaborandi in 30 drop doses was given three times a day. I was obliged to repeat the paracentesis of the cornea twice at intervals of a week before producing any permanent effect. The pain ceased entirely at the end of three weeks, and at the end of six weeks the attack had passed off, with a vision of counting fingers at one foot and a good chance of still further improvement. There has been no return of the glaucomatous condition.

Case IV.—Lady, aged 70, short in stature, of slight frame, very nervous and very gouty. I saw her first in 1904. She was hypermetropic and astigmatic, with somewhat impaired vision from peripheral lens opacities. She had well-marked arteriosclerosis in the retina of both eyes, a venous pulse, and a very shallow anterior chamber. Fearing a possible development of glaucoma, I ordered pilocarpine for both eyes, and put her on a restricted diet with plenty of lithia water. She did very well for nearly two years, and then there occurred a retinitis with exudation in the left eye, which was followed two weeks later by a very large retinal hemorrhage. Within forty-eight hours acute glaucoma developed, accompanied by a severe iritis, a very unpleasant complication, as miotics used to lower the tension invariably make the iritis worse. A hasty examination of the heart by her family physician showed an enlarged and flabby organ, with a mitral systolic murmur, and a feeble and intermittent pulse. The patient's general condition was very bad. A hypodermic dose of strychnine was given, leeches were applied to the temple, and hot applications were made continuously to the left eye for four hours. I then made a paracentesis of the cornea very carefully allowing the aqueous humor to drain away slowly, and then instilled a 2 per cent solution of pilocarpine, avoiding the use of eserine because of its irritating effect on the inflamed iris. Under the combined influence of these applications the pain gradually grew less and a hypnotic gave the patient a brief sleep of four hours. The eye was blind except for light perception. The next day I began the administration of jaborandi and strophanthus internally, and the pilocarpine in the eye every two hours preceded by hot applications for half an hour. At the end of a week it became necessary to perform a second paracentesis of the cornea on account of a sudden rise of tension. From this time all symptoms of glaucoma slowly subsided, and the pain finally disappeared. About the middle of August she suddenly partially lost the sight of the right eye from a retinal hemorrhage, but there were no glaucomatous symptoms developed. I last saw her on October 16, 1908, when her general condition was very satisfactory. The right eye, the one recently affected, had a vision of 15/50 and she could read fairly small type. In the left eye, where the glaucoma developed, the vision was 15/100 and the eye was quiet and painless.

Case V.—A gentleman, aged 70, of slight frame and frail health. Has a very weak heart action, with mitral systolic bruit, and a chronic, well devel-

oped interstitial nephritis. Has been subject to gouty attacks, both arthritic and intestinal, for many years. I first saw the patient in 1904 for an attack of exudative retinitis in the right eye with several small hemorrhages. At that time an exhaustive examination of the heart and kidneys was made and the diseased condition of both recognized. There was well-marked arteriosclerosis in the retina of both eyes. He was slightly myopic with nearly normal vision in the left eye. Under duly prescribed local and dietetic treatment, the retinitis slowly subsided, the hemorrhages were absorbed and the vision improved. In 1906 some fresh retinal hemorrhages occurred in the right eye, which were very slowly absorbed. In February, 1908, he had a sudden loss of vision in the right eye, lasting half an hour, and then passing off. Three days later he had a similar attack, which lasted somewhat longer. Four days after this second attack he had a third attack in which the vision was entirely lost, and the eye has remained blind ever since. When I examined the eye after this third attack, I found the vitreous full of blood, but there was no increase of tension. Two months after the first attack in February last, he had an attack of acute glaucoma, with very marked injection of ciliary and episcleral vessels and very severe pain; and the eyeball became very hard, and this in spite of the eye having been under the influence of pilocarpine for two months. An iridectomy on such a patient, under the existing conditions, was of course out of the question. Under cocaine anesthesia, a very careful paracentesis of the cornea was made, and the aqueous humor evacuated very slowly. A solution of pilocarpine, 2 per cent., and eserine, ½ per cent., was then instilled into the cul-de-sac, and this was ordered repeated every hour. Hot applications were ordered for half-hour periods every two hours, and two leeches were applied to the temple. The pain began to diminish in about four hours, and the patient was given a hypodermic injection of pilocarpine hydrochlorate, gr. 1/50, followed by a dose of strophanthus internally. The paracentesis of the cornea was repeated on the sixth day as there was another increase of tension. He was ordered 30 drops of the fl. extr. jaborandi three times a day. Four weeks from the date of the attack the pain was gone, though it returned on three different occasions. This patient has been for nearly three months without any severe pain. The engorged vessels have disappeared. The tension is normal, and the pupil is kept contracted by eserine. Miotics were used in the left eye also as a precaution and this eye has remained uninvolved. The right eye is blind, and the lens is becoming opaque. The patient's general condition is satisfactory.

LOCAL ANESTHESIA IN MAJOR SURGERY, WITH ESPECIAL REFERENCE TO ABDOMINAL WORK.*

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THERE is still a great deal of scepticism and actual disbelief with regard to the possibilities of operating painlessly and successfully with the local anesthetics, and especially is this true in its application to major surgery. Local and regional anesthesia in the larger surgery is not a new subject, and dates back some twelve to fifteen years, but the number of workers along these lines has not been great and their results have not attracted the attention they merit. How seldom we see or hear of an extremity being amputated by that most successful and masterful procedure of Crile and Matas by intraneural cocainization, or any other major procedure, with the possible exception of hernia, where local anesthesia the last few years has gained adherents. I believe this is all very largely due to the fact that the average use of cocaine or other local anesthetics has been more often inefficient in the production of real anesthesia. Also because the earlier use of cocaine solutions of too great strength frequently gave rise to toxic symptoms, and because general anesthesia is easier for the surgeon. The majority of operators do not seem to have the inclination, the time, or the patience to undertake this branch of anesthesia, even in cases where ether and chloroform are greatly added risks or are prohibitive. This is no plea for the general adoption of local methods in the majority of surgical cases; general anesthesia has been and must remain our chief reliance probably for some years, as at present 60 to 70 per cent. of cases seen in general work require it, but the field of local anesthesia has steadily widened with greater experience and as newer agents of lessened toxicity have been found. Its place in major surgery has come to stay, and aside from the cases in which it is most strongly indicated and those to which it is especially adapted, there are a number, now done as a routine with general anesthesia, in which the patient will have the election of the two methods of relieving pain according to his desire to escape the discomforts of general narcosis. That great development of local anesthesia, spinal cocainization, has, up to the present, I think, not proven reliable enough or sufficiently free from immediate or later bad effects to take the place of local and regional methods in their present development.

The application of local anesthesia in major surgery to-day is at its greatest usefulness where general narcosis adds distinctly to the danger, but there has been a slow and progressive development in its technique and in its extension to many cases to avoid the disturbances of general narcosis and to ensure a quicker and pleasanter convalescence. The conspicuous advantages of the local method are the greatly reduced or total absence of shock, absence of respiratory and gastric disturbance, and much more agreeable post-operative period. In abdominal work with prolonged exposure, and with much traction and rough handling of the gut, some shock may result, but I have been able to work for over an hour in a large ovarian cyst adherent to the parietes and greatly adherent to the gut without apparent shock then or later. This, too, in a small, delicate woman with a pulmonary lesion. No more than the usual care was taken, not to eviscerate, expose, or handle the gut more than necessary. This great reduction or absence of shock I believe due to the more or less complete nerve block, absence of abnormal heat radiation from the surface and lungs, and absence of the direct toxic action of the anesthetic upon the nerve tissue of the brain and spinal cord. The nerve block and the enforced rather gentler manipulation save the spinal cord from a bombardment of impulses while laboring under the effect of a toxic agent, and there is little or no fall in vasomotor tone, that first indicative of shock. I believe a further adjuvant to be the adrenalin added to the solutions, and which acts both to diminish the speed of absorption and to maintain vasomotor tone.

*Read by Invitation and in Substance before the Mt. Vernon Medical Society, and before the Surgical Section, New York Academy of Medicine, October 2, 1908.

Speed and gentleness of manipulation in operating have been the greatest factors in contributing to successful results under general narcosis, and local anesthesia is in no wise a substitute for the latter, as successful work by this method requires an even lighter degree of touch. Rapidity of work is not so necessary and sometimes not possible. We can often in this way safely operate upon many borderline cases, that with general anesthesia would be hazardous performances or altogether barred, and bring them to a successful and frequently speedy convalescence. It is remarkable to see patients, both immediately after operation and on the following day, looking rather as though they had made a spontaneous recovery than as having been through a major operative procedure.

The particular method of local anesthesia that I want to speak of at this time is neither the infiltration method of Schleich nor the neural method of Crile, Matas, or Cushing, but one of purely local anesthesia of the subcutaneous tissue and cellular planes with limited amounts of the solution of the anesthetic. My own recent work, the last year, has been more in the field of abdominal surgery, and where I believe some of the greatest triumphs and possibilities await this method.

In doing hernia operations and colostomy under local anesthesia with the necessary handling of the gut and peritoneum and its apparent painlessness, I have felt more and more convinced that the viscera with their peritoneal investment and the general space of the peritoneum could be explored and operations done as well as in these cases, provided there was not a coexistent acute inflammation. It was further apparent in bad cases of strangulated hernia that the gut could be divided and reunited with absolute painlessness. The immediate subsidence of vomiting and the excellent condition of these patients after operation was most striking. It now seemed worth attempting this method in intra-abdominal conditions, and the opportunity soon presented itself in two desperate cases of intestinal obstruction from enteroliths, in one traumatic rupture of the jejunum in a boy of thirteen years, in three operations for tuberculous peritonitis, in a complicated ovarian cyst, and in a recent case of acute pancreatitis.

The first case of obstruction in an elderly physician seventy-four years of age who entered the hospital on the fifth day of his illness was in a critical condition. Suspecting carcinoma of the colon, an opening was first made in the left inguinal region by the intermuscular method. This was closed and a six-inch median incision made, and with the hand and part of the forearm introduced a hard mass was felt in the gut, which when brought out was found to be a stone in the lower part of the jejunum. The gut was completely blocked and distended by the stone and it could not be pushed up to a larger section of the intestine. The gut was incised, the stone removed, and the opening closed with a double suture layer. The abdominal wound was closed with through and through sutures of silk worm. This patient had been in the habit of taking two grains of morphine a day for some years and he was given 20 minims of Majendie's solution prior to operation on account of restlessness. He had taken his morphine by mouth and the vomiting of the obstruction had cut him off for some days.

The second case, ten days later, occurred in an elderly woman of sixty years, who entered the hospital on the fifth day after the onset of vomiting and in a critical condition. A median six-inch incision and exploration disclosed a hard mass in the intestine, which was found to be a stone in the lower part of the ileum some eight inches from the ileocecal junction. This was treated as in the previous case. Both of these patients made a perfect recovery and were discharged in excellent condition. The cessation of vomiting and the remarkable absence of shock were striking, and it would be impossible to tell from their appearance the following day that they had been through an operation.

The boy with ruptured jejunum was brought in about two and a half hours after the accident and in profound shock. A rock of 100 pounds had fallen on the upper part of the abdomen, and with the rigid wall and the signs of peritoneal effusion I believed that we had to deal with a rupture of the liver or intestine, with hemorrhage. It seemed wise to operate immediately, and he was given a sixth of a grain of morphine and an intravenous saline of 800 c.c. Notwithstanding his youth and the probable difficulty of managing him, I decided to try local anesthesia, using ether if necessary later. A five-inch incision was made through the left rectus close to the median line and above the umbilicus. The peritoneum was filled with bile mixed with blood, the liver and spleen were not ruptured. The upper part of the intestine was looked for and the jejunum was found divided completely across and an inch into its mesentery just two and a half inches from the duodenojejunal junction. It was reunited with a Murphy button reinforced with a peritoneal stitch. The pelvis and abdomen were flushed out with hot saline and the wound closed with through and through sutures. This boy's shock was scarcely appreciably augmented and he made an excellent recovery.

An Italian boy of nineteen years upon whom it was necessary to do three successive laparotomies for advanced tuberculosis of the peritoneum, had a cough and apical trouble, and all three operations were done under local anesthesia. The first two were for the evacuation of large amounts of fluid and the last for supposed perforation and localized abscess. At the first operation he complained much of pain until an Esmarch mask was put over his face and a small amount of alcohol dropped on it, after which he remained entirely quiet and neither moved nor spoke. It was possible to get this patient out of doors promptly and he was fed increasing amounts of cream. To-day he is scarcely recognizable as the former patient of six months ago. He has been in the country for two months and comes down for observation occasionally. I am sure that he could never have stood the three operations under general narcosis, or if perchance he had, would not have shown so quick and satisfactory improvement from such an advanced condition. It was entirely possible in this case through a five-inch incision to explore the abdomen, swab the peritoneum with camphonapthol, and handle the viscera without evidence of pain.

Another case of great interest, kindly referred to me by Dr. Merriam Myers, was that of a very large ovarian cyst. This patient, a small, delicate woman with a chronic bronchitis of tuberculous suspicion, had so large a cyst that not only was the abdomen filled, but pressure upon the lower ribs had caused eversion of the costal margins. The pressure upon the diaphragm was so extreme that the chest capacity was greatly reduced and the patient could not overcome the chest complication. The pressure had also caused complete prolapse of the bladder and uterus. The operation upon the cyst was undertaken with the double purpose of removing the tumor and of allowing chest expansion. General anesthesia seemed completely contraindicated, and it was determined to attempt the local

method. I had hopes that it would prove a unilocular cyst and not greatly adherent, but neither of these conditions was fulfilled and we had to deal with a multilocular cyst that was everywhere adherent and by a broad vascularized band to the sigmoid. The adhesions were partly caused by tuberculous deposits in the peritoneum. It was necessary to make a twelve-inch incision through the thin distended abdominal wall and to introduce the whole forearm into the abdominal cavity to separate the adhesions gently and to turn out the tumor, dividing and ligating the larger adhesions and broad pedicle. This patient was conscious throughout and frequently replied to questions. There was no apparent shock and she left the table with a lower pulse rate than when she went on. To a question after operation as to whether she had felt pain, she replied that she thought we had been trying to catheterize her, a procedure sometimes necessary because of her complete prolapse of uterus and bladder from the great intraabdominal pressure. This patient unfortunately later succumbed to the process in the chest, which continued to advance, and we were deprived of the fruits of our labors. This is, I think, a fair example of the extent to which we can go in selected cases. The tumor weighed over 50 pounds.

Another very recent case of interest was complicated by intraperitoneal inflammation. Prior to operation the diagnosis lay between perforated gastric ulcer and acute pancreatitis. This patient had been in the hospital several weeks before upon the Medical Division with a diagnosis of gastric ulcer, and the sudden onset of pain in the present illness with the rigid and tender abdomen and the evidence of considerable fluid in the peritoneum favored the former diagnosis. The leucocyte count was 31,000 with a differential of 94 per cent., and the woman was evidently acutely ill. Under local anesthesia a five-inch incision was made in the median line above the umbilicus. There was a large accumulation of turbid fluid in the peritoneum that suggested a perforation of a viscus, but on examining the stomach nothing was found. Upon lifting up the great omentum and transverse colon an intensely reddened and injected area was found about the duodenum, and the transverse mesocolon and mesentery and peritoneal coat out to the hepatic flexure were markedly edematous. No duodenal perforation could be found. The whole pancreas, but especially the head, was enlarged, indurated, and tender to touch, but with gentleness could be entirely explored. There were no demonstrable areas of softening and it was not interfered with. The omentum was studded with small areas of fat necrosis and several were removed for study. Traction upon the stomach and upper part of the jejunum, as also the moderate pressure necessary to replace the omentum and colon, was painful as one would suppose in so intense an inflammatory condition. This, however, was never more than the patient could well stand, and although she had no general anesthetic whatever, was operated upon in the general amphitheater before an audience, and shortly after her admission she went through the ordeal perfectly and never interfered for a moment with the work. The wound was closed with through-and-through sutures. There was no apparent shock and the patient looked the next day rather better than before operation. With starvation for a few days and abundant rectal saline she made an uninterrupted recovery. The persistent vomiting which had been a feature of her illness lasted for two days after operation, and I am confident that the absence of general anesthesia contributed much to her comfort if not to her safety in the presence of so severe an upset to the chemical metabolism.

In regard to the method of preparing the patient and anesthetizing the tissues the procedure has been as follows: An hour before operation (if possible) a hypodermic of one-fourth to one-third grain of morphine is given and the patient is told that it will not be necessary to resort to ether or chloroform and that the necessary work can be done under cocaine. This is after a frank confession of the nature of the trouble. Some are incredulous but willing to try, some are happy and reassured, and some apprehensive, preferring general anesthesia. The latter class are usually managed with the assurance that they may have their ether if they have pain, but that it is unpleasant and they will be much better off afterwards and make a quicker recovery without it.

The anesthetic agent has been the novocain-adrenalin mixture as reported in an earlier paper this year.* After many experiments I was satisfied that novocain was only one-sixth as toxic as cocaine, and that when *combined with adrenalin* it had anesthetic properties and a suitability much above cocaine when injected hypodermically. Also that the combination was even less toxic than the novocain solution alone. A four or two per cent. solution, to which has been added one-fifth or one-sixth the bulk of adrenalin (1-1000), is used to raise a continuous line of blebs along the line of the proposed incision. It is only in this way I believe that we can get a perfect and lasting anesthesia of the skin and subcutaneous tissues. At intervals of one-third to one-half an inch along this line of injection a needle is introduced perpendicularly to the skin and to the depth of the tissue to be anesthetized, and five or six minims of the solution are injected each time as the needle is withdrawn. Special paraphernalia or syringes are not required, an ordinary aseptic hypodermic being sufficient. Sharp needles are essential and make the first prick painless. The remarkable diffusive power of this combination does its own infiltration and the longer we wait the better the anesthesia. I have not found it necessary in hernia, for instance, to inject the nerves separately as the perineural contact has apparently been sufficient. We have the advantage of operating through tissues that are not edematous and sodden, but are dry and comparatively bloodless, and in which the larger vessels stand out in contrast to the paler surroundings. We have the further advantage over cocaine in that we can use stronger solutions and in much larger quantity, and so secure more lasting anesthesia and over a larger area. I believe it will last, with 4 per cent. novocain solution with adrenalin, for two hours, depending upon the vascularity of the area injected, and have found the anesthesia deeper at the end of an hour than at the beginning of an operation and extending over a much greater area. I have usually waited fifteen minutes after completing the injections before starting the incision. The maximum quantity used has been 140 minims of the combination of 4 per cent, novocain and adrenalin; 110 of the former and 30 of the latter.

Morphine prior to the operation and occasionally an Esmarch mask with a few drops of ether or a mixture of alcohol and ether have always enabled me to operate in this way, the patient's face being usually screened from the operation. These patients should receive just enough of the ether to feel slight constitutional effects and a slight confusion of mind. A little only is required, as too much abolishes the

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will, a certain amount of which we must depend on, and is apt to cause mental and muscular excitation. A number of patients will not require even this slight aid of a general anesthetic. In the first obstruction case, in the case of ruptured jejunum, and in the case of ovarian cyst, small amounts of the ether and alcohol were used, as I wished every aid in carrying them through without inducing unconsciousness by resorting to general narcosis.

It may be in order to remark here that this method of local anesthesia has apparently never interfered with healing, and I have never seen secondary hemorrhage in over seventy operations with its aid. In a few of the earlier cases and in one abdominal case there was suppuration in the wound, apparently due to talking with the patient while over the field of operation. Since using a gauze face mask there has not been the slightest trouble and healing has been primary in every respect.

So far I have not attempted this anesthetic method in operations requiring extensive dissection, as in malignant breast cases, multiple and extensive glands of the neck, most of the operations for malignant disease, etc., but believe it is practicable in a number. In many abdominal cases I think local anesthesia will find one of its greatest fields of usefulness, believing as I do in the insensitiveness of the peritoneum of the viscera in a noninflammatory condition. Gastrotomy and gastrostomy have been done and gastroenterostomy and gastrectomy I am sure are as possible. It will save great discomfort and some risk in these cases, many of which are done to allow a few months longer of tolerable existence. Exploratory measures for suspected tumors, obstructions, and perforations may be especially well accomplished, and there is nothing to contraindicate general anesthesia at any time it may be found wise or necessary, and the amount required will be much less than normally.

It would not be fair to local anesthesia not to repeat that we must reserve our local anesthesias for selected cases: character of the disease, character of the patient, and the surroundings are the factors that must determine the choice of anesthetic. Patients at home or in a private operating room will generally be more easily managed than when they are in an amphitheater with spectators and the necessarily increased paraphernalia, passing about, and noise. Quiet contributes much in nervous cases, but, as before said, the more adept one becomes at this method and the more successful he is in reassuring and carrying through his patients, the more does his field widen. That we have here a method that can save great discomfort I know, and that in many of the desperate borderline cases we can save lives, I am sure.

A number of the cases mentioned above, and others with extraabdominal conditions, were operated upon in St. Luke's Hospital on the first Surgical Division, that of Dr. Robert Abbe, to whom I am indebted for the operations and the recording of those cases.

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TUBERCULOSIS IN HOSPITALS FOR THE INSANE.*

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The object of this paper is to present in a concise form the present position of American Hospitals for the Insane with reference to the prevalence of tuberculosis among the inmates and the measures which have been adopted to control it, together with some suggestions for further limiting the spread of this disease among the insane.

*Read at the International Congress on Tuberculosis, Washington, D. C., October 2, 1908.

Tuberculosis is one of the chief causes of death in our asylums and the rate of mortality is higher among the insane than among the population at large. Last year there were 140,343 deaths from all causes in the State of New York and of this number 14,027, or ten per cent. resulted from tuberculosis.*

During the same year the State Commission in Lunacy reported 2,071 deaths among the insane in custody in that State of which not less than 345, or sixteen and two-thirds per cent., were attributed to this disease.†

In the State of Massachusetts more than fourteen per cent. of the deaths among the inmates of the hospitals for the insane was attributed to tuberculosis.‡

In the Government Hospital for the Insane at Washington, D. C., during the past twenty-one years, 2,102 autopsies (representing sixty per cent. of the deaths) showed tuberculosis in active form in 432 cases, or more than twenty per cent., and latent lesions in a still greater number.

In the St. Lawrence State Hospital, Ogdensburg, N. Y., in a series of 828 autopsies active tuberculosis was met with 119 times, or in fourteen per cent. of the cases.

With reference to the prevalence of the disease among asylum inmates it will be found from an examination of the reports of the American institutions that there is a wide diversity with reference to the prevalence of the disease in the institutions in different sections of the country, as well as different institutions of the same State. From inquiries made by the writer during the present year it was ascertained that there are in the fifteen State hospitals in New York State 28,623 insane patients in custody, and of this number there are no less than 872 in whom a definite diagnosis of tuberculosis has been made.

The following table gives the prevalence of tuberculosis per thousand of the insane in custody in various representative States from which complete information was obtained:

Minnesota	20 per thousand
Massachusetts	23 per thousand
Pennsylvania	23 per thousand
Mississippi	27 per thousand
Iowa	28 per thousand
New York	30 per thousand
Georgia	32 per thousand
Virginia	38 per thousand

In many individual hospitals the ratio is much higher than the maximum given above, but this is due in some cases to the practice prevailing in several States of transferring tuberculous patients to certain of the hospitals where special provision has been made for their care. It was ascertained that in one large hospital in the United States about thirty per cent. of the patients were regarded as tuberculous; and the superintendents of several institutions reported an entire absence of this disease.

In the following States special provision has been made for the care of tuberculous insane with the object of removing them from contact with others and providing modern treatment:

Tuscaloosa, Ala..... A separate ward for women.
Mendocino, Cal..... Tent colony for men.

*Annual report of the State Board of Health, 1907.
†Annual report of the New York State Commission in Lunacy, 1907.
‡Annual report of the State Board of Insanity, 1907.

Patton, Cal.	A separate building.
Farnhurst, Del.	A separate permanent building.
Washington, D. C., (Gov't Hospital)...	Special wards.
Milledgeville, Ga.	Partially in tents and shacks.
Peoria, Ill.	Tent colony accommodating 100 patients.
Hospital, Ill.	Partially in a temporary structure.
Watertown, Ill.	Tents.
Logansport, Ind.	Isolation ward for each sex
Richmond, Ind.	Partially in two cottages.
Mt. Pleasant, Ia.	Tents.
Topeka, Kan.	Separate building for women.
Jackson, La.	Separate building.
Sykesville, Md.	Tents.
Catonsville, Md.	Tents.
Bangor, Me.	Separate building accommodating 44 patients.
Harding, Mass.	Separate building for each sex.
State Farm, Mass.	Small ward.
Tewksbury, Mass.	Partially in shacks.
Hathorne, Mass.	Separate building for each sex.
Westborough, Mass.	Separate building for each sex.
Traverse City, Mich.	Separate building for women.
Kalamazoo, Mich.	Separate wards.
St. Peter, Minn.	Separate building accommodating 60 patients.
Asylum P. O., Miss.	Tents.
Willard, N. Y.	Partially in tents; partially in separate buildings.
Poughkeepsie, N. Y.	Separate building for each sex.
Buffalo, N. Y.	Separate building for women.
Binghamton, N. Y.	Pavilion accommodating 100 patients.
Ogdensburg, N. Y.	Pavilion accommodating 100 patients.
Rochester, N. Y.	Separate wards.
Gowanda, N. Y.	Separate wards.
Ward's Island, N. Y.	Pavilion and tents.
Central Islip, N. Y.	Pavilion accommodating 100 patients.
King's Park, N. Y.	Separate building for each sex.
Wernersville, Pa.	Shacks used in summer.
Warren, Pa.	Separate building accommodating 250 patients.
Dixmont, Pa.	Separate building for each sex.
Norristown, Pa.	Separate building for each sex.
Howard, R. I.	Tents.
Petersburg, Va.	Shacks and tents.
Wauwatosa, Wis.	Separate building.
Toronto, Ont.	Tents.
Kingston, Ont.	Shacks.
Hamilton, Ont.	Separate building accommodating 24 patients.
Penetanguishene, Ont.	Tents.
Quebec, Can.	Separate building.

The sources from which our institutions recruit tuberculosis are two: (1) The patients who are admitted with the disease which may or may not be recognized at the time. (2) The cases which develop in the institution. The relative importance of each source is difficult to gauge—they doubtless differ in different institutions depending on the one hand upon the communities from which patients are received, whether from the congested districts of large cities or from the rural and farming regions; and on the other hand upon the local conditions existing in the hospital as the presence of overcrowding, the ventilation, and the general standard of care maintained.

At the St. Lawrence State Hospital, in 1907, 38 patients were transferred to the pavilion set apart for the treatment of tuberculosis of whom 15 were recognized as such on admission and 23 had been residents of the hospital for a length of time as follows: Less than one year, 7; between one and five years, 4; more than five years, 12.

Where the disease made its appearance during the first year of asylum residence it may have been present and unrecognized at the time of admission. This is probable where the general physical condition was much reduced and the patient did not gain in strength. Where the disease makes its appearance after a year or more of fair physical health the hospital may fairly be charged with aiding and abetting the disease, if not with originating it. It is impossible in the majority of insane patients to diagnose tuberculosis in its incipient stages; the nice cooperation on the part of the patient to elicit the crepitant râle can rarely be obtained and one may be pardoned for failure to discover fairly well marked foci in many insane persons. It is only when coarse physical signs as consolidation and bronchial breathing are present that one can be sure of his diagnosis in many cases. Among the insane the constitutional symptoms have less value than among the sane; fluctuations in weight and temperature and even sweating are not conclusive as they are frequently concomitants of an abnormal condition of the nervous system, and cough is sometimes absent when the disease is well advanced. These facts emphasize the importance of careful observation of newly admitted patients to the end that the patient himself may receive proper treatment and the health of the household be safeguarded. There are no conditions under which the use of such diagnostic aids as tuberculin is of greater value than among the insane, and it should be employed in every case where satisfactory physical examination is impracticable at the time of a patient's admission or on any subsequent occasion.

Turning now to the cases which appear to originate in the institution, it is the experience of the writer that there is great diversity in the classes of patients among whom it makes its appearance. At the St. Lawrence State Hospital there are two detached cottages accommodating each 70 men patients who are regularly employed at farm and garden work, and during the past fifteen years no case of tuberculosis has originated in either cottage. In some other wards one or more cases have developed nearly every year. Those wards in which it is most frequently found are occupied by the demented and untidy classes, and the so-called disturbed. These are the wards in large public hospitals which tend to become overcrowded even when in the institution as a whole the overcrowding is not great. This is due in part to the desire of the officers to remove objectionable patients from the better wards, thereby rendering them more attractive to the intelligent patients, and partly for the reason that individuals of this class cannot take part in occupations which would remove them from the ward during the working hours, and many on account of their physical condition cannot even be taken out for exercise, hence they lead a comparatively inactive and an indoor life. The mere fact that the ward is crowded renders rather urgent the necessity of keeping people in their places; the requirements of good order are too frequently construed by nurses and attendants as having patients seated in their places and to discourage all activity. Those patients who can be employed and who, therefore, are off the ward a portion or the greater part of each day, unless crowded in sewing rooms and shops, are usually in a healthier condition and freer from tuberculosis than those remaining on the wards. As most institutions for the insane have farms or large gardens where patients may be employed it is comparatively easy to find suitable employment out of doors for men and difficult to provide work for women except housework and indoor occupations as sewing, rug making, chair caning, and other more or less sedentary tasks. Let us see how the prevalence of tuberculosis differs in the two sexes, bearing in mind this well recognized difference in the employment and modes of life of our hospital inmates. In the period 1888 to 1906, according to the report of the New York State Commission in Lunacy, there were 28,106 deaths from all causes in the New York State Hospitals for the insane. Of these 15,242 were men and 12,864 were women.

Among the men 1,463 died from tuberculosis, 9.5 per cent., while among the women there were 2,596 deaths from tuberculosis, which is 20.1 per cent.—more than twice the death rate among the men from this cause. The death rate among the men in State hospitals is slightly less than that of the State at large, among the women it is more than twice as high as that of the State at large, and what is more significant, more than twice that of the men in the same institutions. Inquiries made in other States show that the conditions are virtually the same throughout the United States. In almost every State in the Union the number of cases of this disease among women greatly exceed those among men.

The following table shows the form of insanity of the 119 cases in which active tuberculosis was found post mortem in a series of 828 autopsies: Terminal dementia, 51; chronic mania, 11; chronic melancholia, 12; senile insanity, 11; epilepsy, 9; acute melancholia, 7; general paralysis, 8; acute mania, 3; imbecility, 3; organic dementia, 1; paranoid, 1; miscellaneous, 2.

In the above series of 828 autopsies 447 were on men and 381 on women. Among the women active tuberculosis was found 62 times, or 16.2 per cent.; among the men 57 times, or 12.7 per cent.

There are a few large public hospitals for the insane in the United States in which the disease is almost if not wholly unknown. I refer to the State Hospital at Provo City, Utah. The superintendent, Dr. Calder, informs me that there is not now nor has there been for the past five years a single case of tuberculosis among the 353 inmates. Practically the same may be said of the State Hospital at Reno, Nevada, where the disease is unknown except for an occasional patient admitted with it, and there have been no deaths from it for several years past. It is interesting in this connection to notice that the altitude of these institutions is 4,560 and 4,500 feet respectively above the sea level, but Dr. Calder adds another significant remark when he says: "In this altitude we are able to have all of our patients, except now and then a bed patient, out of doors a part of each day, almost all of the year. During the spring, summer and fall they spend on an average five hours each day in the open air."

Prevention of Tuberculosis.—It is now generally recognized that among the insane as elsewhere tuberculous patients should be removed from contact with the healthy and afforded the treatment which can only be given in special structures of one sort or another as pavilions, tents, and sheltered porches. To this end no patient should be admitted to the general wards of an institution until the presence of the disease has been excluded. Overcrowding in wards and dormitories should be avoided, and particularly those departments occupied by the demented and inactive classes. The writer realizes fully the difficulty in accomplishing this very evident precaution, but believes that when we can go to the legislature with stronger objections to overcrowding than mere difficulties of administration we will be more likely to obtain the relief which we seek. All patients physically able should be exercised and when possible employed in the open air daily. When patients are in the wards they should be warmly dressed and fresh air should be admitted through open windows in such quantities as to effectually do away with any suggestion of foul air in the rooms. The clothing worn by one patient should not be used by another until it has been sterilized. The danger here is particularly in the use of shawls, hoods, and wraps for the neck. The same rule should apply to the use of blankets and bed linen. Care should be exercised that infection is not conveyed through cups for drinking water. The wards for women as well as those for men should be supplied with cuspidors of appropriate type and the patients taught to use them.

It is worthy of remark that those institutions which have provided separate pavilions or have adopted the use of tents have almost uniformly reported a decrease in the prevalence of tuberculosis in the institutions. Some of my correspondents have characterized it as a remarkable decrease. I have no figures to present except the result of the work of the tuberculosis pavilion at Ogdensburg, which to us have been extremely gratifying. During the first year of its operation, from January 26 to September 30, four of the patients were discharged from custody, apparently cured of tuberculosis, and three of them recovered from insanity, and the fourth much improved. Fourteen others improved to such a degree that all active symptoms subsided and physical examination was either negative or showed only diminished resonance over the affected area. During the second year nine of the patients were discharged from the pavilion to other wards of the hospital as not requiring further treatment, and five others were returned to their homes in a condition to resume their occupations. During the second year the number of deaths declined from 34 to 19, the lowest in seven years, and tuberculosis, which has heretofore occupied first place in the causes of mortality, has been reduced to fourth.

ETIOLOGICAL INDICATIONS IN THE TREATMENT OF PNEUMONIA.

By H. B. KNAPP, M.D.,

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To attempt to review all the methods used in the treatment of pneumonia would carry us beyond the limits of this short paper. A glance at the history, however, of a disease, the mortality of which has been increasing in recent years, rather than diminishing, does not inspire us with anything like the enthusiasm we need to cope with it. But few maladies have taken so little notice of the various measures brought to bear against it.

The brilliant results of specific remedies lauded by some fail to materialize when the same remedies are tried by others. It might be expected that the serum treatment would give us the long-looked for remedy, but the results do not warrant us as yet in placing too great reliance in it. Anders has collected 535 cases treated by this method with a mortality of 18.3 per cent. Other reports show the mortality as high as 25 per cent. To attempt to account for the apparent failure of this rational form of treatment might lead us too far into speculation. Welch has pointed out that the present stage of progress does not hold much hope for a protective antitoxin owing to the low vitality of the pneumococcus in culture media, and further, what is clinically recognized as pneumonia may be caused by a variety of different organisms, or by a mixed infection, which we are at present rarely able to determine positively or promptly. This fact probably in part accounts for the very varied conclusions which have been arrived at by different observers who have employed different kinds of therapy.

We have at present no specific for pneumonia, so that the thoughtful physician is compelled to adhere to lines of treatment based on sound physiological principles derived from our knowledge of the action

of the organism and the reaction of the host. Musser and Norris say that the action of the organism is that of an invasion of the body inducing a general infection, a local inflammation, and a secondary toxemia. A favorable reaction of the host is seen in the ability of the body to take care of the inflammation by physiological means; and, to neutralize, eliminate, or withstand the effects of the toxins. As to the invading organism after infection has taken place, but little can be done by the therapeutist save to limit the inflammation or prevent reinfection. As to the host we must aid every line of defence provided by nature, in other words, treat the individual and not the disease.

The morbid manifestations of pathological states which are commonly known as disease not only result from the immediate or exciting cause, but there must be a preparation of the soil, a lessening of the natural resistance. For example, the tubercle bacillus is not able to establish itself in the thoroughly healthy individual, but thrives only in the body which is out of physical training on account of some of the many unhygienic habits so often due to modern civilization.

Probably the greatest natural defence the human body possesses is the blood. "The blood is the life," declares the Good Book. A limb may be deprived of its nerve supply, both motor and sensory, yet life is maintained through the vital circulating fluid being carried to it through its vessels. Cut off the blood supply, and death occurs almost instantly.

In considering the various ways by which the salient forces of life may be enhanced let us review some of the recognized methods of improving the physiological powers of the body and especially of the blood.

Aerotherapy.—The short, labored breathing of the patient suffering from pneumonia gives a clue to one of the indications to be met, viz., ventilation. Fresh air stimulates the heart and makes respiration effective, thus relieving air-hunger. It promotes sleep and quiets restlessness. Fever patients cannot catch cold. The great amount of fear manifested by the laymen, and I might also add some of the profession, amounts almost to aerophobia. We must make the anxious relatives and friends see that we are dealing with a condition where only a part of the vital lung capacity is available for breathing purposes, hence the great need of adequate ventilation. William Gilman Thompson reports 47 cases of pneumonia ending in recovery, in which the patients received absolutely no medicinal treatment, and in which the principal reliance for recovery was placed in an abundance of cold, fresh air. They were placed on the roof or on balconies, kept there day and night, with the temperature of the air hovering around the freezing point. He says: "Not all patients need digitalis, because not all have weak hearts; not all need aconite or nitroglycerin, because not all have the initial high tension pulse and full arteries; it is well enough and time enough to employ these measures when they are indicated; but what every pneumonia case needs is a plentiful supply of fresh air that has never been in the lungs of anyone else." To give canned oxygen such as is found in the average bedroom, especially in the winter, does not seem any more rational for a case of air-hunger than to give salt meat and canned vegetables in a case of scurvy. Northrup aptly states that we should not make the patient breathe five times when three will accomplish the same effect. Give him air, fresh air, cold air, and in unlimited amounts.

Hydrotherapy.—Possibly the next most important method of aiding the defences of the body is by means of hydrotherapy. Musser says that greater confidence can be placed in hydrotherapeutic measures than in other forms of treatment. By the use of water in some of its varied physical forms we are able to produce a variety of favorable effects when intelligently applied.

The skin has been aptly termed a harp of a thousand strings, upon which one who is master of the necessary means can play in such a way as to produce almost any desired physiological or therapeutic effect. The skin is the keyboard, and the nerves and the nerve centers are the internal mechanism. It has been shown experimentally that the pulmonary vessels are supplied by vasomotor nerves through the roots of the second to the seventh dorsal nerves. Hence a positive effect upon the vasomotor supply of the lung may be produced by applying the cold compress to the chest down to the level of the umbilicus.

Baruch says, in Osler's "Modern Medicine": "When the cold compress is applied there is a rapid contraction of the cutaneous vessels which raises the tension at once, but eventuates in a tonic dilatation of these vessels evidenced by the ruddy hue of the skin. The dilatation differs decidedly from the relaxed condition of the cutaneous vessels which is produced by warm poultices. The latter relaxed condition produces a paretic condition of the vessels, or a stasis, while the cold applications stimulate the vasodilators, giving rise to an active dilatation, with the maintenance of the tone of the vessels, an active hyperemis through them." The heart is thus relieved, not by augmenting the *vis a tergo*, but by relieving the load by broadening the blood stream. "Arterial tension is increased, as evidenced by the tonometer as well as by the better filling of the radial arteries. The right heart is indirectly aided by the enhancement of the general tone of the vascular apparatus, and may thus expend more force upon the pulmonary circulation, whose vessels contract more effectively by reason of the dilation of the superficial vessels."

Several varieties of the chest pack may be employed. One of the more convenient methods is as follows:

The Roller Pack.—Take a strip of old linen or cotton cloth 6 to 8 inches wide and 6 to 8 feet long. Roll it into a roll and wring quite dry from cold water at 40° to 60° F. With the patient sitting, apply the bandage in a figure of 8 fashion as follows: Place the loose end of the roll under the right arm and carry the bandage upward obliquely across the front of the chest over the left shoulder; thence obliquely downward across the back, under the right arm; horizontally across the chest in front, under the left arm, and obliquely upward across the back and over the right shoulder to the place of starting. Next a bandage of heavy flannel, a little wider and longer, is applied over the moist bandage in precisely the same way, care being taken to cover the wet compress completely so that no wet edges protrude to become cold and clammy. The pack should be changed every hour or half hour when the temperature is 102° F. or above, and may be discontinued when the temperature is below 99.5° F. To increase the effect of these cold compresses hot fomentations should be administered every three or four hours, after which the cold compress should be reapplied.

The Cold Wet Sheet Pack.*—This extremely useful and easily applied procedure consists in enveloping the body with a wet sheet and preventing

*Kellogg's "Rational Hydrotherapy."

evaporation by careful protection with dry wrappings. A double blanket is spread upon the bed or couch where the treatment is to be given. A linen or old cotton sheet is next wrung out of water at a temperature of from 60° to 70°. This may be easiest accomplished by two persons grasping the sheet at each end and twisting it in opposite directions until it is as dry as possible. The sheet is then quickly spread upon the blanket. The patient now is placed upon the sheet so that its upper edge extends three or four inches above the shoulders. With the arms raised above the head one side of the sheet is snugly wrapped about the body, tucking it well up under the arms and about the leg on the same side. Next have the patient lower the arms to the sides and with the other loose side of the sheet wrap the arms in, care being taken to make the sheet fit snugly about the neck to prevent draughts of air from cooling it. The blanket is now quickly wrapped about the whole body in such a way as to bring the coverings in close contact with the body everywhere. For additional warmth another blanket or quilt may be laid over all and tucked in close about the neck and legs.

Rendu prefers the wet sheet pack to the Brand bath in acute febrile disorders, not only because it aids in the elimination of the toxins present, but because of its quieting effect on the central nervous system. In pneumonia it is one of the best procedures available because of the relief it gives to the heart through the tonic action upon the vasodilators, and the derivative effects upon the congested lung. For its antipyretic effects the pack may be repeated by rewringing the sheet from the cold water. The sheet need be changed only when it has reached the temperature of the patient's skin, which may easily be determined by slipping the hand between the wet sheet and the skin. For its eliminative effects the patient may be left in the pack from one or two hours, or longer. For tonic or antipyretic effects 10 to 20 minutes should be the time.

Cold Friction.*—By this term is designated a procedure which consists in the application to the surface of the body of a series of partial wet rubbings, one part after another being taken in systematic order until the whole body surface is brought into cutaneous reaction. Two or three Turkish towels and a bowl of cool, cold, or very cold water, and a mit consisting of rough material such as Turkish toweling or mohair cloth, are required.

The head and face and neck should first be wet with the cold water, or a cloth wet in cold water is placed over the face. With the mit on the hand and dipped in the cold water begin with a small portion of the body surface, preferably an arm, and proceed to rub the surface until it is reddened, redipping the mit one or more times. When a good reaction takes place as manifested by a crimson redness, the part is quickly dried, friction being used to still further aid reaction. Next proceed with the other arm, the chest, abdomen, legs, and back, securing complete reaction in each part before proceeding to the next.

The effect of stimulating the peripheral nerves by cold friction is to produce profound reflex effects upon the nervous system, the heart, and the glandular structures; and, according to Winternitz, cold applications increase the number of blood corpuscles both red and white, the increase being due not to the sudden creation of new blood-corpuscles, but to the contraction of the visceral blood-vessels whereby a great number of corpuscles which have collected in the liver, spleen, and other organs, are driven out into the general blood stream.

*Kellogg's "Rational Hydrotherapy."

Crawford has shown that cold baths increase the contrast of color between the arterial and the venous blood, the natural result of increased tissue activity and oxidation. That general cold baths increase the alkalinity of the blood has also been demonstrated by Strasser.

Elimination.—In dealing with the etiological indications for treatment in pneumonia measures which act as diaphoretics, diuretics, and laxatives should be considered. As a diuretic, water internally in amounts of four to eight ounces every two hours. If it cannot be taken by mouth, enemata of normal salt solution may be given high into the colon, or by the constant method of Murphy. Of diaphoretics citrate of potassium in hot water, hot lemonade, hot water bags, mustard foot baths, all are useful in stimulating perspiration.

When the apex beat is feeble the first sound weak, and the accentuation in the pulmonary area begins to weaken, stimulation in the form of the ice-bag to the precordia should be resorted to. While alcohol, the commonly used drug for heart stimulation in pneumonia, lessens the work of the heart by its action on the vasodilators, according to Hare's experiments, it also lessens the ability of the heart to do the work. Digitalis, on the other hand, while it increases the strength of the heart beat, also increases the load on the heart by its action on the vasoconstrictors. Cold, however, increases the working power while at the same time it diminishes the work.

In concluding this brief and perhaps one-sided paper, I do not claim to have covered anything like all the therapeutic indications of a disease that is so many sided. I have not attempted to go over the list of drugs which must be made use of to meet the symptoms as they appear. However, with the free use of rational measures I claim that there is less indication for medicinal treatment, and if medicine must be given to satisfy the friends or relatives it would be better to give a placebo than to drug needlessly.

It is not claimed that fresh air and hydrotherapy will cure every case, but the advantages to the patient as enumerated above are very great and are easily obtainable.

DIAGNOSTIC POINTS IN THE RECOGNITION OF PERFORATED GASTRIC AND DUODENAL ULCERS.

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While the early recognition of perforation of an ulcer or abscess into the general peritoneal cavity is essential to successful treatment, we must not be satisfied with this diagnosis until we have determined also the location of the perforation. It is not sufficient to know that a general peritonitis is developing or has developed as the result of some perforation. We should determine with all possible care the exact starting point of the peritonitis. This is of great practical importance for the outcome of our operative measures. If we know the exact location of the perforative lesion we shall waste no time in enlarging a wrongly placed incision in the abdominal wall, in making perhaps a second or even third incision, and in searching blindly about through the abdominal cavity for the site of the perforation. We shall spare the patient unnecessary mutilation and shock from manipulation and exposure of the abdominal contents. We shall also be better prepared to treat what we expect to find.

Perforation of the appendix or of an appendicular abscess has now become an easy condition to recognize. Its great frequency, together with the usually typical symptoms that accompany it have made the diagnosis a comparatively simple matter. Next to perforation of the appendix, that of a pyosalpinx is probably the most common cause of general peritonitis. The recognition of this also offers little difficulty. Third on the list, but far less frequent, is perforation of a gastric or duodenal ulcer. Its frequency is, however, much greater than was formerely thought, and to-day it has to be taken constantly into consideration in determining the cause of a general peritonitis.

The recognition of perforation of a gastric or duodenal ulcer is sometimes easy, at other times very difficult. This difference is due in part to the obscureness or prominence of previous ulcer symptoms and in part to the presence or absence of certain manifestations characteristic of perforation. It is easy, for example, to make a diagnosis of perforation in the case of an ulcer which has been recognized and is under treatment. On the other hand, it may be difficult in a latent or unrecognized ulcer where there have been perhaps no symptoms to draw the attention to the real site of trouble. In the same way it may be easy to diagnose a case of perforation which has been observed from the beginning and in which all the cardinal symptoms are present. This is not true of cases which come under observation 24 hours after perforation with the initial and typical symptoms obscured by those of peritonitis.

The importance of the history in these cases cannot be too strongly emphasized. When there is the least probability that an ulcer of the stomach is present and has perforated, the patient and his friends should be very carefully questioned as to previous stomach symptoms typical or not of gastric or duodenal ulcer. Superficial questioning of the patient before operation often gives negative results as regards a gastric history, and the stomach is not thought of as the point of origin of the perforative peritonitis. The result of the history-taking is often very different after the operation when we have found an old ulcer of the stomach or duodenum that has perforated. Questioning now the patient or his friends we can usually get a history of digestive disturbances which may or may not be typical of ulcer and which may have been present years before and perhaps almost forgotten.

This vague history may be that of pain in the epigastrium associated with the ingestion of food, occasional vomiting, and very rarely vomiting of blood. In some instances these dyspeptic symptoms may have required treatment, in others not. The patient may have completely recovered from them months or years before the perforation or he may have had occasional attacks of the same indefinite kind up to the time of the perforation. Perforation of an ulcer that has never given rise to any gastric symptoms is, I believe, extremely rare. Careful questioning of the patient or his family either before or after operation will almost always bring out some facts, forgotten perhaps, suggestive of ulcer. It is more common for an ulcer of the duodenum to perforate in an individual in perfect health than is the case in ulcer of the stomach. The former is rare in women.

The history of the onset of the symptoms is often very characteristic and should be obtained in complete detail. There is usually a sudden sharp excruciating pain in the epigastrium. Dieulafoy calls it "le coup de poignard péritonéal." When it comes out of a clear sky, as it usually does, its onset is very striking. This initial symptom may occur when the patient is at rest or may be preceded by a strain, muscular effort, blow, etc. One of my patients was in the act of hanging up a window curtain when seized with the pain. Another was lifting a heavy weight. It is easy to understand that an impending perforation can be hastened by any factor which produces a contraction of the abdominal muscles. The mere fact that such a slight traumatism precedes these stormy symptoms of perforation suggests the presence of some pathological condition within the abdomen such as an ulcer.

The location of this sudden and severe pain is almost constantly the epigastrium or its vicinity. The site of the perforation may determine the exact location of the pain. If situated at the pylorus, or in the duodenum the pain is most likely to occur to the right of the median line. In perforations of the cardiac region the pain is felt on the left side. It is the initial location of the pain that is important as it later becomes generalized with or without a point of greatest intensity. This point is usually the epigastric region in perforation of the stomach, while in duodenal perforation it is often the right iliac fossa. For this reason the resemblance to appendicitis may be marked. Associated with the pain there is always more or less collapse. This may be a very pronounced symptom and persist up to the time of death. "The rapid appearance of collapse following sudden excruciating pain in the epigastrium in an individual in perfect health compels the diagnosis of perforation of the stomach or duodenum" (Auffray).

Examination of the abdomen shows it to be usually retracted (scaphoid) and palpation reveals a marked rigidity of the muscles. Particularly the recti above the umbilicus show this marked contraction which is board-like in character. The retraction of the wall seems to be particularly marked in perforation of the stomach. This may be due to the intimate connections of the latter with the diaphragm, which being maintained in forced expiration by the same reflex action which contracts the muscles of the parietes draws the stomach upward. The latter thus rests fixed and immovable between two tense muscles (Roux). This retraction does not last long—it disappears after 24 hours and often before. The muscular rigidity, however, persists.

Tenderness on palpation of the abdomen is usually marked. Like the pain it is at first localized over the site of perforation but some hours later becomes more diffuse. Even now a point of greatest tenderness can usually be made out in the epigastrium. If the point of initial pain and the point of greatest tenderness are located in the epigastrium, it is highly probable that the stomach is the affected part. On the other hand, the stomach must not be eliminated whatever may be the site where the symptoms are most marked. A careful comparison of the different regions should be made in order to determine the important diagnostic point of the location of the greatest tenderness. In duodenal perforation this point may be in the right iliac fossa resembling acute appendicitis.

Disappearance of the liver dullness is of limited value in the diagnosis of perforation of the stomach or intestine. It is of no importance after 24 hours as it can be caused then by interposition of a distended intestine between the liver and abdominal wall. Persistence of the liver dullness is perfectly possible with perforation of the stomach. The amount of gas that escapes through the small perforation may be so slight that it does not make its

presence evident. Furthermore, the existence of adhesions may make it impossible for an appreciable amount of gas to collect between the liver and the abdominal wall.

It is a striking peculiarity of perforation of an ulcer of the stomach that vomiting during the first 24 hours is a rare symptom. If it does occur, it is most likely to take place at the outset and then stop. Brunner found initial vomiting in a third of the cases, Stadwell in 70 per cent., Finney in 40 per cent., and Fenwick in 29 per cent. The vomiting that occurs after 24 hours is due to peritonitis. Traube thinks that the absence of vomiting in perforation of the stomach is due to the fact that the patient vomits, so to speak, into his peritoneal cavity instead. It is difficult to estimate the diagnostic value of this absence of vomiting, but it certainly should be noted and taken into consideration particularly if other symptoms point toward the stomach as the site of the perforative lesion. The persistence of vomiting is, of course, not incompatible with the diagnosis of perforation of the stomach.

The presence in most acute cases of a "free interval" is of diagnostic importance. There is during this period an improvement in or cessation of all symptoms. The patient has recovered from the shock, his pain is slight, there is no vomiting, the pulse is slow and of good volume, the expression is good, and there seems to the inexperienced a marked change for the better. This condition of affairs is most deceptive and it is easy to be led into the error of postponing operative intervention. There is great danger in this, however, as this usually represents the most favorable time for operation and delay means the gradual progression of a peritonitis. There is one symptom that can be relied upon even now to make the diagnosis, viz., the muscular rigidity in the abdominal wall. This is invariably present and should be given great weight. It is at this time too that the history of the sudden stormy onset and the location of the pain should be given due consideration.

Early diagnosis of perforation of a gastric or duodenal ulcer renders the prognosis of operative interference decidedly brighter. Statistics show that early operation is followed by much better results than late ones. Körte, for example, operated on 10 cases from 1890 to 1900 with a mortality of 90 per cent. These cases all came to him at a late stage with well-developed peritonitis. From 1900 to 1907 he operated on 17 cases with a mortality of only 23.5 per cent. These cases had been diagnosed, as a rule, at a much earlier period. Of the 14 cases that have come under my observation, 8 were operated on within 12 hours with 5 recoveries—a mortality of 37.5 per cent. The other 6 cases did not come to operation until from 12 to 72 hours after perforation. Of these 2 recovered—a mortality of 66 per cent.

It is thus evident that nothing will improve so much our statistics for the operative treatment of this, the most serious complication of gastric and duodenal ulcer, as an early diagnosis. With our present knowledge of this condition such a diagnosis should be possible in almost every case, provided the case is seen early before the development of a general peritonitis which obscures the clinical picture. It is in the hands of the general practioner then that the fate of the patient really rests, and it is to him that we must appeal for earlier diagnosis in order to secure still greater improvement in our operative results.

121 East Thirty-eighth Street.

NOTES ON THE HOSPITALS, TAKEN DURING A VISIT TO SCANDINAVIA.*

By J. B. BOUCHER, M.D.,

HARTFORD, CONN.

SURGEON TO ST. FRANCIS' HOSPITAL.

If Americans visit the Scandinavian Peninsula, and expect to find it behind the other European nations, they will be very much disappointed. It was the writer's good fortune during the past summer to visit the three capital cities of Norway, Sweden and Denmark, which are not only equal to, but in many respects superior to many of the other European cities.

After a pleasant voyage of eleven days from New York, we landed at Christiania, the capital of Norway. It is a city of about two hundred and fifty thousand. It is beautifully located on the Christiania Fjord, at the foot of pine-clad hills. The buildings are large and substantial, the streets broad and clean, and the whole air of the city one of prosperity. The University of Norway, founded in 1811, by Frederick VI, is located here, and is a very flourishing institution. It has about fifteen hundred students in attendance. The city is well supplied with hospitals. The Municipal Hospital, of four hundred beds, is a modern building, and doing excellent work. It is supported by public taxes and charitable donations. A visit to this institution enabled us to meet Dr. Franze, the surgeon in charge. A morning spent with him convinced us that they were doing modern, up-to-date work. He showed us through the hospital and spacious operating rooms. My attention was particularly called to the large number of tuberculous surgical cases in the wards. I have never seen as large a proportion in any hospital which I have visited.

The State Hospital is the oldest institution, has about five hundred beds, and is connected with the University. Prof. Nicholison, now seventy-four years old, the senior surgeon, has retired. His successor has not yet been appointed. Prof. Strumm is the other surgeon, and a man of recognized ability and fine reputation. His first assistant showed us through the hospital and described their work on surgical cases, which is quite equal to the other hospitals which I have visited in Central Europe.

Besides this institution, there is a large Sisters' Hospital, where all physicians are allowed to treat patients. It is also a modern and well regulated institution.

The visitor to Norway is at once impressed by the large number of tuberculous cases which seem to be present everywhere. Likewise, the numerous sanatoria for the treatment of tuberculosis, one of which is situated on the hill a few miles above Christiania, at Holmenkollen. It is reached by trolley car, plus a short walk. It is in a most beautiful location, the road leading to it, for the most part, being cut through solid rock, and commanding a beautiful view of Christiania and its harbor. The sanatorium situated on this mountain, overlooking the city and bay, seems to be an ideal place, as it is surrounded by forests of hemlock, but the sun shines through the broad, glass windows of the piazzas. The treatment there consists of fresh air, sunshine, and wholesome food. I doubt if I have ever seen a place where the combination could be more enjoyed or better attained.

The great prevalence of tuberculosis, not only in Norway, but all through Sweden and Denmark, may be accounted for in part by the long, cold winters,

*Read before the Surgical Section of the Hartford Medical Society September 28, 1908.

which necessitates living indoors most of the time.

A ride of twelve hours in a comfortable train, with good sleeping car accommodations, took us from Christiania to Stockholm, the capital of Sweden, and by all means the most beautiful and charming city in Scandinavia. In fact, I would class it as being the second or third city in Europe, in point of location and general beauty. It is the seat of government and has a population of about three hundred and fifty thousand. The city is beautifully located on islands, plain and rocky hills, surrounded by water in all directions which has given it the name of the "Venice of the North." This beautiful city, composed of such fine buildings, palatial homes, and magnificent theaters, is not behind in its hospital appointments, either in quality or in quantity. The hospitals of Stockholm deserve as high a place as those of any city in Europe. Many of the larger medical buildings are situated at Kungsholen, the Western suburb of the city.

Among the many hospitals in this city, the writer visited the large hospital Serafirma Lazzarette, which contains several hundred beds and is connected with the University and Medical School all in the same square. It is a modern institution, made up of a large number of buildings, the medical, surgical, and various departments being kept separate, but all in the same square. Prof. John Berg of international reputation, is the senior surgeon. He is now sixty-one years old. He retires at sixty-five on a pension, that being the law in Sweden, unlike Norway, where they can retire at pleasure. I had the pleasure of meeting this polished gentleman, who showed me through the whole institution, the medical schools, and spacious laboratories, the large dispensary; and also had the pleasure of seeing some of his work. He speaks good English, his grandmother having been an Englishwoman. He not only inherits the language, but many of the good traits of the English. I had the pleasure of visiting his clinic three days, where I saw splendid, up-to-date work by his associate, Dr. Key. Among the various operations which I witnessed were two for resections of the stomach, one for hourglass contraction, and several cases of joint and bone surgery, as well as general abdominal work. When he resected the stomach, only a small portion being left, he did the anterior long loop, plus the Roux enteroanastomosis. One of the cases was of special interest. A woman about thirty-five years of age had been treated several years for gastric ulcer, and had been given silver nitrate, and her tissues had been so stained that she was of a dark slate color from head to foot. An interesting point about the case was that when the abdomen was opened, the stomach and all the internal organs were of the same dark hue, but not as marked as the skin. I believe this discoloration will be permanent. I am sure the picture presented will deter me from the use of this agent in medical treatment.

In this same institution they have the most complete *x*-ray apparatus I have seen. The work is under the charge of Dr. Gosta Forssoll, whose entire time is devoted to it. He showed me a number of skiagraphs, by which he was able to diagnose tuberculosis of the kidneys. The picture even showed the ureters. I saw a number of cases of stones in the kidney, ureter, and bladder which were so clear that they could not possibly be mistaken. One patient, a pregnant woman, was photographed that day, as she had had a symphyseotomy a few years before and they wished to determine if there had been osseous union. The *x*-ray showed that it was not, so they decided the case could go on without interference.

Another case was one in which he made the diagnosis of hourglass contraction of the stomach and located the contraction perfectly. He gave the patient one-half pound of bismuth, and took a picture which showed it in the fundus, along a narrow streak (the contraction), and finally in the pyloric portion, which made the picture complete. He then drew a diagram with blue pencil, and sent it to the operating room, where the diagnosis was confirmed by operation. Dr. Forssoll has invented a special light box in which the light is evenly distributed and adds materially to the view of the picture.

We also visited the Sabbatsburg Hospital, and witnessed several gynecological operations by Dr. Forstner; one, an ovarion cyst in a very old lady, which was done successfully with spinal anesthesia. A short visit to the Deaconess' Hospital, in charge of Dr. Toll, formerly of Minneapolis, was much enjoyed. We saw him do a nephrectomy; he then took us through the building, which is a strictly modern institution, supplied with all the modern apparatus, and various baths, Turkish, spray, etc. Much attention is paid to hydrotherapy in this institution. They have a beautifully arranged operating room and special boilers with coils which lead into the operating room. From these coils they can draw at the correct temperature not only sterilized water, but sterile salt solution. The hospital is managed by a church society. It commands a position on a high ledge overlooking the city.

The medical training in Scandinavia is very exacting, especially in Sweden. Prof. Berg informed me that it required from eight to ten years' study for the average man before he could practise. While there are three other medical schools in Sweden, all students must spend a certain number of years in the University of Stockholm, regardless of the medical advantages obtained in other Swedish institutions. A visit to the city impresses the American traveler with the thoroughness of their work, and leaves an indelible remembrance of the able physicians and of the kind and courteous treatment received.

Twelve hours by rail, on a comfortable train, brings us to Copenhagen, the capital of Denmark, which has been properly termed, "The Athens of the North." It is certainly entitled to this distinction, when one considers the collections of art, not only the great collection of the famous Thorvaldsen, which cannot be surpassed, but the magnificent donations of private citizens which have enriched her museums and mark the loyalty of the Dane for the fatherland. Here again, the beautiful capital of Denmark is not backward in the care of its sick. Our first visit was to the Friedericks Hospital, the largest and oldest in the city, built about one hundred and fifty years ago. The hospital has about six hundred beds. This hospital is a venerable relic of bygone days. It is past its present usefulness and is about to be replaced by a large and modern building, which, it is estimated, will require about four years for its completion. Professor Rovsing is the surgical leader in Denmark. He is the senior surgeon at the Friederick Hospital. I did not see him operate there, but accepted an invitation to visit his private hospital which has about forty beds. It is located on the outskirts of the city, near the Finsen Hospital, and is surrounded by shady lawns and rich foliage, where patients can spend their days of convalesence in comfort. He is doing a high class of work. His technique is perfect, but like the rest, or at least, most of European surgeons, he has little regard for incisions, as five to seven inches is not uncommon in a clean case of appendicitis. He has his catgut

arranged on a frame so that it can be sterilized, and not touched, even by the nurse. He cuts it off, one strand at the time, so that no one touches the gut but himself. He is a clever diagnostician, an able surgeon, and a most obliging and courteous gentleman. He showed me his well-appointed laboratory, his *x*-ray outfit, also one of the largest collections of stones of the kidney, bladder, and gall-bladder that I have ever seen. He keeps them in large, glass cases in dishes, where one can see all shapes and sizes. In two dishes he has gallstones of pearly whiteness, the first of that color which I have seen.

The next day we visited the Municipal Hospital of one thousand beds, in charge of Prof. Tscherning. It is built in the form of the letter "H" with an extra bar across the top. While the building is over forty years old, it is a fairly modern institution and doing good work. They have twenty-four resident physicians and a training school for four hundred nurses and different departments for medicine, and the specialties. Prof. Tscherning, with one other surgeon, looks after the entire work. They are paid by the city and receive about four thousand krone, or one thousand dollars, a year. Evidently, the income of noted men in that country is very limited. In a visit with him through the wards, I was surprised to see him dressing patients, applying bandages, and sterilizing the field of operation, etc., the work done by our internes. I saw him do several operations, in one of which I was especially interested—the removal of the Gasserian ganglion. He did it very nicely and completed the work in less than one hour without hurry or worry. In fact, no one seems to be in a hurry. Back of all the surgeons a high stool is placed, as much of a fixture as the operating table. Chairs are located in front of the wash stands, where the surgeons and assistants sit leisurely while washing and sterilizing their hands, which they do in a most thorough manner, averaging not less than fifteen minutes in washing and preparing before each operation. Most surgeons wear rubber gloves, but not at Prof. Berg's clinic in Stockholm. The surgeons seem to have ample time for everything and always time to treat the visiting American with every kindness, courtesy, and attention, which becomes almost distressing to the visitor. For example, Prof. Birg's assistant, Dr. Waldenstrom (who has visited America) telephoned personally to the hospitals in Stockholm every evening, obtaining a list of the work and the men operating the following morning, and then sent a special messenger to my hotel every morning with a list of my work marked out for the day and a nice little note expressing the wishes of the head of the clinic to meet me. This note, I found under my bedroom door every morning, so that my work was mapped out for me before leaving my room.

In all my travels abroad, I have never had the same amount of courtesy and attention shown me. They inquire about our American methods, and while I do not think they are prompt in accepting all our newer ideas, they have a great deal of respect for American surgery and Americans surgeons.

The last hospital to visit, but by no means the least, was the famous Finsen Hospital at Copenhagen, which has attained such a world-wide reputation for its light treatment of lupus. This institution is located among shady trees on the edge of the town, and surrounded by private villas. It consists of two buildings, the laboratory, and the clinical building. At the left one sees a little red building, hardly noticeable, where Finsen worked out his ideas.

I had the good fortune of sitting at the table beside Dr. Rehm, who has charge of the institution and sees all patients daily. They pass up to him after being photographed. He looks at the lesion with a glass and marks (with a wax pencil) the exact spot to which the light is to be applied. The patients are then taken to the treatment rooms, after which bandages are applied. They have treated some fourteen hundred cases of lupus. Their percentage of recoveries is as follows: In the recent superficial cases they cure eighty to ninety per cent.; in chronic deep-seated cases, with bone involvement, about fifty per cent. They see about three hundred cases a day. The treatment varies, but many of the cases are long and stubborn and require from one to two hours daily exposure with the Finsen light. While it is true some cases are cured in a few weeks, it requires from months to years in many cases.

The light is applied to a small place each day, not larger than a silver half dollar. A nurse holds the light in position, her eyes being protected with glasses; they keep their attention constantly on the field. Therefore, it is not only a tedious treatment, but a very expensive method. They give treatment to thirty-five or forty in the same room at one time. There are seven of the light machines in one room. Each of the machines consists of a certain electric arc which furnishes light for four long, brass tubes fitted with quartz lenses. A bed, on which the patient lies, is wheeled under each tube. The ringed area on the face of the patient, to which the rays are to be applied, is first covered with a water compress to prevent burning, and then the light is kept constantly on the spot for one hour or more. The institution is branching out in its work, treating eczema, acne, and many other skin lesions by light. They have in the last two years been treating heart and arterial lesions with a high power light of one hundred and twenty amperes. The naked patients are placed near the light, which is so powerful one cannot enter the room without being protected by dark glasses. The light is allowed to penetrate the body for about five minutes until the skin becomes red and congested. They are then given baths. The length of treatment is increased from five to fifteen minutes. Thirty-four patients can be accommodated in the building besides the large number that come there for treatment. This treatment has been carried on for over two years, and while it is somewhat experimental, they claim good results. In going about this institution, it is surprising to see the deformities and horrible facial expressions. Many without noses or ears have been going about for years. Some with the mouth gone, with only a ragged hole left. An army of sufferers from this hideous disease swarm to this life-saving institution. Scores of people are met daily on the streets with their faces all healed, but with the marks of the horrible condition that made them seek this haven of relief. Dr. Rehm informed me that they had practically given up the use of *x*-ray treatment in cancer, excepting a few superficial epitheliomas of the face, but in cancer of the lip, breast, and deep cancer, they advise immediate surgical operation, and then follow with the *x*-ray treatment after the growth and glands have been removed. He assured me that not only in their work there, but from what he had seen in his travels in England, Germany, and France, he felt the *x*-ray must be considered a failure in the treatment of cancer.

As the visitor beholds the great work done at this institution, it recalls for a moment the history

of its founder and its master hand. A visit to the room laid out as a museum for the early works of the master is well worth seeing, and has in it a pathetic side. There we behold the picture of the founder, who died at forty-three of heart disease, over which he had experimented for some time, with his light treatment. His last manuscript, unfinished, lies on his desk. Around the room are arranged the different apparatus with which he experimented and developed step by step from the sun glass to the present complicated mechanism. We recall how he won the Nobel prize in 1903, of thirty-eight thousand dollars, with which, and all the rest of his means, he built the present institution. In the early morning of his life, so full of promise, he was cut off, leaving a wife and four children penniless, the oldest ten, and the youngest two. They are today cared for by admiring friends. When he knew his hours were numbered and the end was in sight, he called together his assistants and calmly laid out the work for each—the completion of which required three years.

It is unnecessary to say his memory is cherished by the Danish people and by the hundreds of wretched victims who have been cured of their ailments; mankind has been benefited because he lived.

25 Charter Oak Avenue.

THE LYMPH PROPULSION AND EXCHANGE.*

By GEO. N. JACK, M.D.,

BUFFALO, N. Y.

This subject as here presented has been worked out by injecting the peritoneal region of dogs with highly colored solutions. Five minutes only being allowed for this paper, deductions and conclusions will be reserved for future opportunities.

In studying the lymph propulsion it must be borne in mind that the lymph, unlike the blood, does not go rapidly coursing through the body through fixed and unobstructed channels with a high reserve pressure back of it. It therefore is more appropriate to use the word *propulsion* rather than *circulation* in studying or speaking of the forces that propel, and of the movements of the lymph.

The lymph then, unlike the blood, goes slowly through the tissues of the body, on its mission of nutrition and body-waste absorption, slowly finding its way, or being slowly propelled, from lymph space to lymph space, between tissue cells, or by chemotaxis, exosmosis, capillarity, diffusion, or dialysis, through thin animal membranes or connective tissue, as its chemical composition changes, as a result of stagnation or partial absorption to favor one or all of the above named laws of transudation, until finally it finds its way, through a slow but physiological propulsion, to the great lymph and blood center of the body, or the lung tissue and lymphatics of the thoracic cavity. Just as sap works its way from the root of a tree to its leaves for oxygenation and vice versa, so does lymph work its way from the uttermost extremities of the body to the lungs.

The forces that tend to keep up this normally procrastinating, sluggish, chemical change-awaiting, lymph propulsion, are: (1) Absorption. (2) The muscular contraction or activities of the body and the force-pump-like action of moving articulations on the synovial cavity fluids. (3) The lymph-aspirating action of the thoracic cavity upon the thoracic and other lymphatic ducts and vessels.

*Read at a meeting of the Medical Society of Erie County, October 12, 1908.

(4) Last, but, although never before mentioned, not the least of the physical, chemical, and mechanical forces at work to perfect the propulsion of the lymph, is the anatomical and physiological fact that during respiration some lymph is aspirated into the mediastinum through the peritracheal, periesophageal, and perivascular lymph spaces of the trachea, esophagus, and the veins that enter the mediastinum, the chief of which are the inferior vena cava and the right and left innominate veins.

The lymph thus conveyed to and aspirated into the mediastinum and other midpleural lymph spaces, also that reaching the same region through the lymphatics of the diaphragm, is absorbed by the pulmonary parenchyma or glandular lung tissue, through the open stoma or lymph mouths of the visceral pleura.

Some of the lymph is aspirated into the lung tissue from the peritracheal lymph spaces along the peribronchial lymph spaces. The rest of the lymph reaches the lung tissue directly through the blood as that conveyed by the thoracic duct.

In the lung the lymph is mixed with the blood and soon again through the glandular action of the lung tissue is separated or classified; some remaining in the blood, to be taken on by the blood current; some being absorbed by the lung lymphatics and conveyed to the mediastinal and bronchiotracheal glands; and finally some finding its way along the perivascular spaces of the pulmonary arteries, reaches or is aspirated into the pericardium from which it is forced, together with the lymph that reaches the pericardial space by absorption through the pericardium, with each heart beat along the perivascular lymph space of the aorta and its arterial branches, to feed or nourish the tissues of the body.

The propelling force imparted to the lymph along the periarterial lymph spaces by the action of the heart in the water-bag like pericardium is encouraged and kept up throughout the body by the aspirating or propelling effect that the pulsating arterial walls have on the lymph in their periarterial lymph spaces, said pulsation accompanying each heart beat or arterial pulsation that can plainly be felt at the uttermost extremities of the body.

Structurally this lymph propulsion and exchange is encouraged by the peritoneum being adherent to the surface of the diaphragm below, and the pleura closely adherent to the upper surface of the diaphragm, and the two connected by lymphatics and other openings or holes through the diaphragm, with the fact that the visceral pleura and sponge-like absorbent lung tissue are closely held to the diaphragm by the midpleural vacuum-like pull and the bands of the pericardium.

Pathologically this law of diaphragmatic lymph propulsion and gland-like lung tissue exchange can be illustrated no better than by the relief from the dyspnea of the toxic asthmatic through a compensatory diarrhea, and by the following post-mortem and clinical findings:

1. The pulmonary tuberculous infections that have been traced from the intestine and peritoneum.
2. The septic pulmonary conditions following abdominal operations.
3. The secondary pulmonary complications of appendicitis, or other inflammations of the bowels or a suppurative peritonitis.
4. The pneumonia following puerperal infection.
5. The respiratory conditions secondary to typhoid fever.
6. The right side pleurisies produced by the cholecystitis of gallstones.

7. The subdiaphragmatic abscesses and other abdominal morbid states that progressively involve the serous surfaces on first the abdominal and second the thoracic sides of the diaphragm and ultimately result in a basic pneumonia, pleuropneumonia, empyema, pyopneumothorax, or a pulmonary tuberculosis.

8. The rapidity with which certain pleural effusions are absorbed by the pleura and lung tissue.

9. The chylothorax following a chylous ascites.

10. Chylopericardium or milky effusions into the pericardial sac that are the result of a transudation from a chyliform effusion present in the left pleural region.

11. "The fact emphasized by Byron Robinson that the peritoneum is a great lymph-sac explains the quick absorption of septic material and the rapid spread of infectious processes. If the exudate clots and blocks the lymph channels, absorption is slow and life may be saved. If it does not clot, absorption is rapid and death is certain. Whether it clots or not, depends on the nature of the bacteria present. Fowler, impressed by the fact that absorption takes place *most rapidly from the diaphragmatic region* and least rapidly from the pelvic region, advises placing the victim of peritonitis in bed, with his head and body elevated.

"The lymph from this region reaches the mediastinal or diaphragmatic glands. The serus surface of the diaphragm is the region chiefly efficient in absorption from the peritoneum, and *there is a current in the peritoneal cavity directed toward the diaphragm*. Absorption is very rapid from the peritoneal cavity. Fluid equalling from 3 to 8 per cent. of the body weight can be absorbed in one hour." (Gray's Surgical Anatomy.)

91 Niagara Street.

A NEW METHOD FOR ADMINISTERING ETHER AS AN ANESTHETIC.

By A. L. Soresi, M.D.,

New York.

I wish to bring before the medical profession a method of administering ether which, from the little experience I have had with it, appears to have many advantages. I will first describe the method and subsequently expose its merits.

A special mask is used, which is made of small metal tubing, which through perforations on its inner surface carries the vapor to the patient's mouth and nose. The mask is connected by means of rubber tubing, with a Wolf's bottle containing warm water and the vessel of ether, and the latter, by means of a glass Y-tube, with a tank containing oxygen and one containing compressed air. The ether is contained in a Wolf's bottle of good size, so that the pressure of the air may not force out any liquid ether in this way. Before entering the mask, the ether passes through warm water, thus becoming saturated with vapor.

The anesthesia is started by opening the can containing the oxygen, and placing the mask uncovered over the patient's mouth and nose. When the patient begins to lose consciousness, the bottle containing the ether is placed in warm water, the oxygen is shut off, and the mask is covered with a towel.

The patient is now receiving only pure ether vapor. When he is completely under the anesthetic, the bottle containing the ether is removed from the hot water, and the can containing compressed air is opened, the amount being regulated as required.

The Y-tubing shown in the illustration between the vessel containing warm water and the other can is to facilitate the giving of oxygen direct if needed. Ordinarily the open end is closed with a cork. The illustration is more or less schematic; in actual practice the ether and warm water bottles are attached to the cylinder of compressed air so as to make the apparatus more compact and portable.

The advantages of this method are:

1.—The patients are anesthetized more easily than by other methods, some even escaping the excitation stage.

2.—There is very little, if any, irritation to the air passages.

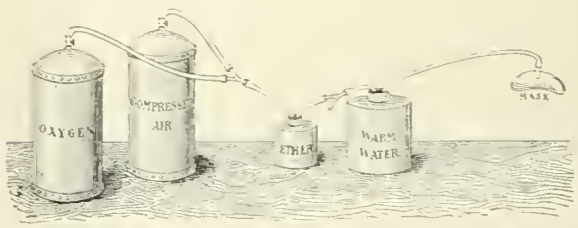
3.—There is no need of employing any other anesthetic to usher in the anesthesia.

4.—At the beginning of anesthesia, the mask is open, thus avoiding the feeling of suffocation which so many patients experience with a closed mask.

5.—There is a minimum of ether inhaled by the patient, which is proven by the fact that as soon as the ether is stopped the patient becomes conscious.

6.—With this method of administering ether, the patient is always inhaling the vapor in definite proportion, while in other methods the patient at times, that is, when ether is introduced into the inhaler, receives too much ether, and at other times too little.

7.—In operations on the upper part of the body, the anesthetist does not disturb the operator or his assistants, as his presence at the head of the patient



is not necessary, either to hold the mask or to replenish the ether can.

8.—This method of administering ether is so simple and so devoid of danger, that any intelligent person can continue the administration after the patient is once under. This is an advantage in rura districts where an experienced anesthetist, or even a physician to give the anesthetic, is not available.

9.—In operations on the face, a sterile mask may be employed, and at the proper time can be covered with a sterile towel.

10.—The patient's face or eyes are not injured.

11.—If the patient needs oxygen, there is no trouble in administering it.

12.—With my open mask, the patient receives only ether and pure air, and does not breathe any of the impurities coming from his own respiration, which in my belief is one of the most active causes of vomiting.

13.—The anesthetist has no trouble with the dropping of the anesthetic, replacing and holding the mask, refilling bottles, etc., but can give his entire attention and help to the patient.

40 Washington Square, South.

Researches on the Hemolytic Power of Placental Extract.—G. Ballerini has made experiments on the hemolytic power of placental extract as compared with extracts of other tissues. The existence of this power is undoubted in placental extract, manifested not directly but after passage through animals. This power does not appear to differ from such power as found in the other tissues so as to be of any practical value.—*Annali di Ostetricia e Ginecologia.*

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THE WORK AND NEEDS OF THE NAVAL MEDICAL CORPS.

THE annual report of the Surgeon-General of the Navy for the fiscal year 1908, recently issued, shows a most gratifying improvement in the general health of the naval service over last year. There was a great increase in the number of enlistments during the year, caused in part, it may be, by the report of the coming cruise of the Atlantic Fleet around the world, but chiefly by the business depression which threw so many men out of work. Nevertheless, in spite of this increase of over 2,000 men, from 41,690 to 44,083, there was a decrease of admissions to the sick list for the year of 2,038, or a decrease in ratio per 1,000 of 91.83. It is interesting to note that the morbidity rate was least among those at sea, somewhat greater among those on shore duty at home, and greatest among those on shore duty beyond the continental limits of the United States. The most frequent cause of disability was, as usual, venereal disease, next coming traumatisms of various sorts, then tonsillitis, epidemic catarrh, malaria, bronchial affections, rheumatism, gastro-enteric disorders, the exanthemata, and finally other infectious diseases.

The number of vacancies in the Medical Corps is 51, a slight improvement over last year, when there were 58. It is believed, however, that the greater inducements for service provided by Congress last spring will attract an increasingly greater number of men so that before many years the Corps will have been recruited to its allotted strength. Notwithstanding the need of more surgeons there has been no letting down of the bars by making the examinations easier, as may be seen by the fact that of 97 candidates presenting themselves for examination during the year only 39 received appointments. The examination is not, however, so difficult as this number of failures might imply, for 27 of the applicants were rejected for physical disabilities. One wonders whether this proportion of nearly 28 per cent. of the unsound prevails among recent graduates in general, or whether there is some peculiar reason why the physically unfit should be attracted by the naval service. Very likely some men in delicate health were led to apply for naval service in the hope that sea life might better their condition. The increase in the Medical Corps during the past five years has been in the three lower grades, and there is now the same number of medical directors and medical inspectors with a corps of 345 as there was in 1883, when the corps numbered only 171 all told. This shortage in the upper grades, which Congress seems strangely unwilling to remedy, has caused much inconvenience, necessitating the shifting of work belonging properly to medical inspectors to the surgeons, their proper duties being in turn imposed upon passed assistant surgeons. The Surgeon-General regards the grade of acting assistant surgeon, created in 1898, with considerable favor and wishes it continued. One great advantage accruing to the service from the existence of this grade is that it is often the means of recruiting the commissioned ranks with young men of excellent attainments and fine character who might otherwise have looked upon a naval career as beyond their reach. The services rendered by the newly appointed members of this grade were very satisfactory, and most of them passed through the probationary period in general service and under instruction at the Navy Medical School with a creditable showing.

The Navy Medical School in its development and in the routine work accomplished has fully justified the wisdom of its foundation. During the session of 1907-8 there were, as heretofore, two terms, the first of six months, the second of three. The first, or winter term, was attended by a class of 35 officers, the second, or spring term, by one of 11 officers. Most of the latter had just returned from a full tour of sea duty and were thus given an opportunity to brush up in laboratory technique and in the most recent diagnostic and therapeutic methods. This school, General Rixey says, "represents one of the most potent influences for good which the service possesses. Indeed, the growing efficiency of the work of the medical department in every direction must be evident to all, and this is certainly due in great part to the school. The Bureau's aim is not only to give a finishing touch to the education of young doctors entering upon a naval career and to prepare them for an intelligent application of their professional attainments, but to broaden their knowledge and practical capabilities to include those peculiar responsibilities which devolve upon the naval surgeon. It is believed that the school accomplishes this end."

The first steps have been taken to establish a corps of female nurses in accordance with the authority granted in the naval legislation of the Sixtieth Congress. Miss E. V. Hasson was appointed superintendent of nurses, and it was expected that by October a corps of twenty nurses would be organized and assigned to the several naval hospitals after preliminary training in the Naval Medical School Hospital in Washington.

A bill is to be introduced into Congress reorganizing the naval militia so that it may occupy a position in relation to the navy, which will be in the nature of a reserve, and in such case its medical department will share in the changed statute and will constitute a reserve medical corps for the navy in time of need. Other than this, however, and the force of the National Red Cross, there is no organized body of medical men available for service in the navy, in war or in any other emergency. This, the Surgeon-General thinks, is most regrettable, since it means that in case of war or other emergency there will be no one familiar with the conditions and requirements of the naval service who

can be called upon to come to the assistance of the medical department, which is barely sufficient, or rather actually insufficient, for the needs of the navy in time of peace. It is felt that the important duties of the medical department of the navy should not be left dependent upon an uncertain personnel, and General Rixey therefore urges that, in addition to the limited possibilities of expansion which would be represented by the medical department of the militia under the conditions of its proposed reorganization, there should be a "Medical Reserve Corps of the Navy" similar to that provided for the army. "The creation of such a corps would not add discernibly to the required annual naval appropriation, but it would add materially to the resources of the medical department in the matter of assured efficiency. By such a corps the bureau would find it more feasible to inaugurate that greatly needed change of requiring all applicants for the regular corps to pass through the course of instruction at the Naval Medical School before being eligible for permanent commissions; and by it also the Navy Department would be able to keep in touch with the medical profession throughout the country, and insure adequate and efficient medical services in the navy no matter how great the demand." It is the intention to submit to the department for approval the draft of a bill providing for a reserve corps.

BACTERIOLOGY OF THE COMMON COLD.

Colds are among the most frequent of all the so-called "minor ailments," and are perhaps especially frequent in this country. The reasons for this prevalence of catarrhal states in America have been variously stated. One cause, and possibly the chief cause, is that the houses and offices and public buildings of every description are generally overheated, and especially that the air in them is overdry, rendering those who spend a great part of the day under such conditions peculiarly susceptible to the influence of variations of temperature. It is curious to note that the majority of people look upon the complaint known as catarrhal fever as trifling. "Only a cold," is a stock figure of speech and few realize that from so trivial a source spring diseases which kill and incapacitate thousands.

In the *Lancet* of November 28 and December 5, R. W. Allen has an article which deals with the bacteriology of the common cold, in which the subject is treated in an interesting and to some extent original manner. When defining colds Allen avoids the term "fever," "inasmuch as any rise of temperature is more often than not local and not general; indeed, the true body of temperature obtained either per rectum or by means of the urine is more often than not subnormal." Another feature of some moment in connection with colds is that they are always acute at the outset, but may go on to a chronic stage, persisting for even twenty years, punctuated at intervals by acute exacerbations.

The bacteriology of colds was investigated by the writer with care and patience and his conclusions, though necessarily not definite and even somewhat confusing, throw some light on the matter. The influence of three bacilli and of one micrococcus was traced, *Bacillus friedländer, B. influenzæ, B. septus,* and *Micracoccus catarrhalis.* In the trachea, throat, and nose, several other organisms were isolated, but Allen decided that the above-named were those fruitful of harm.

Little need be said regarding the capacity of *Bacillus influenzæ* and of *Micrococcus catarrhalis* to produce colds, as both these organisms have been definitely shown to be capable of so doing. The claims, however, of the other microorganisms mentioned as a causative factor in the origin of colds have not up to the present time been thoroughly examined.

Among other reasons for Allen's belief that *Bacillus friedländer* is an important factor in causing colds is that an emulsion of the bacillus was spilt in the laboratory where three individuals were working and within a few hours each developed a mild catarrhal attack during which the bacillus was found in the nasal mucus. Other evidence tending in the same direction is given and the investigator seems to have brought forward a fairly strong case against this organism. Allen places the Friedländer bacillus, indeed, in the front rank as the originator of the ordinary cold and furthermore holds the view that this bacillus is probably the sole cause of a chronic nasal catarrh and that the risk of the involvement of the Eustachian tube, middle-ear, and accessory sinuses being considerable, the prognosis in the case of this organism should be very guarded and much greater care should be taken by the patient. The claims of *Bacillus septus* are not so great, as many previous investigators have endeavored to show, though the writer believes that this microbe is the etiological factor in the production of a certain percentage of colds.

In the treatment of colds Allen regards quinine as theoretically about the most useless of any drug in the pharmacopeia, though in practice, especially in combination with ammonia, he thinks it may possibly do some good. The most useful drugs, however, are in his opinion the oil of cinnamon and the oil of eucalyptus, the former being preferable by reason of its better odor and better taste. It should, however, be given in generous doses—20 minims in milk every hour for three hours, then two doses of 15 minims at intervals of two hours, and finally several doses of 10 minims at three or four hour intervals.

He puts most reliance, however, upon vaccine therapy. The best time for dealing with an acute attack is either at the onset or on the third day; inoculation between these times is not advisable as it may produce considerable constitutional disturbance. The appropriate doses are 250,000,000 of *B. septus*, and 125,000,000 of either *B. friedländer* or *Micrococcus catarrhalis.* Should an accurate diagnosis of the infecting organism not be possible, a combined vaccine of the several "cold" organisms may be given. Repetition of the dose is not usually necessary, but should it be, then 500,000,000 of *B. septus* or *M. catarrhalis* may be given at the end of a week, or 250,000,000 of *B. friedländer* at the end of a fortnight.

To secure immunity against colds the author advises the administration of a dose of 250,000,000

of each of the several organisms every four to six months, the first being given three weeks after recovery from the acute attack.

THE SIGNIFICANCE OF AGNOSIA IN THE INTERPRETATION OF PSYCHOSES.

In discussing the pathogenesis of delusions of negation, Denis and Camus believe them to be due to direct cerebral modification. They exclude from consideration the influence of peripheral modifications of the cenesthesia on the ground that the patients they have studied show, with the exception of the delusions, no other loss of the sensibility derived from the viscera; for they manifest appetite and thirst, and respond to the normal calls of urination and defecation. The facts that they react only feebly to the passing of an esophageal sound, that they are sometimes incontinent, and that they often refuse to eat, are attributed by these authors not to a true anesthesia but to the presence of the idea of contrariety or the fixed idea of negation of their organs.

Now this explanation begs the question, for we cannot legitimately exclude peripheral modifications of all the modalities of sensibility in the organs because some of them are conserved. A study of agnosia demonstrates this; for though the earlier observers were content to attribute to the derangement of a special cortical center the failure to recognize objects by palpation, yet later observations tend to show that this incapacity is always a residuum of, and probably therefore due to, a deficiency of one of the modalities of sensibility (Déjerine), even though these latter have become insusceptible to other means of clinical demonstration than that signified by the agnosia. Hence, we may infer that the agnosia which remains is of peripheral source, though its exact components are at present beyond our power of analysis. Before therefore excluding the peripheral causation of ideas of negation, one would either have to prove definitely their origin in the cerebrum, or at least to exclude partial peripheral limitation of the sensibility of the viscera similar to that now known to be at the root of agnosia.

It may be as well to add that we are not here considering the function of symbolia, which is due to a more complex, and indeed intellectual, process. A symbolia, of course, may be contributed to by the lack of information from the periphery; but on the other hand, it often originates in defective cerebration.

Maldescended or Undescended Testicle Complicating Inguinal Hernia.

While not a common associated phenomenon, undescended or improperly descended testicle is not a rare complication of inguinal hernia, and opinions differ as to the etiology of the disorder, as well as to the indications for surgical intervention and the best mode of procedure. As a result of observations made in 126 cases of this kind operated on and of a careful study of the reports of other surgeons, William B. Coley, writing in the *Annals of Surgery* for September, 1908, concludes that the undescended testicle is almost invariably of little or no functional value. It is often the source of considerable pain and it is more susceptible to inflammatory attack than the normally descended testicle and possibly, though not certainly, more susceptible to malignant disease. In Coley's opinion the undescended testicle should never be sacrificed in the case of children and rarely in that of adults, as it is possible to effect a radical cure of the hernia without removal of the testicle. In childhood the testicle is of value in determining the male characteristics of the child, as well as in promoting the general health; while in the adult it should be retained for its influence on the mental state of the subject if for no other reason. Coley recommends that operation for undescended or maldescended testicle should seldom be performed at an earlier age than eight years unless demanded by the accompanying hernia, for the reason that in a considerable number of cases the testicle descends spontaneously on the approach of puberty. Bilateral abdominal ectopy of the testicle had better be left untreated, inasmuch as operation is difficult and by no means free from risk. According to Coley, the main principles of any operation likely to yield satisfactory results must comprise free opening of the inguinal canal, thorough freeing of the testicle from adhesions or peritoneal bands, even with sacrifice of some veins if necessary, bringing the testicle into the scrotum, and suture of the canal without transplantation of the cord. Bilateral failure of the testicle to descend should not be permitted to persist to puberty.

Typhobacillosis.

One of the rarer conditions resulting from the tubercle bacillus is denominated by Landouzy "typhobacillosis." It simulates a typhoid fever very closely, and many authors claim that in reality this condition results from a typhoid infection which in its convalescent stage takes on a tuberculous infection. Landouzy thinks otherwise. In the *Presse Médicale* for October 24, 1908, this author gives the differential diagnosis as follows: the temperature curve in acute tuberculosis simulating typhoid fever is more irregular, it oscillates from day to day, being sometimes higher and sometimes lower, instead of being progressively higher as in typhoid; the pulse is ordinarily much less rapid than the height of temperature would lead us to expect; there is a complete absence of any symptoms of visceral lesions and of catarrh of the pharynx, bronchial tubes, and intestine; the rose spots are never seen; the spleen is not enlarged. Furthermore that the two conditions are distinct is proved by the fact that on autopsy no lesions are found in the intestines. The course of the disease also varies in these two conditions. The tuberculous condition tends to convalescence which, however, is not perfect, and the tuberculous lesions then go on increasing, with more prostration than should exist in a convalescent from typhoid. The good appetite of the typhoid convalescent is not present, and instead of growing stouter the tuberculous patient grows progressively thinner. Signs of consolidation generally appear at the apices. Many patients observed by Landouzy were attacked by typhobacillosis in the spring, without any local manifestations of the disease, and died the following winter with pulmonary cavities, after ten months of fever, having never been out of bed at all in the interval. When there is any question of the diagnosis in these cases, it may be perfectly established by the use of the Widal test, by microscopic examination of the feces, by blood cultures, and by inoculation tests.

News of the Week.

Tuberculosis Exhibition.—While the success of the tuberculosis exhibition was anticipated, it was hardly expected that such general interest would be shown, or that crowds of such large numbers would visit the Museum of Natural History where it is on view. Because of the great crowds on the first Sunday, the exhibition hours have been made from one to ten on Sundays instead of from one to five. December 13 was Labor Union Day and 30,000 invitations were sent out. January 2 has been set aside for East Side Day and a mass meeting will be held on that afternoon under the auspices of the United Hebrew Trades. On December 9, special invitations were extended to medical students, and about 2,000 listened to addresses by Drs. T. Adolphus Knopf, Woods Hutchinson, Hermann M. Biggs, Walter B. James, and others.

The State Charities Aid Association and the New York State Department of Health have combined their efforts to make Monday, December 21, which has been designated New York State Day, notable in the history of the exhibition. It is hoped that many throughout the State who were unable to attend the exhibition in Washington during September will avail themselves of this opportunity, for which special rates have been offered by the railroads. During the morning an informal conference of representatives of the State Charities Aid Association's local committees on the Prevention of Tuberculosis, and representatives from other associations throughout the State, will be held. In the afternoon at two, George A. Canfield will preside at a meeting at which city officials from Schenectady, Syracuse, Rochester, Troy, Buffalo, and Yonkers, will tell of the work which is being done in their respective cities, and the county work will also be described. At the evening meeting, the Hon. Joseph H. Choate presiding, Bishop Nelson will tell of the campaign in Albany, and Dr. Gibson of the work in Utica. The State Commissioner of Health, Dr. Porter, will talk of the work and plans of the State Department in the struggle; the State Commissioner of Labor, Mr. Williams, will discuss the relation of factories and mercantile establishments to tuberculosis; Dr. Hermann M. Biggs will advance the need of a uniform policy throughout the State for the care of moderate and advanced cases of tuberculosis; Mr. Martin E. McClary will tell of the needs of the State Hospital for Incipient Cases of Tuberculosis at Ray Brook, and the Hon. Joseph F. Alling, President of the Rochester Health Association, will give the business man's point of view in the campaign against the disease.

Health Matters in the President's Message.—President Roosevelt in his annual message to Congress makes the following recommendations in regard to a National Health Bureau: "It is highly advisable that there should be intelligent action on the part of the nation on the question of preserving the health of the country. Through the practical extermination in San Francisco of disease-bearing rodents our country has thus far escaped the bubonic plague. This is but one of the many achievements of American health officers; and it shows what can be accomplished with a better organization than at present exists. The dangers to public health from food adulteration and from many other sources, such as the menace to the physical, mental, and moral development of children from child labor, should be met and overcome. There are numerous diseases, which are now known to be preventable, which are, nevertheless, not prevented. The recent International Congress on Tuberculosis has made us painfully aware of the inadequacy of American public health legislation. This nation cannot afford to lag behind in the world-wide battle now being waged by all civilized people with the microscopic foes of mankind, nor ought we longer to ignore the reproach that this Government takes more pains to protect the lives of hogs and of cattle than of human beings. The first legislative step to be taken is that for the concentration of the proper bureaus into one of the existing departments. I therefore urgently recommend the passage of a bill which shall authorize a redistribution of the bureaus which shall best accomplish this end."

The message contained also the following recommendation regarding hospital ships for the navy: "Two hospital ships should be provided. The actual experience of the hospital ship with the fleet in the Pacific has shown the invaluable work which such a ship does, and has also proved that it is well to have it kept under the command of a medical officer. As was to be expected, all of the anticipations of trouble from such a command have proved completely baseless. It is as absurd to put a hospital ship under a line officer as it would be to put a hospital on shore under such a command. This ought to have been realized before, and there is no excuse for failure to realize it now."

Institutional Improvements Recommended.—Among other things, President Busse, of the Cook County Board, made the following recommendations in his message to the Board at his reinauguration, December 7: The establishment of an institution for the care of those in the early stages of tuberculosis; the extension of the facilities of the various charitable institutions to reduce overcrowding; better facilities at the insane hospital; improvements at the county morgue; a pathological department and a bureau of statistics at the County Hospital; a psychopathic ward either at the Detention Hospital or the County Hospital; a place for the care of the alcoholically insane; the placing of a physician in charge and nurses at the Juvenile Court.

Typhoid Epidemic Checked.—Reports from Reading, Pa., indicate that the situation in regard to the epidemic of typhoid fever there is now under control. Nearly six hundred cases developed. The engineers of the State Board of Health have made an investigation of the watershed for sources of pollution, and the Commissioner of Health has taken active steps to abate the nuisances. The local Board of Health has also appointed officers to inspect the vaults and cesspools as well as the alleys and yards throughout the city.

Increase in Immigration.—Following the panic a year ago, a considerable drop in the number of immigrants arriving at the port of New York was noticed, but recently the arrivals have increased, and, on December 8, 5,057 immigrants passed through Ellis Island. This is a record for any single day, the largest number arriving on any day previously being 3,126.

Destruction of Spoiled Food Stuffs.—The Chicago administration has been greatly strengthened in its warfare against decayed and unwholesome food products by a decision of the United States Supreme Court. It practically gives to the city the needed authority to suppress the marketing and retaining in cold storage of food products which have begun to decompose. The right to destroy spoiled material wherever found not only makes it easier for the officials of the health department, but has a strong deterring effect on any dealer who might wish to impose upon the public.

New York's Death Rate.—The death rate in the city continues to show a decrease as compared with 1907 which is considered remarkable by the health officials. During the week ending December 5, 1908, there were 1,213 deaths, a rate of 14.1 per thousand of population, while last year there were 1,403 deaths, a rate of 17.40. There was a falling off of deaths from all causes except heart disease, diphtheria, and violence. These all showed a very slight increase.

Cholera in Russia.—It has been found necessary to reopen some of the cholera hospitals in St. Petersburg, as the number of cases have increased considerably during the last two weeks.

Dr. Roswell Park on December 7 celebrated the twenty-fifth anniversary of his professorship in the University of Buffalo, at a dinner given in his honor, by the medical profession of Buffalo, as an evidence of their appreciation of his abilities as teacher and surgeon.

Col. William C. Gorgas, who is one of the ten delegates from the United States appointed to attend the Pan-American Scientific Congress at Santiago, Chili, on Christmas Day, will present a paper on the Control of Yellow Fever in the Tropics.

Dr. Stephen Balderson has been appointed health commissioner of Evanston, Ill., vice Dr. Wm. R. Parkes, resigned.

Harvey Society Lectures.—The sixth lecture of the Harvey Society will be delivered by Prof. A. B. Macallum of the University of Toronto, at the New York Academy of Medicine, 17 West Forty-third street, on December 19, at 8:30 P.M. The subject of the lecture will be Osmosis, and all persons interested are cordially invited to attend.

Free Medical Lectures.—On Sunday, January 3, the course of free medical lectures given by the Faculty of Medicine of Harvard University will be inaugurated, and will be followed by lectures on every Saturday evening and Sunday afternoon, until April 25.

Bellevue Hospital.—Dr. S. F. Goldwater, Superintendent of Mt. Sinai Hospital, has been appointed sanitary expert to supervise the construction of the surgical wards at the new Bellevue Hospital. He will retain his place at Mt. Sinai. It is estimated that the new hospital will be ready in about five years.

Charitable Gifts.—By the terms of the will of Mrs. Grace M. Kuhn, who died in Lenox last October, Harvard University will receive $175,000 to endow a department of biological chemistry. The Massachusetts General Hospital also receives $10,000.

Philadelphia County Medical Society.—At a stated meeting held December 9 the following resolution was adopted: "The Philadelphia County Medical Society, as the exponent of the recognized profession in this teaching center, declares its belief in the right of a physician to use mental, chemical, mechanical, electrical, manipulative, dietetic, or any other legitimate means of treating disease; the same holds true of dosage, small or large. Furthermore, the society embodies the modern spirit as to professional fellowship, and points with pride to its record for broadminded liberality in election to its membership. Graduates of various schools of practice have been and are now on its rolls."

The Norwegian Hospital Alumni Association.—The ninety-ninth regular meeting of this Association was held at the residence of Dr. Arthur Longstreet on December 9. Dr. Robert E. Coughlin was elected *President,* Dr. John H. Ohly *Vice-President,* and Dr. Louis Stork *Secretary and Treasurer.* The hundredth meeting of the Association will be held in January at the home of Dr. Sewell Matheson. It will be celebrated in a manner fitting to the occasion.

Alumni Association of the New York Skin and Cancer Hospital.—A meeting of this Association was held in New York on Wednesday of this week under the presidency of Dr. H. H. Whitehouse. The program included papers by Dr. B. Merrill Ricketts of Cincinnati, on "Lupus and Epitheliomata, Their Treatment by Excision and Paste;" Dr. R. M. Vermilye, on "Influence of Gravity on Lesions of the Skin"; Dr. J. Francis Aitken, on "The Practical Physician *vs.* the Para Pathologist"; Dr. Jerome Kingsbury, on "The Conjunctival Tuberculin Reaction in Certain Diseases of the Skin;" and Dr. James T. Gwathmey, "Anesthesia for Plastic Operations on the Face."

Joint Society Meeting.—The New York Pathological and the New York Surgical Societies held a joint meeting in Hoosack Hall of the New York Academy of Medicine, on December 9. Dr. John Howland read a paper giving the results of studies made by Dr. A. N. Richards and himself on the pathology and metabolism of cases of delayed chloroform poisoning in dogs, which was illustrated by the projection of microscopic sections from the liver and other organs. Dr. George E. Brewer discussed the clinical aspect of such cases, and Dr. James Ewing and Dr. C. G. L. Wolf discussed the scientific side.

The Southern California Public Health Association held its semi-annual meeting in Santa Ana, on December 2, and passed a resolution indorsing the establishment in Southern California of a bacteriological laboratory as a branch of the State laboratory. The following officers were elected for the ensuing year: *President,* Dr. C. D. Ball, Santa Ana; *Vice-President,* Dr. W. H. Jones, Long Beach; *Secretary-Treasurer,* Dr. W. W. Roblee, Riverside.

The Oakland County (Mich.) Medical Society at its annual meeting on December 2 elected the following officers: Dr. C. J. Sutherland, Clarkston, *President;* Dr. T. E. McDonald, Holly, *Vice-President;* Dr. J. T. Bird, Clarkston, *Secretary* and *Treasurer;* Dr. E. A. Christian, Dr. N. B. Colvin, and Dr. M. W. Gray, *Board of Directors.*

The Rolla District (Mo.) Medical Society held its sixty-seventh semi-annual meeting on December 3, and elected the following officers for the ensuing year: Dr. E. L. Hume of Bourbon, *President;* Dr. J. C. Welch of Salem, *Vice-President;* Dr. W. H. Breuer of St. James, *Secretary* and *Treasurer.* The next meeting will be in St. James in May, 1909.

The Douglas County (Minn.) Medical Society, at its sixth annual meeting held on December 2, elected the following officers: *President,* Dr. John Baird; *Vice-President,* Dr. Lewis Moody; *Secretary* and *Treasurer,* Dr. T. J. O'Leary; *Censor,* Dr. L. B. Shehan.

The St. Charles (Mo.) Medical Society held its annual meeting on December 2 and elected officers for the ensuing year as follows: *President,* Dr. J. R. Mudd; *Vice-President,* Dr. D. C. Dunn; *Secretary,* Dr. F. J. Taintor; *Treasurer,* Dr. Carl Bitter; *Censor,* Dr. B. P. Wentker.

The Baltimore City Medical Society, at its annual meeting on December 1 elected the following officers: *President,* Dr. Jacob H. Hartman; *Vice-President,* Dr. William D. Booker; *Secretary,* Dr. William E. Magruder; *Treasurer,* Dr. William S. Gardner; *Censor,* Dr. Randolph Winslow.

The San Mateo County (Cal.) Medical Association held its annual election of officers on November 9. The election resulted as follows: *President*, Dr. H. C. McLenehan of Belmont; *Vice-President*, Dr. D. B. Plymere of South City; *Treasurer and Secretary*, Dr. F. M. Seibert of San Mateo.

Cook County Tuberculosis Hospital.—The work on the new million dollar tuberculosis hospital for Cook County (Illinois) is to be begun in a few days. A building permit has already been secured.

Obituary Notes.—Prof. Oliver Walcott Gibbs of Boston died in Newport on December 9. Dr. Gibbs was born in New York in 1822, and graduated from Columbia College in 1841, and from the College of Physicians and Surgeons, New York, in 1843. During the Civil War he was a member of the United States Sanitary Commission, and in 1863 was appointed Rumford professor at Harvard University, an office which he held until 1897, when he was made professor emeritus. He was one of the founders of the Union League Club of New York, and a charter member and president of the National Academy of Sciences. He was well known for his original investigations and had received honorary degrees from Berlin and London, as well as from Columbia, Harvard, Toronto, and Pennsylvania Universities.

Dr. John T. Wheeler, who died at his home in Chatham, N. Y., December 3, 1908, at the age of 58, was not only a leading man in his profession but had been a good citizen, especially interested in the village schools of which he was a trustee for almost thirty years. He had been the first president of the Third District Branch Society and was at the time of his death vice-president of the State Medical Society. His community testified to their sense of bereavement by closing all places of business the day of his funeral and by gathering with a wide circle of friends to pay the last tribute to his memory. He was director of the Division of Communicable Diseases of the State Department of Health at the time of his death.

Dr. Bethuel Lewis Dodd, one of the oldest practitioners of Essex County, New Jersey, died at his home on December 5, after a short illness. Dr. Dodd was born in East Orange in 1825, and was graduated from the College of Physicians and Surgeons, New York, in 1852. During the Civil War he was examining surgeon for the Thirteenth and Twenty-sixth New Jersey Volunteers, was at one time surgeon-in-chief of the Pennsylvania Railroad, was for ten years county physician, and had also served as police surgeon for the city of Newark. He had practised but little for some years past.

Dr. George H. Bicknell of Omaha, Nebraska, died at the Methodist Hospital in that city on November 28, of peritonitis, aged 44 years. Dr. Bicknell was graduated from the Omaha Medical College in 1895, and for the past two years had been associate professor of ophthalmology and otology in the Medical Department of the University of Nebraska.

Dr. Editha Root of De Kalb, Illinois, died at her home on November 26. Dr. Root was graduated from the Woman's Medical School in Chicago in 1875, and had practised in Denver, Colorado, until a year ago.

Dr. William E. Walker of Fairhaven, Massachusetts, died on November 30 at his home, after a short illness from pneumonia. Dr. Walker was born in 1874, and was graduated from Amherst, and from the Harvard Medical College in 1902.

Dr. Norval Smith of Bridgeport, Connecticut, died at the Bridgeport Hospital on December 1, of cerebrospinal meningitis. Dr. Smith was graduated from Queen's University, Canada, in 1904, and had practised in Bridgeport for the last two years.

Dr. Frank Russell Baker of Brooklyn, New York, was instantly killed on December 11, by falling from a fourth-story window of his house while trying to remove a tightly wedged window screen. Dr. Baker was born in 1869, and was graduated from the College of Physicians and Surgeons, New York, in 1889. He was a member of the American Medical Association and of the Kings County Medical Society.

Dr. Rush J. Shank, a well-known physician of Lansing, Mich., and a veteran of the Civil War, died on November 25, of peritonitis, aged 60 years. Dr. Shanks was graduated from the University of Michigan in 1871, and was a member of the Michigan State Medical Society.

Correspondence.

APPENDICITIS AND RHEUMATISM.

To the Editor of the Medical Record:

Sir:—In the *British Medical Journal* of November 28, 1908, page 1601, is an article by Dr. Eustace Smith, entitled "Remarks on the Rheumatic Origin of Certain Serous Inflammations." Dr. Smith concludes his article as follows: "I have seen not one, or two, but many cases of appendicitis in which the question of operation was being considered which underwent such rapid improvement under antirheumatic treatment that all idea of surgical interference was quickly set aside. If the treatment fail—that is, if no improvement be noticed within thirty-six hours of taking the first dose of the salicylate (which should be of substantial quantity and given every three hours), the assumption of a rheumatic origin for the inflammation may be definitely ignored." It is almost unnecessary to add that this statement comes from a prominent physician of large and long experience, and who is very favorably known to physicians throughout the world.

To many among my colleagues it is also well known that similar judgment has been passed during many years by myself, and I have never had up to date any reason to believe that my statements, written as well as oral, in regard to the not infrequent rheumatic causation of appendicitis, are at all erroneous. I should not recur to this subject, were it not very important, practically. To those who fail to remember my former article on this subject, I would refer them to the Medical Record, September 14, 1895, pages 373-374, "Rheumatism as a Cause of Appendicitis."

Beverley Robinson, M.D.

New York.

OUR LONDON LETTER.

(From Our Special Correspondent.)

GENERAL MEDICAL COUNCIL—HORACE DOBELL LECTURE ON LATENT PERSISTENCE OF BACTERIA—WHY NOT PRESERVE THE APPENDIX?—TRANSFUSION IN TOXEMIC STATES—ACTION OF SALINE PURGATIVES.

London, November 27, 1908.

The General Medical Council met on Tuesday and Sir Donald Macalister delivered his presidential address. He began by remarking that the Council that day entered on its second half century—a remark which suggests the many hopes which have been frustrated, the many efforts that have been fruitless, and the little good that has resulted. The presidential addresses alone would be a sufficient library on the subject of medical reforms advocated without effect. Sir Donald said the register was the instrument devised by the Legislature to enable persons to distinguish qualified from unqualified practitioners. In a sense it has done this, but so cumbrous and expensive a body was not required to supplant a medical directory which was tolerably correct. In fact, the Council proposes now to issue a circular with a view to correct the errors of the register—a proceeding carried out yearly by the directory.

The Council has also at enormous cost produced the Pharmacopœian for the United Kingdom, which is certainly better than having one for each division.

But the three colleges previously supplied the materials and might have unified their work at a fraction of the expense incurred by the ponderous body set up fifty years ago. Sir Donald held that the Council had kept before it its original purpose—the safeguarding of the public health—and to that end had pursued in a remarkable degree the improvement of the profession. It is not the custom of the Council to criticise the presidential addresses or it might be hoped that one of its members would have called in question this statement.

In the evening the Council celebrated its jubilee by a dinner and invited thereto their surviving predecessors.

The behavior of bacteria in the body, whether pathogenic or not, is a large subject, and one side of it was stated in a luminous manner by Dr. Leonard Dudgeon, pathologist and bacteriologist to St. Thomas' Hospital in the Horace Dobell Lecture at the Royal College of Physicians, which he delivered on the 12th inst. The part he took up was the "latent persistence and the reactivation" of the pathogenic bacteria. He said the *Staphylococcus epidermidis albus*, shown long ago by Welch to be a normal inhabitant of the human skin, is now known to be very closely allied to other staphylococci met with in infective processes. Organisms belonging to this group are of frequent occurrence in wounds which heal by first intention. Probably their presence in normal tissues is an important source of suppuration. The *Staph. albus*, is important in peritoneal infections, having often been found in the blood-clot of intraperitoneal hemorrhage, as well as in acute peritoneal infections. The similar organism called *Micrococcus neoformans*, which has been found in malignant growths, is very likely identical, as suggested by Andrewes and Gordon. If so, it would appear that malignant neoplasms become infected by normal bacteria, *i.e.* autoinfection is a more important agent than infection from without.

Furunculosis is a well-known example of autoinfection, through *Staph. pyogenes aurcus*, to which also the lecturer has himself suggested most cases of osteomyelitis are due. To autobacterial infection of injured parts excessive formation of callus in some fracture cases has also been attributed by no less an authority than Shattock and Battle. Scar tissues also are liable to be inflamed from no known cause unless these organisms which are latent had become reactive. The investigations of Andrewes and Horder show that malignant endocarditis is due to streptococci and in overwhelming preponderance to the salivary and fecal types. They are all either absolutely identical, or closely related in their reactions with the commonest saprophytic streptococci of the mouth and gut. Turning to the diphtheria bacillus, the lecturer held, with Graham Smith, that the organisms found in the throats of healthy persons are virulent and do not lose their virulence when persisting a long time in the throat and nose. In a few instances he admitted they had diminished in virulence, but in the great majority full virulence was noted up to the time of disappearance. In one case virulent bacilli were found after 335 days. So then these bacilli can remain in the tissues of healthy people without giving rise to any symptoms, but may yet retain their virulence.

The *Bacillus coli* is a normal inhabitant of the intestinal tract in both man and animals, and give rise to no symptoms. But it is the commonest organism in the bacteriology of peritonitis—especially that due to appendicitis. It persists in the appendix after subsidence of the acute stage and after operation may give rise to diffuse peritonitis. This bacillus may also be found in the urinary tract and in such enormous numbers as to have been called bacilluria without setting up any symptoms whatever, or in other cases causing slight pyrexia, or again it may produce a condition indistinguishable clinically from typhoid fever. With regard to this disease we now understand by typhoid fever a state due to infection with various microorganisms of the coli group—not necessarily the *Bacillus typhosus*. Still further, we may be infected with the typhoid bacillus without having any of the clinical manifestations of typhoid fever. Typhoid is, in fact, a group disease produced by a group of organisms.

As to the interesting question of typhoid carriers, the lecturer did not limit the consideration to carriers of the *Bacillus typhosus*, but to the group of organisms described by Major Statham as capable of originating disease indistinguishable from typhoid fever. There are: 1. *Bacillus fecalis alcaligenes*. 2. *Bacillus typhosus*. 3. *Bacillus paratyphosus*, A. 4. *Bacillus paratyphosus*, B. 5. *Bacillus coli*. He thinks infection due to the persistence of the first of these in the tissues for long periods is probably of greater import than in the case of the others. It is well known that the feces of convalescents from typhoid may be infective for months, or even years, the general idea being that this is due to infection of the gall-bladder. About 3 to 4 per cent. are estimated to become carriers and a small proportion of contacts may excrete the bacillus temporarily. Then persons who had never had an illness considered to be typhoid may have paratyphosus bacilli in their feces. Moreover, there are persons who seem to be temporary carriers, not such as might be thought to discharge their bacilli intermittently, nor even cases of ambulatory typhoid. So it has been shown that bacilluria may last a long time and be a source of infection. Epidemics have been traced to such a source. There is some evidence, too, that autoinfective attacks may occur to persons who have been carrying the bacillus for long periods. The lecturer gave some illustrative cases. One was a man admitted with jaundice. He had had that complaint thirty years previously and "influenza" twenty years ago. An operation was done and the gall-bladder was found in a suppurative state with thickened walls. The paratyphosus B. was obtained in pure culture. At the post mortem carcinoma of the gall-bladder was found. This man had never been known to have typhoid and the only illness likely to have been caused by the paratyphosus found might be the "influenza" of his record. He was admitted to the surgical ward for suppuration in the biliary passages. In such a case danger of infecting patients or nurses is a possibility. The question arises whether the bacillus persisted in the biliary passages as a saprophyte and became reactivated and gave rise to suppuration in a carcinomatous growth, or had it only recently entered?

The lecturer had isolated bacilli of the paratyphoid group from three private patients in the last two years. In two the *Bacillus coli* was also present, and the patients had pyuria as well as bacilluria. All three had had "influenza," but none typhoid. In two definite urinary symptoms occurred soon after the influenza, suggestive of the disease so diagnosed being an infection with *Bacillus paratyphosus*. The latent persistence of the paratyphoid group is very important. That organisms can live in our tissues and have periods of activity and when discharged enter and infect another host and so give rise to serious epidemics may suggest a reconsideration of our facts as to these infections. Our knowledge of bacterial growth and multiplication within our tissues must be further compared with their activity outside our bodies.

Mr. C. B. Keetley in a paper in the Surgical Section (R. M. S.) asked how and why the surgeon should attempt to preserve the appendix, and reported a number of cases to show its value. Macewen had shown it was not useless, and Mr. Keetley extolled it as a channel of ingress and egress to and from the intestine. Cases of colitis, intussusception, hemorrhage, distention, or toxic conditions, typhoid, constipation, etc., could be reached by this channel. In his opinion transplanting the appendix so as to imbed it or the major part in the abdominal wall was to be preferred to removal. Concretions, kinks, twists, and strictures could often be cured without excision, and non-recurrence could be assured. Through the appendix the large intestine could be regularly washed out from end to end.

Mr. Bidwell admitted that he had seen Mr. Keetley's method successful in intractable constipation, but he was not convinced that a twisted or kinked appendix was worth preserving in the abdominal wall.

Mr. Kirkby-Jones testified to the value of the plan in constipation. But Mr. Mummery said the cause of constipation must be sought, though in some cases appendicostomy was the ideal treatment. Mr. Spencer looked at the appendix from a developmental aspect, and could not see such a shrunken remnant was of any use. Mr. Hertz said it was easier to wash out the colon through the rectum. Mr. Rowlands said it was better to remove an inflamed or sloughing appendix. Mr. Waterhouse said that in future appendicostomy would certainly be the operation for ulcerative colitis and most cases of mucous colitis. In his reply Mr. Keetley said to leave the stump of an appendix in the peritoneal cavity was quite as dangerous as to insert it in the anterior wall of the abdomen.

In the Therapeutical Section Professor Dixon related some experiments showing that in animals toxemic states of a general character drugs were without effect, but transfusion of large quantities of saline solution gave good results. Dr. Fawcett remarked that in young children dying of diphtheria the difficulties of this treatment were too great. So, too, he said strychnine could not be injected without danger, for he had seen twitchings brought on by small doses. Dr. Hertz afterwards described experi-

ments to show that saline purgatives only acted after absorption, as long ago asserted by Aubert and MacCullum. The drug acted, he held, on the neuromuscular mechanism of the colon, increasing both motor and secretory activity. Analysis of the watery stools showed very little excess of salines. The salt was mostly excreted the next day when the stools were solid. Prof. Cushny could not accept this view without further consideration. One difficulty was that intravenous injections of purgative salts were without effect. It is difficult to think they act immediately on muscular tissue. Prof. Dixon said he had often injected small doses of magnes. sulph. into the veins. Larger doses paralyzed the heart, and the effect of small ones was nil. He believed the watery constituents could pass down in half an hour. If the action was due to absorption of a minute quantity of the salt, why should doubling the dose produce greater effect? Dr. Hertz replied and acknowledged that he had no explanation of the negative effect of intravenous injections. But experiments on animals were not free from possible fallacy as the conditions were not normal. As a matter of practice he did not think doubling the dose doubled the purgation; nor if his view were accepted did he consider it necessary to think that the effect of small and large doses could not differ.

TWELFTH SESSION OF THE FRENCH ASSOCIATION OF UROLOGY.

(From Our Special Correspondent.)

PARIS, October 15, 1908.

THE twelfth session of the French Association of Urology took place at Paris, October 8 to 10, 1908, under the presidency of Drs. Legueu of Paris, and Tedenat of Montpelier.

The question considered by this Congress was the so-called "Essential Incontinence of Urine," and those who presented papers were Bazy of Marseilles and Marcel Deschamps of Paris. These authors defined the subject of their papers by saying that essential incontinence is that which occurs involuntarily and unconsciously during sleep, without any lesion of the urinary apparatus to explain it. Essential nocturnal incontinence of urine is more frequent among boys; it is a malady of childhood; the personal antecedents of the patient are unimportant, but in regard to hereditary antecedents we generally find a neurotic heredity. This incontinence is manifested sometimes continuously every night, sometimes in irregular periods; the child may pass several nights without urinating, and sometimes unusual exciting causes may be found, as in the case of a child who always wet the bed after eating potatoes. The influence of deep sleep and of the amount of liquid ingested appears to be real, although not constant; the flow of urine is not continuously, drop by drop, but by several acts of micturition during the night. The incontinence seems to be independent of the quantity of the urine, since by measuring the daily and nightly quantity of urine Guinon found that the nocturnal excretion was less than the diurnal, as is the case in normal individuals.

Troubles of sensation are often noticed in these patients, such as hyperesthesia, abolition of the pharyngeal reflexes, abolition or exaggeration of patellar reflexes, epileptoid trepidation, tics, tremors, stammering, rhythmic twitching of the eyelids, dermographia, or hyperidrosis. This kind of incontinence often disappears at adolescence; its periods become less and less frequent, and it finally disappears entirely. On the other hand, it may persist into adult life, and even continue up to thirty years of age.

Among the causes which have been invoked to explain nocturnal incontinence of urine is congenital atresia of the meatus or urethra; other causes may be active, such as epilepsy, idiocy, and mental degeneracy. There are several types of children that are more subject than others to nocturnal incontinence of urine; some need only pride to cure them, and these are very intelligent; others are lazy, and urinate in bed because it is disagreeable to arise. In others incontinence is a psychic trouble, and here dreams have an important place in the pathogeny of the condition; still other cases are physiological and proceed either from vesical hyperexcitability, or, as Guyon has said, from paresis or insufficiency of the urethral sphincter.

Nocturnal incontinence of urine should be divided thus: (1) Incontinence of nervous origin (hysteria, epilepsy). (2) Incontinence of urinary origin (retention, prostatic, stricture, spasm).

The modifications of the urinary chemism should also be distinguished, for when the urine is concentrated it is a cause of vesical irritation, and may produce pollakiuria and incontinence, especially in nervous subjects. In practice the most frequently observed cause is hyperacidity of the urine; in other cases alkalinity may be mentioned. Inflammatory affections of the bladder and kidney may any of them be accompanied by incontinence from local irritation; this may be observed in pyelitis and pyelonephritis, benignant or tuberculous. We must also remember the malformations of the urinary organs, as phimosis, atresia of the meatus, hypertrophy of the valve of Guerin, polypus of the meatus, adhesions of the clitoris, and congenital stricture of the urethra. Lastly should be mentioned incontinence of urine of peripheral origin; such as incontinence resulting from polypus of the rectum, rectal fistulæ, rectal prolapse, colitis, fistula in ano, and intestinal worms. Sometimes incontinence is provoked by cutaneous eruptions, such as herpes, impetigo, enlarged tonsils, or nasopharyngeal polypi.

The prognosis of incontinence of urine is good, since it has a natural tendency to cure; some reserves should be made, for the incontinent, on account of the repulsion which surrounds them, the annoyances, and corrections to which they are exposed, may become hypochondriacal, and sometimes even commit suicide. In reference to treatment we may make two classes: (1) Empirical measures: (*a*) psychical measures, threats of correction, of operation, and violent emotions; (*b*) mechanical measures of two kinds, such as close the urethra more or less completely; as compresses in the form of rings about the end of the penis; such as are intended to cause light sleep—making the patient sleep on a hard bed, or putting foreign bodies in the bed at night; (*c*) hygienic measures, consisting of diminution of the quantity of fluids ingested, and even denying supper entirely. Lastly, the child may be awakened at a fixed hour to urinate.

(2) Internal treatment consists of antispasmodics, such as belladonna, chloral, or antipyrin, and the opposite excitants of the nervous system, as strychnia.

(4) Electrical treatment is designed to combat atony of the sphincter or inhibition of the cerebral center. The most generally used application is faradization of the sphincter urethræ. A current of ten milli-amperes may be used with sixty interruptions per minute, for two or three minutes; again galvanization may be combined with faradism.

(5) Psychical treatment consists of attempting a cure by suggestion, in the course of a hypnotic sleep, or in the course of natural sleep.

(6) Treatment by punctures and injections of the spinal canal. Epidural injections should be mentioned among these, which have given some success; also retrorectal injections, consisting in the injection of 100 to 150 cubic centimeters of artificial serum into the cellular spaces between the rectum and the sacrum. These last injections have for object the elongation of the hypogastric plexus, and especially of the sacral sympathetics, which are found in the rectorectal space. Lastly, lumbar puncture with the removal of 15 c.c. of the cerebrospinal fluid.

(7) Surgical treatment: Bloody surgical procedures are applicable only to cases of incontinence caused by malformations, or of peripheral origin.

To sum up: It is seen that measures proposed to remedy incontinence are very numerous. The prime therapeutic condition is an exact diagnosis; followed by elimination of all the conditions that may cause the involuntary emission of urine. This affection should never be treated by internal medication, according to the authors; simple means should first be tried, suggestion in the form of threats of operation, and if these means fail, catheterism, instillations, electrization, punctures, or injections, and above all, hygienic measures, less drinking of alcoholics, less meat, avoidance of physical and intellectual fatigue, and a life in the open air.

Among the other communications should be mentioned that of Noguès of Paris, on Early Diagnosis of Urinary Tuberculosis. While direct microscopic examination of the urine after centrifugation often fails, inoculation of guinea pigs gives good results; however, this last method has the inconvenience of demanding five or six weeks, a lapse of time that is too great. The author thinks the best means of ascertaining the urinary contents is to inoculate a female guinea pig in the udder with the urinary deposit during lactation. This method gives a rapid response, since the bacillus appears in the secretion of the mammary gland on the eighth to the twelfth day.

On the subject of transvesical prostatectomy, Escat of Marseilles is a partisan of early operation. This measure ends the danger of catheterization and cures the patient. It is very difficult to judge of the resistence of the patient for anesthesia and for operation. Michon of Paris thinks that an exact indication for operation is found in chronic incomplete retention with great distension. In such prostatics catheterism is a danger, and operation is no longer serious. Lagueu believes it best to do a prostatectomy in two sittings. At the first operation the bladder should be opened and disinfected and in a second operation the prostate may be removed.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 3, 1908.

The Method of Administering Antimeningitis Serum.—C. H. Dunn lays down the following rules: (1) Perform lumbar puncture, prepared to give the serum, as soon as meningitis is suspected. If the fluid is cloudy, give the first full dose of serum at once, without waiting for the bacterial examination, although further doses are only to be given in case the diplococcus intracellularis is found in the cerebrospinal fluid. The serum is of no value in other forms of meningitis. (2) At every dose give as much as possible. Always withdraw as much cerebrospinal fluid as possible. Give 30 c.c. in all cases in which the amount of fluid withdrawn is 30 c.c. or less, unless a distinctly abnormal sense of resistance is encountered after as much has been injected as has been withdrawn. In all cases in which the amount of fluid withdrawn is more than 30 c.cm., give as much serum as the quantity withdrawn. In very severe or fulminating cases, in which the amount withdrawn is between 30 c.cm. and 45 c.cm., give 45 c.cm. unless abnormal resistance is encountered. (3) In very severe or fulminating cases, repeat within twenty-four hours as soon as the patient begins to get worse again, or at twelve-hour intervals. (4) In average cases, repeat daily, until four full doses have been given in all cases. (5) If diplococci persist after four full doses have been given, continue the injections until they have disappeared. (6) If subjective symptoms, any impairment of the mental condition or fever persist after diplococci have disappeared, or after four full doses have been given without progressive improvement, wait four days if the condition of the patient is stationary. At the end of four days, or at any time if the patient's condition is getting worse, repeat the treatment with four daily full doses, and continue as if this were the original attack. (7) When a relapse occurs, either by reappearance of diplococci in the cerebrospinal fluid or by a reappearance of symptoms, give four daily full doses and continue treatment as if this were the original attack. (8) Treatment along these lines should be continued until the patient is symptom free, without diplococci in the fluid, or until the chronic stage is established. (9) In the chronic stage, watch for possible reappearance of diplococci by doing occasional lumbar punctures. If diplococci reappear, resume treatment with the serum as outlined above. In chronic cases, with excessive cerebrospinal fluid under marked pressures, try daily lumbar puncture without the injection of serum.

Electrotherapeutics in the Treatment of Tuberculosis.—J. F. Wallis says that static electricity has no special value in tuberculosis beyond stimulating respiration and aiding metabolism, but claims considerable value for the high-frequency current. The latter tends to stimulate the eliminative organs and has some effect in retarding the growth of the bacillus and may alternate the virulence of the toxins. The author also refers to the *x*-ray, the Finsen light, etc., but presents nothing new. All of these methods, says the author, have properties in common. They all stimulate the nutritive functions, but the chemical action of the rays of the sun or the light of the high-power electric lamp and the high-frequency current alone stimulate all these functions, including digestion, absorption, secretion, excretion, respiration, and circulation of the blood. We also learn that pathological processes are arrested, pain is relieved, expectoration is facilitated, bacteria are destroyed, toxins are eliminated; the absorption of oxygen, the elimination of carbonic acid, sleep, and rest produced; appetite increased and nervous symptoms so distressing to the patient greatly benefited.

New York Medical Journal, December 5, 1908.

Peritonitis Due to Appendicitis.—F. Torek considers this question with special reference to diffuse suppurative peritonitis and notes the various procedures which have been followed in the past. His own method of operating consists in making a large median incision, extending generally two inches above the navel. The appendix is rapidly exposed and tied off. The pus exposed in these manipulations is at once rinsed off with saline solution, so that the appendix removal may be done in a territory not too much soiled. Then follows the careful cleansing of the peritoneal cavity by pouring saline solution from bottles or pitchers. This is done systematically, taking up one region after another, for instance, first the region of the appendix, then the pelvis, then the left lower part of the abdomen, finally the parts higher up. During these manipulations the intestines must be treated as tenderly as possible. The wound then is closed completely with through-and-through silk sutures, no drainage being employed, unless it has been impossible to close the stump of the appendix, in which case a drain is introduced down to the stump through a separate small lateral incision. Furthermore, the author does not employ Fowler's posture and avoids inducing peristalsis during the first five days. The large median incision facilitates access to all parts of the peritoneal cavity. Cleansing by irrigation leads to gentleness in handling the inflamed tissues. As the pus is widely spread already, no harm comes from flushing. The closure of the abdominal cavity without drainage rests upon the fact that the peritoneum, after it has been washed clean, is well able to cope with what little infectious material may yet be left. Furthermore, it is impossible to drain the peritoneal cavity. The author has drained in only two instances when the point of origin of the appendix could not be properly closed owing to extension of the gangrene to the cecum. This was done by the introduction of a strip of gauze through a separate lateral opening. The indication for drainage in those cases was not the presence of diffuse peritonitis, but the expected escape of feces.

Restoration of Sight After Nearly a Month's Blindness from Glaucoma.—The notable feature of the case reported by J. L. Minor is expressed in the title of his paper. His patient was a woman of 57 years, whose illness began with a sudden and severe pain in the left eye, lasting thirty-six hours. A few days later a similar attack occurred in the right eye and vision became blurred in both eyes. In due time an iridectomy upward was done in both eyes, they both having become totally blind, with more or less continuous pain. The bulk of the paper is taken up with details of treatment. One week after operation she could see sufficiently to tell the time by a watch and see the hands of the clock across the room. Five years or so later she could see fairly well, though there was a permanent lessening in the range of vision.

The Value of the X-Rays in Chest Diagnosis.—A. L. Gray writes of his experience in cases of thoracic-aneurysms, pleuritic effusions, tumors, enlarged glands, and tuberculosis. He says that with modern apparatus, isolated tubercles, minute calcified glands, and thickenings at the roots of the lungs can be clearly made out. In advanced tuberculosis, in which there is considerable consolidation, the areas may be studied and progress or recession of the disease determined by comparing radiographs made from time to time. Cavities in the lungs, their size, location, and whether or not they are being walled off are all points that may be shown by a good radiograph. In chest examinations for tuberculosis it is not sufficient, as is often done, to make a single picture with the plate behind the thorax, for images of small, solid areas in the anterior portion of the lungs may be indistinct by reason of their distance from the plate. In order to obtain a clear impression it is of equal importance that a picture be made with the plate in front. Restricted motion to the diaphragm on the affected side (Williams's sign), which was formerly considered of great value in the diagnosis of early tuberculosis, has been proved to be unreliable. This is easily demonstrable by an *x*-ray examination, but is not always present in the earliest manifestations.

Late Report of a Case of Fracture and Dislocation of the Second Cervical Vertebra.—C. D. Fox notes that fractures and dislocations of any of the three upper cervical vertebræ are generally fatal. His own patient was a man of thirty-two years, on whose vertex a heavy weight fell, forcing his head backward. He was unconscious for several hours. The case was under observation for a long period and the history of symptoms during this time is given in great detail. After a full consideration of all the facts in the case, the signs and symptoms and the use of the *x*-ray, a diagnosis was made of an old fracture dislocation of the second cervical vertebra, complicated by an ancient depressed fracture of the skull. In addition, the patient suffered from major epileptic attacks, without any focal symptoms, and petit mal. His recent attack would seem to be an acute cerebrospinal meningitis of unknown type and origin. The medicinal treatment received was almost exclusively with bromides for the possible relief of his convulsions. Hypnotic suggestion, carried to the stage of somnambulism, was employed for over four weeks, with no apparent effect on his convulsions, but being of great benefit in the relief of insomnia, pains, and other symptoms. This was

most noticeable during the attack of meningitis, for on several occasions, when the headache and pains were almost unendurable, he was kept in the hypnotic state for a half hour, and on one occasion as long as two hours. Immediately upon the production of hypnosis his pains would entirely disappear and would not return for perhaps twelve hours.

Journal of the American Medical Association, December 5, 1908.

The Treatment of Locomotor Ataxia.—A. McL. Hamilton deprecates the general tendency to give an unfavorable prognosis in cases of locomotor ataxia, which has a tendency to send the patients to the pretentious quacks, only, of course, to be disappointed in the end. He recognizes two classes of cases, one including about 60 per cent. of all patients and in which the disease is a parasyphilitic affection, progressive and usually incurable, though subject to favorable modifications and even arrest by intelligent treatment; the other 40 per cent. includes patients who are not only capable of being greatly helped, but often of being cured. Of course, evidences of destructive neural disease is of unfavorable signification. Considering the larger proportion of luetic cases, specific treatment is suggested, and he finds that in about 20 per cent. the use of mercurials is of advantage, especially the bichloride. The treatment of special symptoms is of great importance, and he calls attention to the effect of barometric conditions on the ataxic pains, which are for this reason often considered rheumatic. If this influence can be determined, the use of the salicylates and hydrotherapy is often of value, and he thinks that, with the judicious control of the physician, the use of morphine is comparatively safe. Dietetic regulation should be instituted for the gastric crises which are often associated with intestinal disturbances and autointoxication. The use of counter-irritation is also mentioned. For the ataxia the Frenkel systematic exercises may do much good in cases in which there is not too much pain, gastric crises, or excessive friability of the bones. Over-exercise and fatigue, however, should be avoided. When there is plantar anesthesia, perhaps causing the ataxia, he has found surprising benefit from the high-frequency current applied directly to the sole by means of a spark electrode. He has no faith in other forms of electricity for this purpose. For the urinary difficulties occurring in about half the cases, lavage of the bladder at regular intervals, used for a long period, is important. A warm winter climate is useful in tabetic cases, and, preferably, dry climates. Cases due to shock, trauma, or hysteria are often curable by very simple means, if there is no syphilitic basis.

Loss of Appetite in Children.—I. M. Snow calls attention to a group of symptoms observed in children from two to ten years of age, characterized by capricious and lacking appetite in spite of the most correct regimen and attractive food, irritability, lack of nerve, irregular and unfreshing sleep, and general deterioration in physique. All this may be the case in spite of tonic, fresh air treatment, and sometimes rapid growth without corresponding increase in weight. The condition is to be distinguished from the anorexia nervosa of Gull, which is a type of hysteria with loss of weight without organic lesion and with delusions and marked hysterical manifestations, which are lacking in these cases. Snow insists on a thorough examination in these cases excluding all organic diseases, and finds the efficient treatment only in putting the child to bed and keeping him there for two weeks with plenty of ventilation and fresh air. The body should be sponged off and well rubbed morning and evening and a suitable nutritious diet, well cooked and attractive, may be given without any special restrictions. The rest treatment should be continued until there is considerable gain in weight, a good appetite and natural sleep for ten or twelve days. These being satisfactory, the child is dressed and given an hour's perfect freedom, out of doors if preferred, and if improvement continues this may be increased by an hour each day until the child has six hours in the middle of the day, and, if still delicate or not quite normal, the short day should be continued for several months. At this time, change of air, country or seashore, with restrictions as to violent exercise, will be of service. After from two to four months, restraint is no longer needed, the child can live its normal life. Of course there are borderline cases in which all the details are not required, but if the condition has lasted for months any short or partial rest-cure is a waste of time; the invalidism will recur and the result probably will be an impairment of health that may be felt in after life.

Gonorrhea and Marriage.—F. C. Valentine and T. M. Townsend describe their method of testing for latent gonorrhea in candidates for marriage. Assuming that the patient has had one attack of gonorrhea, he is instructed to bring about as much irritation as he can by eating freely of articles likely to disturb his digestion, drinking more champagne or beer than usual, but not to the extent of producing inebriety; if an abstainer he is advised to drink freely of carbonated beverages. These measures should be kept up for a week or ten days, to the extent that they can be endured. If any perceptible disturbance is perceived, such as a slight increase of urethral secretion or discomfort on urinating, he is ordered to present himself before voiding his first morning urine. The urethra is then stripped, and if this fails to bring any excess of urethral secretion to the meatus, the urethra can be curetted with a sterilized platinum loop and the results spread on a flamed cover-glass for future examination, slants of Loeffler's serum being also inoculated and placed in the culture oven at once, and kept at a temperature of 99°. The patient is then instructed to half fill a 12-inch ignition tube (180 c.c) with urine and to fill entirely as many more tubes as are needed nearly to empty the bladder; the remaining amount is passed into a final tube. Each tube is immediately stoppered with sterile cotton and marked with the patient's name and numbered. If the urines between the first and last tubes are perfectly clear and the first and last suffice for exhaustive microscopy, the intervening tubes may be discarded. The first and last, however clear, should be sedimented and the result prepared for microscopic examination. If the preliminary preparation has not caused any recrudescence, the prostate may be massaged and the seminal vesicles stripped for specimens in addition to those taken from the urethra. If no secretion is immediately obtainable by massage, etc., the patient is instructed to walk about for a few moments; a slight oozing then usually appears. If this does not occur, the urine passed within five or ten minutes thereafter will be found in most cases to be loaded with the secretion that has not escaped. This will be available for microscopy. If within three days autoreinfection of the urethra has resulted, the discharge must be taken for examination. If no reinfection has occurred, exhaustive urethroscopy is demanded, and even then, if no gonococci are found, their existence cannot be entirely excluded and, for additional safety, all the procedures should be repeated two days after the urethroscopy. Both sets of examinations proving negative, further steps are indicated. An anterior irrigation with mercury bichlorid, 1 to 5,000, generally sets up rather a severe urethritis, easily controllable by a few irrigations when no gonococci are present. In case the urethra is tolerant of bichlorid of mercury, a 1 per cent. solution of silver nitrate, retained for five minutes, will usually succeed. The microscopic detection of gonococci in the discharge, of course, settles the question here considered. When examination of all genital secretions or hypersecretions fails, the examination of the urinary sediments may reveal the germs. The site where they are held residual must be determined by repetition of the researches described. All the tests proving negative, the series should be repeated a month or two later, and then failing we can assume, in the present state of our knowledge, that it is safe for the patient to marry.

Cerebellar Symptoms in Hydrocephalus.—J. H. W. Rhein reports the case of a boy, aged 8, presenting the characteristic symptoms of cerebellar disease, vomiting, headache, tremor, and uncertainty of gait, in whom at autopsy there was found hydrocephalus, involving all the ventricles, distending the lateral recesses of the fourth ventricle and causing cysts at both cerebellopontile angles. The syringomyelia extended in the spinal canal from about the second cervical to the eighth thoracic segments, and there was with it marked alterations, cavities, etc., chiefly in the posterior horns. At the decussation, the medulla appeared nearly normal. He discusses other similar cases reported in the literature, and is inclined to account for the cerebellar symptoms in his patient by the increased intracranial pressure, exerted more particularly on the cerebellum at the localities at which the apparent cysts were found. Such cysts may be easily overlooked at autopsies, as they tend to collapse on the escape of the cerebrospinal fluid. They were due in this case, he thinks, to the obstruction of the foramina of Majendie and Luschka, which were not found open at autopsy. The existence of syringomyelia without the characteristic symptoms in children is not, in itself, so great a rarity, and its possible existence in hydrocephalus, Rhein says, should always be kept in mind.

The Lancet, November 28, 1908.

The "Effective Periods" of Typhoid "Carriers."—By this term D. S. Davies and I. W. Hall refer to the periods during which the typhoid carriers are possibly infective to those about them. Why such carriers do not always have the fever bacilli in their feces we do not know. The effectiveness is intermittent. It is almost uniformly absent during the early months of the year. What, asks the authors, is the significance of this period in which the carrier fails to be "effective"? Is it simply coincidence, or shall we find it appearing uniformly when a larger number of cases are available for reference? Has it anything to do with periodicity in the virulence of the bacillus? Does the organism live a "hibernant" existence in the intra- and extra-hepatic biliary passages during these months, and become actively parasitic on reawakening for the remaining months of the year? Has this "period of effectiveness" anything to do with the type of food taken, or with the general tissue metabolism, or with the heat regulation apparatus? Does this "seasonal effectivity" offer any explanation of the "waves" of endemic enteric fever, the May revival starting the supply of fresh infections which subsequently develop by extension into the autumnal burst? All these questions cannot be answered in the light of our present knowledge. Speaking with reference to the immunity of the carrier, the authors say it must vary considerably from time to time. It may be possible to raise it by injections of vaccines. A typhoid carrier should not be considered as cured until daily examinations of the feces have determined the absence of the bacilli during a period extending at least from April to November.

Sterilization of Potable Waters by Means of Calcium Hypochlorite.—The paper of J. C. Thresh is largely taken up with descriptions and tabulations of results of chemical experiments undertaken along the line suggested by the title. In his experience he has met with no water which two parts of chlorine per million failed to sterilize. The amount of chemicals added is so small that they do not affect in any way the character of the water. The chlorine and hardness are only increased by a minute fraction of a grain or degree per gallon. There is no practical difficulty in adding the chemicals and no special apparatus is required. The hypochlorite can be added as the water enters a tank of suitable capacity and the sodium bisulphite for the removal of the chlorine as the water leaves the tank to flow into a reservoir. If the experiment shall work out on a large scale as laboratory results seem to indicate, we shall have a sanitary agent of the utmost value, particularly as the chemicals employed are in no wise expensive.

Herpes Zoster Frontalis Associated with Glaucoma.—A. A. Bradburne notes that most of the textbooks say that in glaucoma the pupil is dilated and often pear-shaped. He maintains, however, that the malady can be associated with a contracted pupil when the iris is fastened down to the lens capsule behind, thus shutting off the posterior from the anterior chamber of the eye. In the case here narrated, that of a woman of fifty-three years, the interesting fact was that, although there was undoubted increase of ocular pressure, the pupil was not dilated; such a combination of symptoms is quite compatible with an iritis in which the plus tension is due to congestion and swelling of the iris and increased viscosity of the aqueous fluid. What made the case still simulate iritis was the marked swelling of the upper lid and the accompanying intense conjunctival injection; in fact, a superficial preliminary examination presented a typical picture of iritis, and had not the eye been most carefully scrutinized the instillation of a mydriatic would have seemed urgently necessary. On account of the edema of the upper lid making recognition of increased intraocular tension difficult, this feature, contraindicating the use of a pupil-dilating agent, could easily have been overlooked. Had, therefore, a mydriatic been instilled, as symptoms seemed to call for, a most unfortunate result would assuredly have followed. The cultivation of a faculty for observing minutiæ of detail is the secret of making correct diagnosis in eye affections. A colleague had not only correctly estimated the presence of increased tension, but had further noted that there was an absence of the rose-red ring of ciliary injection around the corneoscleral margin which is always present in inflammation of the iris and ciliary body. He had also noted that the cornea was clear and bright and the iris markings were not obscured, and the pupil was fairly mobile. During the course of the disease the eye condition changed, it becoming free from pain, photophobia, and sensitiveness to touch. The tension was subnormal, the anterior chamber deep, the pupil semi-dilated and immobile, and the texture of the iris was partially obscured. The explanation of these altered appearances was simple. There was evidently a thin viscid but transparent mucoid secretion present in the aqueous, which accounted for the loss of transparency of the media and obscured the texture of the iris. The minus tension could be attributed to the defective secretory function of the ciliary body due to the paralyzing effect of the affection on the long ciliary nerves. These symptoms indicated the urgent necessity of preventing adhesions forming between the iris and the lens capsule which the viscid mucus in the anterior chamber of the eye tended to produce. The use, therefore, of a mydriatic was obviously required now as much as it was contraindicated in the early condition, and under this treatment the eye rapidly recovered.

Berliner klinische Wochenschrift, November 23, 1908.

Effects of Hypertrophy of the Prostate.—Tandler and Zuckerkandl oppose the usual view that sees the source of changes in the urinary organs in prostatics in the increased pressure in the kidneys and ureters caused by the retention of urine in the bladder. Autopsy material always shows that the mouths of the ureters retain their normal calibers however great may be the distension of the ureters themselves or of the kidneys. Dilatation of the ureters, too, is not proportionate to the amount of hypertrophy in the prostate but may appear when the increase in the size of the gland is very moderate. The distension of the ureters and kidneys is usually coincident with and proportionate to the dislocation of the trigonum of the bladder upward, and this is caused by changes in the middle lobe of the gland. The ureteral dilatation, however, is seen to begin only a certain distance from its mouth and that point is marked by its crossing with the vas deferens. The cause of the dilatation is the change in the relative position of these two structures, the ureter being angulated at the crossing by the changes in the position of the trigonum. The retention of urine, then, affects not only the bladder but likewise the last portion of the ureter. This causes increased muscular contractions of the ureteral walls with subsequent hypertrophy and dilatation. This explanation makes it very improbable that the usual "surgical kidney" results from an infection from below; rather, the cause of it is hematogenous infection that easily attacks the kidney or the ureter weakened by the preceding changes of hypertrophy, dilatation, and retention of urine. It may be that section of the vas deferens may prove an operation of value as a palliative measure in hypertrophy of the prostate with secondary changes in the kidneys and ureters.

Effect of Cholesterin on Pregnancy.—Hofbauer says that the placental tissues are very rich in lecithin which seems to be a very important factor in the nutrition of the fetus. He found that feeding pregnant animals with cholesterin causes the accumulation of this substance in the blood and the substitution of it for the lecithin of the placenta. Such feeding always led to death of the fetuses and to widespread changes in the placentæ, granulation and necrotic tissues taking the place of normal structures. The cause of these phenomena Hofbauer sees in the lack of lecithin. He thinks that the habitual death of the fetus in parental syphilis may be explained in the same manner. Wassermann has shown the avidity of syphilitic products for lipoids, among them especially for lecithin, and the binding of lecithin of the placental villi by the syphilitic products may cause death of the fetuses just as the substitution of cholesterin for lecithin does in experimental work.

Mechanism of the Action of Bier's Hyperemia.—R. Tarantini has experimented on animals to ascertain the manner in which Bier's method produces its effects. He gives us his conclusions as follows: The lymphatics, in the neighborhood of the part treated are affected; showing pigmentation when a colored fluid is injected, while immediately under the bell the lymphatics show no pigmentation. The hyperemia of stasis prevents the entrance into the circulation of foreign bodies injected under the skin. The effects last one half hour after the application. Immediately after the application the hyperemia prevents entrance of substances into the circulation by the action of a mechanical obstacle, later phagocytic action and new formation of connective tissue continue this effect. Hyperemia confers its benefits by exalting the natural means of defense of the organism.—*Il Policlinico.*

Book Reviews.

Medical Record Visiting List or Physicians' Diary for 1909. New Revised Edition. New York: William Wood & Co., 1909.

Every physician requires a visiting list, and the one now under notice is well known and is admirably adapted to its purpose. It contains the usual pages for visiting list, consultations, obstetrical engagements, vaccination and death records, addresses of patients and of nurses, and for cash accounts. Among much useful information of a general sort we note a list of remedies with the maximum adult doses given in both apothecaries' and the metric systems. The volume is of handy size, is handsomely bound, and can be had in various styles to suit the pockets and practice of all physicians.

The Physician's Visiting List (Lindsay & Blakiston's) for 1909. Fifty-eighth year of its publication. Philadelphia: P. Blakiston's Son & Co., 1909.

This is a handy leather covered note-book arranged for twenty-five patients per day or week. It contains, in addition to the blank pages, the equivalents of metric and apothecaries' measures, a table for calculating the period of gestation, a list of doses in both metric and the English systems, and such other information as is usually found in a physician's visiting list.

Psychotherapy. A Course of Reading in Sound Psychology, Sound Medicine, and Sound Religion. Edited by W. B. Parker. New Mork: The Centre Publishing Company, 1908.

This is the first of a series of twelve monthly publications intended to deal with the whole field of mental healing and suggestion. The course is prepared mainly for the general reader, but the physician who is interested in this new-old movement of mental healing will find it by no means elementary or too simple to claim his attention. The first number of the contemplated series contains the following articles: "The American Type of Psychotherapy," by Dr. Richard C. Cabot. "The Philosophy of Psychotherapy," by Professor James J. Putnam of Harvard. "The History of Healing in the Old Testament," by Rev. L. W. Batten, Ph.D. "The Mind and Body," by Professor James R. Angell of the University of Chicago. "Some General Conceptions of the Nervous System," by Frederick T. Simpson, M.D. "Psychotherapy at Northampton—An Account of Personal Experience," by Rev. Lyman P. Powell. The medical reader will be thoroughly in accord with Professor Angell, who says: "The great danger of the movement toward mental healing in the hands of non-medical men is that of getting away from constant contact with the neurologist, who can detect the danger symptoms which the untrained man cannot" (p. 69); and with a quotation from Dr. Llewellys F. Barker that "No one who is not skilled in all the modern refinements of diagnosis should undertake the practice of psychotherapy unless his work is controlled by a diagnostician who exhausts the best methods in the study of his case before beginning the therapy" (p. 97).

Sonnenblicke vom Lateinischen Amerika. Eine Kreuzfahrt nach Westindien, Columbien, Panama und Costa Rica (Von Carl Beck, New York). Berlin: Leonhard Simion, Nf., 1908.

The prime interesting feature of this elegant book is that it is written by an eminent surgeon. One of its most important features is in teaching colleagues the need of an occasional holiday. The trend of the book appears to be essentially humorous, while it contains many matters of medical and surgical interest. Ethnology, botany, cosmography, linguistry, and even poetry appear to flow from the author's pen as easily as do his well-known contributions to medical literature. In matters rhythmic, Beck is guilty of a translation of an apotheosis on Jamaica by Ella Wheeler Wilcox; the other contents of the book carry the conviction that he will be forgiven. Like many travelers, the author sees the humorous aspects of things non-scientific; however, he never sacrifices fact for fun. "Sonnenblicke" is perhaps the best contribution to the leisure which but few practitioners can obtain. There is compensation, not only in its entertaining information, for the time spent in reading it, but also in scientific facts, which Beck knows so well acceptably to present. The mechanical part of the volume, the type, paper, and illustrations, do credit to the publisher.

Anatomy und Mechanismus der Skoliosis. By Carl Nicoladoni. Berlin and Vienna: Urban und Schwarzenberg, 1909.

Nicoladoni, at the time of his death in 1902, a. o., professor in the University of Gratz, is well known in this country as the originator of tendon transplantation. The present monograph is an abstract of a more comprehensive article which was printed in the *Bibliotheca Medica* in 1904. It was prepared by the author of the *Deutscher Chirurgie* in which, however, it did not appear. It is now published by his sister in the hope that it may reach the readers for whom it had been intended.

The work is essentially a record of the dissection of two scoliotic subjects, an adult female and a child. The changes in the external organs, secondary to the deformity; in the gross and intimate structure of the spine and of its component parts are carefully described and illustrated. In the final chapter the leading theories are reviewed. The question of therapeutics is not considered. Students of the subject are indebted to Miss Henriette Nicoladoni for this memorial to her distinguished brother.

Die Komplikationen der Stirnhoehlenentzuendungen; Beitraege zur Anatomie, Pathologie und Klinik der Stirnhoehlen. Von Dr. P. H. Gerber, Professor der Koenigl.-Universitaets-Poliklinick für Hals und Nasenkranke in Koenigsberg. i. Pr. Berlin: Verlag von S. Karger, 1908.

The extent to which the literature of nasal accessory sinus disease has been carried is shown by the appearance of this book on the complications of one single pathological condition. Some of rhinology's greatest triumphs of the last decade have been won in the surgery of the sinuses. That the problem is a weighty one and that the dangers of surgical intervention are real is shown by the mass of information here collated and representing five years of careful study by the author, whose labors have been carried out with characteristic German thoroughness. After some remarks on the frequency of complications and nomenclature, he takes up the changes in the bony structures affected, mechanism of infection, bacteriology, and then passes on to consider the complications in the oculo-orbital and intracranial structures, such as meningitis in its various forms and intracranial abscess. General considerations on etiology and therapy follow, and the book closes with a complete index of authors consulted. The book is well-printed on good paper. It is, in fact, an analysis of the entire literature of the special topic of which it treats and represents a most careful and thorough investigation of original contributions, by one who is not only a library student, but an accurate and careful clinician. The book should be in the library of every worker in diseases of the accessory sinuses. It reflects credit on editor and publisher alike.

Contributions to the Physiological Theory of Tuberculosis. By Charles Creighton, M.D., Sometime Demonstrator of Anatomy, Cambridge Medical School; Author of "Bovine Tuberculosis in Man," etc. With 64 illustrations in the text. London: Williams & Norgate, 1908.

The book before us is a monograph detailing the original views of the author in regard to the pathogenesis of the lesions that characterize infection with the tubercle bacillus. Dr. Creighton claims to have shown that tubercle bacilli injected into an animal coagulate the blood in the small vessels of the lungs, and lead to plasmodial organization of the thrombi in these vessels as well as in those of the liver and spleen; the epithelioid cells of tubercle tissue he traces to the normal tissue cells changed by assimilation of disintegrated blood. A tubercle is for him a "rodent neoplasm" and he devotes an interesting chapter to the analogous "rodent neoplasm" seen in normal placental tissue. The last portion of the book is devoted to the consideration of spontaneous tuberculosis and the attempts to fortify the theory of pathogenesis founded on experimental work by the findings in human beings. The book has many well-drawn illustrations and ought to prove of interest to the pathologist; whether the original views of the author in regard to the nature of the tuberculous process will find acceptance remains to be seen.

A Laboratory Guide for Histology. Laboratory Outlines for the Study of Histology and Microscopic Anatomy. By Irving Hardesty, A.B., Ph.D., Associate Professor of Anatomy in the University of California. With a Chapter on Laboratory Drawing by Adelbert Watts Lee, M.D., Assistant in Anatomy in the University of California. With 30 illustrations, two of which are in colors. Philadelphia: P. Blakiston's Son & Co., 1908.

This book consists of a very practical chapter on laboratory drawing, followed by complete outlines for the preparation and study of histological material. The directions given are short, yet simple, and are followed by questions intended to call the student's attention to the important points to be noted by him. Each chapter is followed by a classified bibliography of the subject considered; this bibliography is much more extensive than is usually given in elementary texthooks and forms a most valuable feature of the book.

Society Reports.

THE NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held October 6, 1908.

THE PRESIDENT, DR. B. SACHS, IN THE CHAIR.

The Seat of Consciousness.—Dr. FREDERICK PETERSON, who read this paper, said that consciousness was a word in everybody's mouth. We used it glibly, as if we knew all about it. Psychologists, metaphysicians, physiologists, and physicians had all written a great deal concerning it, but if they had said anything of any great significance, it had eluded his observation. The most tangible thing that he had been able to grasp in reading their works was that consciousness was a stream, a flow, a flight, a current, a thread, an "orderly succession of changes." He took it for granted that whatever consciousness might be, it had a seat. It was assumed that if the body be removed portion by portion, first the legs and the arms and then the trunk as far as the base of the skull, that consciousness, if the circulation and oxygenation be kept up, still persisted in the head, and that its seat was in the brain. Such an experiment in effect had often been performed for us in broken necks and other spinal cord lesions. Those who had dared to surmise further had intimated that consciousness was diffused throughout the brain, or even that it was an attribute of the cortex of the brain alone.

With this preliminary statement, Dr. Peterson said, he would take a plunge at once into a subject that he knew as little about as anyone, not so much with the hope of establishing any new fact as for the purpose of provoking a discussion that might lead to some light in so much obscurity. In his opinion, the seat of that power which produced the manifestations of consciousness was in the basal ganglia (probably the corpora striata), and consciousness was a peculiar summation of energy at that point, capable of being directed like the rays of a searchlight into this or that portion of the brain. In pointing out the lines of reasoning which had led him to this conclusion, the speaker first referred to the daily physiological variation of consciousness in the condition of sleep, which was certainly a reduction in consciousness from the highest summation of energies to some lower level. Sleeping and waking were to be observed in a vast group of animals that had little or no cerebral development. Furthermore, the phenomena of sleep were observed in newly born human infants, despite the fact that the cerebrum was quite empty of experiences and anatomically still much undeveloped as to its connections with the rest of the brain. They were also observed in children born without a cerebrum, and even in dogs deprived of their hemispheres. In innumerable cases of extensive loss of cerebral substance, of a hemisphere, as in infantile cerebral palsies, a frontal lobe in the crowbar case, etc., consciousness itself seemed unimpaired throughout life. These observations seemed to show that consciousness, at least as regarded its variations in the condition of sleep, did not reside in the cerebrum. Another argument of a similar bearing was the fact that every individual with a brain stored full of all the experiences of a lifetime was only actually awake at any one time around some particular small group of functions or ideas that occupied consciousness.

Passing now to another series of pathological conditions, the one disorder which had led him to think much of this subject was epilepsy, in which disease loss of consciousness was the most extraordinary and often the only symptom. He alluded chiefly to such remarkable conditions as the *tic de salaam* and other forms of *petit mal*, in which the patient dropped suddenly to the floor with loss of consciousness, and quite as suddenly rose again in full possession of his faculties. The loss of consciousness was complete and often lasted but a fraction of a second. How could we account for such a phenomenon? If consciousness were a diffused attribute of the whole brain, what spasm of blood-vessels or other physical process familiar to us could act and be readjusted with such speed? The question now arose, what portion of the brain was so constructed as to be, apparently, in intimate connection with every other? The corpora striata. There was no part of the brain that we knew so little of. As Edinger said, here we had "a mighty portion of the brain that must be of enormous significance; otherwise it would not be always present, from the fish up to the man."

MR. HENRY RUTGERS MARSHALL said that a few years ago it would have been a matter of surprise to find such a subject presented for discussion before a body of neurologists, as it would have been considered to belong more particularly to the field of psychology. The speaker thought the thesis presented by Dr. Peterson open to discussion, in that it attempted to describe consciousness in terms of energy. We had become more or less accustomed to similar descriptions since the appearance of Ostwald's work, in which he had attempted to define consciousness in terms of energy, but since the publication of that work psychologists and philosophers had been endeavoring to bring meaning into his statement, but without success. There was one interesting point, Mr. Marshall said, to which he desired to call attention. The word consciousness, as commonly employed, had two diverse meanings. For instance, when we referred to the consciousness of plants, of which Darwin had lately spoken, we referred to psychic existence, as such. When, on the other hand, we stated, for instance, that we had gone to the theater and met an old friend who so engrossed our attention that we were not conscious of the play, we used the word consciousness with an entirely different meaning. We here referred to a state of "awareness," and that was entirely different from "psychic existence, as such." When we spoke of the seat of consciousness we might mean either the seat of psychic sense in man, or the seat of awareness. This latter was probably the form of consciousness to which Dr. Peterson referred. When we inquired as to the seat of consciousness as psychic existence, as such, we dealt with quite a different question. The evidence at our command at present favored a very broad and exceedingly general seat of consciousness, as thus considered. In the case of the epileptic, to whose sudden loss of consciousness Dr. Peterson referred, there was also a momentary paralysis—a sudden cessation of activities. That distinction was important, because it brought into relation with our states of clear consciousness all those states of what were commonly called our "subconscious" mental life; those states which might better be called "subattentive consciousness." Mr. Marshall said that under the view he held, waking and sleeping were objective signs of the same conditions which from another point of view were described respectively as clear consciousness and the lack of clear consciousness.

PROFESSOR FREDERIC S. LEE said that while Dr. Peterson had presented a very interesting idea, his paper gave rise to a considerable number of important questions. First, as to the nature of consciousness itself: whether, for example, it represented a special form of energy or not? The speaker thought that most physiologists would hardly agree with the idea that consciousness represented energy. It had seemed to him that the best working hypothesis for the physiologist was that consciousness was something of unknown nature which merely accompanied the activity of certain brain structures. He did not like the term "epiphenomenon" to express that idea, but since that was the common and accepted term, he would use it. Consciousness, then, was an epiphenomenon accompanying the activity of certain brain structures; or, rather, it was one of the modes of manifestation of their activity, just as chemical, thermal, and electrical phenomena were other modes. Consciousness could not put into activity the brain structures. He would not necessarily confine consciousness to the activity of the cerebral cortex only, although he was inclined to believe that consciousness was

more particularly associated with the working of cortical cells. Bechterew claimed that in early life, certain parts of the brain below the cortex acted consciously, and that as the tracts between these and the cortex became myelinized and functional, conscious activity came to be preeminently associated with cortical activity. He asked Dr. Peterson how, on the theory that the corpus striatum worked through the mediation of the cortex, he would interpret the behavior of one of Goltz's dogs, from which the cortex had been entirely removed.

Dr. Adolf Meyer said the thesis of Dr. Peterson brought back to us the proposition which Dr. P. Carus advanced about thirteen years ago in the *Journal of Comparative Neurology*, which was based largely on the argument that the corpora striata formed a large, bulky part of the brain to which at the present time no other function could be assigned. Gall in turn assigned the function to the optic thalamus. Ignoring entirely the question of what we meant by "consciousness" as a positive function, it seemed that the evidence that Dr. Peterson had brought forth could best be summed up as evidence of vulnerability of mechanisms of consciousness by a lesion in the basal region. It was evidence in favor of the possibility of localizing the lesions in some types of unconsciousness. As soon as we tried to make positive inferences, *i. e.* as to the "seat of consciousness," we were bound to meet quite a number of difficulties, and one of them was this: contrary to Dr. Peterson's assumption, the corpora striata had relatively very obscure connection with the rest of the brain. This was one of the greatest stumbling-blocks to the theory advanced that the corpora striata should be of such fundamental importance. So far as we knew, their connections with the cortex were extremely scanty, and with the rest of the base their connections were essentially those with the hypothalamus. On anatomical grounds alone it would be very difficult to explain any connection with the corpora striata and the "seat of consciousness," not to speak of the question whether the "seat of consciousness" could be a safe problem to-day.

Dr. Smith Ely Jelliffe said that in very general terms, consciousness might be regarded as the instreaming of all the sensory functions, and with the cutting off of the sensory or perceptive functions, a loss of consciousness followed. To illustrate that point we need not consider the effect of an anesthetic, because in alcohol we had an agent, *por excellence*, which cut off, one by one, the different sensory perceptive functions, little by little, until we had a non-conscious residuum. So far as the seat of consciousness was concerned Dr. Jelliffe said that in his opinion the corpora striata simply acted in the capacity of a cut-off by reason of the anatomical distribution of the fibers in that region. Instead of being the seat of consciousness, he looked upon this part of the brain as a gateway through which the fibers passed, and any injury in that area would be apt, therefore, to have a widespread effect.

The Serum Diagnosis of Syphilis in Its Relation to Nervous Disease. The Development and Character of the Wassermann Test.—Dr. C. F. Bolduan, after a brief review of Ehrlich's theory of antitoxin production and cytolysis, described the Wassermann test, which was now being extensively employed in the serum diagnosis of syphilis. The Wassermann reaction, briefly outlined, was as follows: Two tubes are prepared with the following contents: *Tube* 1. Extract of the liver and spleen of a syphilitic fetus, representing the syphilitic organism (or antigen), plus serum to be tested. *Tube* 2. Red blood cells of sheep or other animal, suspended in normal saline solution, plus serum of a rabbit which had been immunized to the particular red blood cells used. Complement (a substance necessary to all immune reactions, which existed in the fresh serum of all animals), in the shape of fresh normal guinea-pig serum, was now added to Tube 1 and allowed to stand. At the end of a half hour the contents of Tube 1 were added to that of Tube 2. If the serum in Tube 1 had come from a syphilitic individual, its relation to the extract of antigen was a specific one, and complement would be absorbed thereby; so that, when the contents of Tubes 1 and 2 were joined, no hemolysis of the red blood cells in Tube 2 would take place. If the serum was not from a syphilitic, complement would not be absorbed, but would remain active to cause hemolysis in Tube 2. Hemolysis was observed in the test tube as a tingeing of the whole field with a transparent red color. The red corpuscles had been disintegrated and the hemoglobin liberated. In the absence of hemolysis the solution of red cells remained turbulent and opaque. The test, of course, involved numerous controls and a careful standardizing of the hemolytic serum and of the syphilitic extract.

The Technique of the Wassermann Reaction; Its Practical Application with Reference to Diagnosis, Prognosis, and Treatment of Nervous Disease.—Dr. E. Castelli read this paper. After describing in detail the technique of the Wassermann reaction, the author offered the following conclusions: (1) From the social standpoint, the serum diagnosis of syphilis represented one of the greatest achievements attained by medicine at the present time. The rôle played by syphilis in the life of mankind required no explanation. The highest coefficient to degeneracy and insanity was created by syphilis. (2) If we were now in a position to tell our patient that, notwithstanding his previous syphilitic infection, he could marry and create a healthful progeny, we would certainly have at our command a tremendous factor for benefiting a large proportion of our fellow beings. (3) If we could establish the fact that syphilis was curable, and did not hang like the sword of Damocles over a man's physical and mental future, again would medicine have triumphed. (4) From a legal standpoint, the fact that we might be able to aid either the prosecution or the defense with the knowledge that the criminal had a claim on the court's leniency by reason of a previous syphilitic infection, which had produced a derangement of his mental poise, might become an important factor in the administration of justice. (5) The serum diagnosis of syphilis would be a means of differential diagnosis during the preparalytic stage, when the general symptoms were very indefinite and generally masked by a well-defined neurasthenic syndrome. The differential diagnosis between general paralysis and neurasthenia during this period would represent the real prophylactic warning. The patient, during this preparalytic stage, was already dangerous to himself, his family, and to society at large, and our early recognition of his condition made possible the safeguarding of the patient. (6) While the serum diagnosis of syphilis in its present condition was not perfect, and owing to its complicated technique and to the difficulty of procuring the necessary ingredients it was limited to a few privileged students, yet it had the indisputable advantage of furnishing us with a rich amount of positive diagnostic data, and the speaker said he considered its adoption in the various hospitals and medical institutions not optional, but absolutely necessary.

Demonstration of the Wassermann Reaction Test.—By Dr. Noguchi of the Rockefeller Institute. After demonstrating the Wassermann reaction, Dr. Noguchi showed briefly a reaction evolved by him during some experimentation with the various albumin reactions in the spinal fluids of general paralysis and other disorders. This was obtained as follows: 0.1 c.c. of the spinal fluid to be tested was placed in a test tube whose diameter was 1 cm. or less. To this was added 0.5 c.c. of a 10 per cent. solution of butyric acid. The tube was now heated until the fluid was bubbling, and while still hot 0.1 c.c. of a normal (4 per cent.) solution of sodium hydrate was added. In nearly all spinal fluids an opalescence or cloud occurred, but in the spinal fluid of general paralysis the cloud soon separated into a definite flocculence which was characteristic. The flocculence usually appeared in a few moments—rarely requiring more than 20 minutes. The reaction

shown by Dr. Noguchi had the advantage of being positive in a quantity of 0.1 c.c. or less, and of being a qualitative as well as a quantitative test. What the flocculence might mean was not known, but it might consist of some globulin fraction which was found only in syphilitic or metasyphilitic disorders of the nervous system. That the reaction was not entirely quantitative, Dr. Noguchi said, was shown by the fact that many fluids from non-paralytic cases gave much richer clouds than those from paresis, but in such cases the clouds did not flocculate.

Dr. J. W. Moore of the State Pathological Institute, Ward's Island, said that they had tested thus far 80 cases by the Noguchi method. Fifty undoubted cases of paresis gave 48 positive results. The two negative cases did not seem peculiar in any way. Of three cases of cerebral syphilis, two gave positive reactions. Of the non-paralytic cases tested, five were alcoholic psychoses, two manic-depressive cases, one paranoiac state, one imbecile, and one case which was diagnosed as Korsakoff's delirium, but which proved at autopsy to be due to a fractured skull with extensive diffuse dural hematoma. Only one of the non-paralytic cases gave a positive reaction. This was a case which had originally been diagnosed as one of dementia præcox, in which, however, there were increased knee-jerks and speech defect. Five doubtful cases gave two positive results and three negative. In the majority of cases of paresis the Wassermann reaction was also carried out. Four cases of general paralysis which were negative to the Wassermann test were positive to the other. Four gave the Wassermann reaction much less definitely than they did the Noguchi reaction. In no case was the Wassermann test the more conclusive of the two. In two of the cerebral syphilis cases in which the Wassermann reaction was tried it gave a negative result.

Dr. B. Onuf said that Dr. Castelli had made the statement that in a large percentage of cases of general paresis —70 or 80—the Wassermann reaction was positive, and also in about 60 per cent. of cases of senile dementia. Could we conclude from that that senile dementia was simply a late form of general paresis? Was it an indication that syphilis produced a rather rapid exhaustion of the nervous system, while in senile dementia identical changes occurred in a longer course of time? Did Dr. Castelli mean to identify senile dementia with general paresis?

Dr. Boleslaw Lapowski, discussing the Wassermann reaction, said that on account of its technique and the material and control experiments it involved, it would always remain a laboratory test. By terming it the "Wassermann reaction" we were inadvertently doing an injury to others who laid the basis of the reaction. Wassermann simply substituted dissolved substances of bacterial extracts of organs instead of emulsions of bacteria, but the basis was the fact discovered by Bordet and Gengou, and to them at least some credit was due. The test, Dr. Lapowski said, was of undoubted value in corroborating or establishing the diagnosis of latent syphilis, but even then it did not afford absolute proof, and consequently could not always be relied upon, and, moreover, when we had to deal with primary or secondary syphilis it was not necessary.

Dr. Sachs said that, while the Wassermann test could not be made at the bedside, its technique was not difficult and could be easily acquired. For the present, of course, this test, as were many others, would be restricted to the laboratory and had to be made by persons who were specially qualified along those lines. Thus far, the reaction had been practically limited to cases of suspected tabes or general paresis, but at the Mt. Sinai Hospital an effort was now being made to employ it as a diagnostic measure in other doubtful spinal or cerebral cases when syphilis was suspected.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held November 23, 1908.

Dr. J. Riddle Goffe in the Chair.

The reports of the various committees were read and approved. During the past year 163 applications for membership had been received, all of which had been acted upon, and 155 had been admitted to full membership. There were at present 2,262 active members.

The Lessons of the Recent International Tuberculosis Congress.—Dr. Woods Hutchinson said that the first impression and lesson that one got from the recent International Congress in Washington was the extent to which the laity and public generally had come to take an interest in the work. The people had come to realize that the profession was fighting their battles rather than its own, and that it was making for the happiness and health and progress of the body politic. This congress had given to the public that which it could never have gotten in any other way. One of the most interesting and dramatic features at the congress was the great debate upon the relative importance of human and bovine infection in tuberculosis. Dr. Koch's speech had been translated into English. He carefully reaffirmed his former position that although it was possible for the bovine bacillus to become so changed as to be the infecting agent in the human being, yet as a matter of practical demonstration this had never been shown. Experiments from this point of view, however, were open to criticism. Dr. Theobald Smith had practically struck the keynote in the discussion when he stated that the question of transferring the bovine bacillus to human beings was largely an academic one. Tuberculosis of the bovine type in human beings occurred in not more than two or three per cent. of the cases. Dr. Koch acknowledged that this suggestion of Dr. Theobald Smith was rational. Therefore, the position on this question in America was as in Germany. A special meeting was held in Washington for the purpose of discussing Dr. Koch's attitude, and was attended by those who supported as well as those who opposed the stand he had taken, and it was quite dramatic to see how the question simmered down to the position assumed by the French and the German schools. Dr. Koch's position was but little shaken. Probably the next most important feature of the congress was the grouping and the character of the papers, and one of the most interesting was presented by Dr. Miller, who investigated the percentage of tuberculous cases in families with tuberculous members; from 15 to 55 per cent. of those children were found to be already tuberculous. There was another point of interest from a surgical point of view, the extremely small percentage of cases in which the glands were involved. Localized tuberculosis in children was more often found at the age when the glands were most susceptible. The prevailing impression must be revised regarding the involvement of the cervical and mesenteric glands, or other glands which might indicate the source of entry of the infection. The glandular and osseous infection occurred in the later stages of the disease. With regard to therapy, there was an almost unanimity of opinion that was not at all encouraging, that little progress had been made towards discovering any specific serum or medication in tuberculosis. The general use of tuberculin was indorsed, and it was believed to be useful, especially in those cases that had come to a standstill after the giving of the ordinary course of treatment. Another paper of interest was the one by Webb and Barbar. They selected organisms from the hanging drops, and inoculations were made subcutaneously, thus producing an immunity in animals. Their experiments were only in the earliest initial stage. There was another feature that was quite remarkable; among the sixty or seventy papers read before the section on therapy, only one mentioned the name of a

drug, the use of the calcium salts in checking hemorrhage. He believed that the rational treatment of tuberculosis had come to stay. The main impression, however, that one got at this meeting of the International Tuberculosis Congress was that the laity was coming in to help in the campaign against the disease.

The Incidence of Tubercle Bacilli in New York City Milk, with the Study of the Effect on a Series of Children.—Dr. Alfred F. Hess said that one of the most important questions which confronted those who were fighting the spread of tuberculosis to-day was what proportion of infection was human in origin, what proportion was bovine in origin. In the United States Dr. Theobald Smith stated that it was his belief that not over one per cent. of tuberculosis was of bovine origin; on the contrary, Ravenel believed that a considerable number of cases were of this origin. The British Tuberculosis Commission recently reported that a very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow's milk containing tubercle bacilli. The opposite view of Dr. Koch was known to all. In view of such conflicting statements on a subject of such vital importance, physicians and laymen were at the present time undecided whether they should concentrate their energies against the dangers from the tuberculous individual, or whether they should guard against a dual source of infection. Prophylaxis suffered from this indecision. Dr. Hess said that his work was undertaken with a threefold object. First, to probe one of the elemental phases of this broad question, to ascertain how often milk supplied to a large city, such as New York, contained virulent tubercle bacilli. Secondly, to study the nature of these bacilli, to learn whether they conformed uniformly to the bovine type. Thirdly, to report upon the health of some children who were known to have consumed milk containing the virulent bacilli. He asked what importance was to be given to the fact that 16 per cent. of the general milk supply of New York City was contaminated with virulent tubercle bacilli? The very size of these figures was proof that all must possess a considerable degree of immunity to the infection. There were very few infants fed on the ordinary raw milk who did not ingest tubercle bacilli during the first year of their lives, and they probably did so repeatedly. They knew that children were especially susceptible to tuberculous infection, and yet tuberculosis was by no means the main factor in the high death rate of infancy. On the other hand, it was certain that the bovine bacillus was frequently, in childhood, the cause of tuberculosis of various organs, of the tonsils, of the cervical and the mesenteric glands. Recently Dr. Hess collected 44 cases of undoubted bovine tuberculosis of the mesenteric glands, 41 of which occurred in children. At present there seemed to be insufficient basis for a statistical estimate of the importance of bovine tuberculosis, but it should be remembered that even if they charged it with but one per cent. of the total tuberculous infections, this small percentage was sufficient to establish it as a disease worthy of active recognition. The total number of cases of tuberculosis, exclusive of duplicates, reported in Greater New York in 1907 was, according to Dr. Biggs, almost 20,000. Every one realized that this figure was far below the actual number, and yet if it was accepted, and if only one per cent. of this yearly total was considered to have been of bovine origin, 200 of the reported cases must be attributed to this cause. Dr. Hess hoped that the alarming degree of tuberculous contamination which he had found in the New York City milk, and the figures he had furnished, might prove an effective argument of those who were striving with the legislature in the cause of pure milk. If New York City was granted, instead of 47 inspectors of farms, 150 such inspectors, it was certain that 16 per cent. of the milk sold in its precincts would not be found to harbor virulent tubercle bacilli. Dr. Hess closed his paper by reporting upon certain experiments made by him with children under ten years of age whom he knew were fed on infected milk. Certain facts were given, but no conclusions were drawn.

Dr. Henry Koplik said that there was no direct proof that the children took the tubercle bacilli in the milk and that these were the cause of their tuberculosis. It was to be hoped that the work in this field would be more definite and more explicit. At present there was a great diversity of opinion, and true workers liked to know the why and wherefore. The Calmette test in children was unreliable; Baldwin of Saranac Lake had proven the fallacy of this test in children. The von Pirquet test was a safer one, was absolutely innocent, and more definite information in a certain percentage of the cases was to be had. Dr. Koplik said it was unfortunate that the pasteurizing and sterilizing of milk was, in the minds of the majority of the people, intended to prevent the one disease, tuberculosis; where, as a matter of fact, it was intended to preserve the milk and to so protect the child from acute intestinal intoxications, or infections from bacteria of all kinds, especially in summer and the spring months. He believed that too much stress was laid upon one disease, tuberculosis.

Mr. Nathan Straus said he did not come to the meeting prepared to talk. At the same time, when questions concerning the milk problem were to be discussed, he could talk from experience. He acknowledged that he knew nothing regarding theory, but he knew that pasteurized milk reduced the death rate among children.

The Relative Importance of Human and Bovine Types of Tubercle Bacilli in Human Infection.—Dr. William H. Park said that since 1901 the Department of Health had endeavored to learn what proportion of the tuberculous cases were due to bovine infection and what proportion was due to the human infection. Dr. Koch's position he thought all present knew, but he had gradually receded from his first extreme position. Dr. Park spoke of the experiences at Randall's Island hospitals, where the children drank milk taken from a tuberculous herd of cattle for over one year, and probably for several years. In this herd they found 27 of the 32 cows tuberculous; yet very few of the children drinking this infected milk became tuberculous. Those children drinking raw milk there did not develop tuberculosis to any greater extent than other children living throughout the city. On the other hand, among the tuberculous parents who nursed their children 100 cases of gland involvement, 27 per cent., had been found. Among 100 cases at North Brother's Island, 25 per cent. had tuberculous members in the family, and 47 per cent. came in direct contact with tuberculous cases. All this made him believe that the greater proportion of cases of human tuberculosis was due to human infection. The question was what proportion of the cases was due to bovine infection. Could they detect, by their bacteriological methods, the type of bacilli causing the disease? Was the tuberculous lesion caused by the bovine or the human type of bacilli? The question also arose, might not the human bacilli of the adult have been the bovine bacillus in childhood? Could this type of bacillus change into the human type? There was, according to Dr. Park's opinion, no proof of this. All agreed that the bovine bacilli in time would kill. Dr. Park presented a table showing figures obtained from German reports, from English reports, reports by Theobald Smith, and elsewhere from the literature. There were altogether some 450 cases which made up the statistics he offered. Koch claimed that no case of tuberculosis in the adult ever occurred that was due to the bovine bacillus, and that in the cases reported the presence of the bovine bacillus was accidental. In the table Dr. Park presented the human type of bacillus was present in 98 per cent. of the cases of pulmonary tuberculosis, in 95 per cent. of the cases of meningeal tuberculosis, in 95 per cent. of the cases of

tuberculosis of the bones and joints, in 75 per cent. of the cases of tuberculosis of the cervical and bronchial glands, and in 50 per cent. of the cases of tuberculosis of the mesenteric glands. This table was particularly interesting in that it showed that the human bacillus was found in the meningeal type almost as often as in the pulmonary form of tuberculosis. In cases of tuberculosis of the cervical and bronchial glands 75 per cent. were of the human and 25 per cent. of the bovine type, while both types were equally divided in tuberculosis of the mesenteric glands. Dr. Park asked that specimens of tuberculous lesions, except the pulmonary form of the disease, be sent to the laboratory at the foot of Sixteenth street for examination.

The Methods Employed to Differentiate the Different Varieties of Tubercle Bacilli.—Dr. W. H. Woglom said that the two types of tubercle bacillus were closely related, but how closely he did not know. The two fundamental tests were the quantity of the growth in various media and their virulence upon experimental animals. The bovine bacillus grew sparsely in all media; whereas the human bacillus grew luxuriantly in all media. Therefore, with certain reservations, the two types could be separated into the sparsely growing bovine type and the rapidly, luxuriantly growing human type. If they could find some material which, when added to the culture media, would inhibit the bovine and increase the human bacilli growth, it would make a wider gap between the two types. In glycerine they had such a substance and, so far as their experience went, this difference had been quite constant. It had been found that the rabbit served almost as well as the calf in differentiating between the two types. One mg. bacilli of the human type would not kill a rabbit; on the other hand, 1/100 of this amount of the bovine type would kill a rabbit within five weeks. The material was given intravenously. They had as yet found no exception to this rule. These were the two tests most useful to them. Other tests had been proposed from time to time, but had not proven of such value. The bovine bacillus was shorter and more plump than the human bacillus, but this was a fact that was disregarded by all in differentiating the two types.

Dr. R. G. Freeman gave an analysis of the cases at Randall's Island that had been fed upon tuberculous milk. He had examined the death records extending over two and a half years. Then he examined the living children. The latter were subjected to the skin and conjunctival test and most of those children reacted who were known beforehand to have tuberculosis. There were 10 per cent. who reacted but who did not give any physical signs of the disease. For two and a half years milk infected with the tubercle bacilli was consumed by children who were not supposed to be robust and healthy, and yet he said he was not able to find any records of deaths which led him to believe that any child had been infected by this milk, although they knew the herd to have been an extremely tuberculous one.

Dr. J. J. Walsh advised ridding the city of the slums if they wished to reduce the death rate from pulmonary tuberculosis. In the crowded places tuberculosis was very prevalent, and this was due to the unfavorable conditions, especially poor ventilation, overcrowding, dust, dirt, poor lighting, and spitting.

Dr. Alfred Meyer spoke of the time and money and energy that had been wasted in urging the Government of the United States to give suitable and dignified housing to the delegates to the recent Congress in Washington. Dr. Meyer was one of the committee apointed to get a suitable place for holding the Congress, and the United States Government was urged to give a place. The representatives in Congress seemed to look upon them as beggars and even charged them with hysteria, and asked them to go to New York and hold their Congress. For many months the members of this committee carried on a campaign in the different States and territories of the Union, trying to influence their servants in the national capital of the United States to give them a dignified place where they could greet the members of the profession from abroad who came here to take part in their deliberations.

Election of Officers.—*President,* Dr. H. Seymour Houghton; *First Vice-President,* Dr. John E. Weeks; *Second Vice-President,* Dr. Joseph Brettauer; *Secretary,* Dr. John Van Doren Young; *Assistant Secretary,* Dr. J. Milton Mabbott; *Treasurer,* Dr. Charles H. Richardson.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held November 17, 1908.

Dr. Herbert S. Carter in the Chair.

A Case of Syringomyelia.—Dr. W. N. Berkeley presented this case. The patient was a Hebrew of foreign birth, a tailor by occupation, twenty-six years old, and single. His parents were alive and well; he had two brothers and four sisters, all in excellent health. His past history was negative. Four years ago he fell from a trolley car and struck on the back of his head. Within a few months after this accident he noticed that he was growing weaker, and his hands and arms soon became so feeble that he could no longer hold the needle or flatiron. He never had any pain, whitlows, onychia, nor trophic eruptions of any kind. He never perspired unduly; he never had hot or cold flushes, nor other vasomotor disturbances. He denied venereal infection. He drank and smoked in great moderation. The physical examination of the internal organs was negative. The examination of the urine was negative. The appetite and bowels were regular. His temperature, pulse, and respiration were normal. The most noticeable feature about the patient was the atrophy of the muscles of the hands and forearms. The fingers were in the "claw-hand" position, and the muscles of the thenar and hypothenar groups, the lumbricales, and the interossei were greatly wasted. The atrophy was more marked on the right side. On the arm the biceps was fairly well preserved, but the deltoids were shrunken on both sides, and the voluntary movements of the arms and hands, while fairly well coordinated, were feeble and ineffectual. The sensory changes were characteristic. The tactile sense was preserved over the entire body, but sensitiveness to pain and temperature were quite abolished over large areas of the chest, and over most of the arms, forearms, and hands. The patient showed a large painless blister on the right hand, due to a burn made accidentally by a hot flatiron, which he took up without perceiving that it was too hot to hold. Both knee-reflexes were exaggerated, and ankle clonus was present. The pupils were unequal, but both responded to light. The examination of the bones was negative except in that there was a dorsolumbar scoliosis. There were no signs of bulbar involvement. The patient's mind was clear, his speech was as good as it ever was, and his complaint was that he could not work and had become an unwilling burden on his relatives.

Report of a Case of Brain Tumor.—Dr. Warren Coleman reported the case of a man, thirty-five years old, who was admitted to Bellevue Hospital September 30. He was an electrician by occupation. He had never had typhoid fever. He gave no venereal history. Two weeks before admission he was taken with dull, general, persistent headache. There was general abdominal pain and vomiting. There was a slight bronchitis and general malaise. There was no epistaxis. On admission his temperature was 101.4°, and his pulse 72. He was a well-nourished, lethargic man. He had a coated tongue, without tremor. There was a slight tension in pulse. There were no rose spots. On October 4 the headache continued and the patient stated that he felt as if he was losing

his mind, said his brain "leaves his head," and he talked about it very calmly. The headache continued, always frontal, and usually on both sides. In spite of the absence of venereal history it was thought that possibly the trouble might be due to syphilis, and salicylate of mercury was given, but without effect. With the exception of the headache the disease pursued a course like the later stages of typhoid. The eye grounds were not examined. On October 28 the patient presented the appearance of one seeking help to prevent the development of unconsciousness. The mental struggle was evident in his expression, and the patient was continually reaching out with his right hand. He lay on his back with his head turned to the right; there was conjugate deviation of his eyes to the right; his pupils were dilated. There was spastic paralysis of the left arm and leg. The left nasolabial fold was flattened. There was no Babinski's sign. The patient was dying on October 29, when Dr. Coleman saw him. He had had frequent attacks of vomiting, the vomitus consisting in part of dark blood. There was coma, no response to pin-pricks, stiff neck, rigid limbs, the right being more rigid than the left. A large bulla filled with clear serum developed on the calf of each leg. The history and the appearance of the patient on admission suggested the end of a mild typhoid more than anything else. The blood count on September 30 showed 30,000 whites with 84 per cent. polymorphonuclears, 15 per cent. lymphocytes, 11 per cent. large mononuclears, and 3 per cent. eosinophiles. On October 4 the Widal reaction was positive. On October 5 the serum was positive to a strain of paratyphoid bacilli. Though repeated examinations were made, these were the only days on which positive serum reactions could be obtained to any of the typhoid colon group. On October 28 Dr. Coleman recognized that the patient had a cortical irritation, and in view of the fact that they had a case of sinus thrombosis in the hospital caused by the paratyphoid bacillus, he thought that this was probably a condition of similar nature.

On post-mortem examination the spleen was seen to be small, weighing approximately 150 g. Its capsule was somewhat wrinkled. The cut section was smooth. The dura mater was normal. On sawing through the skull cap a little bloody fluid oozed from the left temporal region. The pia mater was normal. Both cerebral convolutions were markedly flattened, especially that of the right side, the right hemisphere being somewhat larger than the left. The left temporosphenoidal lobe was adherent over a large area to the left middle fossa of the skull. The left temporosphenoidal lobe was occupied by a mass of rather soft, white tumor tissue, which was extensively infiltrated with blood. The right lateral ventricle, especially the posterior horn, was distended and contained rather an abundant amount of fluid, which was clear. The choroid plexus contained a few yellowish, rather firm foci. Otherwise the right side of the brain was normal. The tumor mass, which was not sharply demarcated from the normal brain tissue, occupied the inferior portion of the temporosphenoidal lobe, and extended well into the occipital lobe, and the visual tract of the occipital lobe. The internal capsule was compressed, but was not invaded by the tumor tissue. The left lateral ventricle was somewhat compressed. The floor was somewhat softened and hemorrhagic, and there was considerable succulent yellowish edema around the anterior horn. The fluid of the lateral ventricle was clear and small in amount. The other sections of the brain, on cross section, appeared normal. The spinal cord was not examined. The ears and sinuses appeared normal. The anamomical diagnosis was a glioma of the left temporosphenoidal lobe, with hemorrhage, and acute parenchymatous nephritis of mild grade. Sections from the brain tumor showed a cellular glioma, with scanty fibril formation. There were numerous mitoses. The tumor was traversed by a number of thin-walled blood-vessels, many of which were occluded by hyaline thrombi.

The Nauheim Treatment.—Dr. David Bovaird told what he had learned of the Neuheim treatment from a visit to Nauheim last summer. He described in detail the geography of Neuheim and its surroundings, consisting of beautiful farming country extending as far as the eye could reach. There were about the place fifty attractive drives, and each drive was described in a booklet which the cab driver furnished, giving all details, including cost, etc. The Neuheim springs were all within the park. A peculiar feature about Neuheim was the variety of medicinal springs, of various depths and different temperatures. Among the peculiar properties of the various waters were, first, the varying temperatures; secondly, the high content of carbonic acid gas; and, thirdly, the varying proportions of chlorides, carbonates, phosphates, iron, arsenic, and other ingredients. The drinking waters were much used in the cure of the diseases treated at the baths. Every morning at seven o'clock the orchestra played while the patients walked about the park sipping, not drinking, from one to two glasses of water. The treatment at Nauheim, he said, could not be described except in outline, and Dr. Bovaird described the general features of a typical case. The patients rested a good part of the day. He also described the method of giving the baths. The baths were divided into half and full baths. The food each patient took was prescribed for him by the physician in attendance. From twenty-five to thirty baths were given in each case before a cure was effected. He could say but little regarding the action of these waters, nor could he give any reason for combining the waters as was done. There was but little effect observed in the blood pressure after giving one bath. Certain changes occurred in the pulse, the most prominent being a drop in the number of beats. If the pulse had before been irregular, it became quite regular, and appeared to have more force after the baths. The patients found the baths very agreeable, although at first they were followed by a certain amount of lassitude and depression. This might be due to the peculiar climate. After a few baths this lassitude and depression passed away. The Nauheim physicians insisted upon the patients having further care and treatment after the baths, and even advised them to go to other resorts for this. The resistant or Schott treatment was of a very simple character; these exercises were arranged in a series. The treatment was not limited to the field of cardiac disease; rheumatism and other arthritides, anemia, and other conditions were treated as well. He could offer no explanation to account for the effect of these baths upon the heart or circulation.

Dr. Louis F. Bishop said that he had been in Nauheim last summer in order to study the cure and to get a definite idea as to why the people with heart disease went there, why they were so much benefited, and why the treatment could not be imitated in this country. He believed the benefit derived was largely due to the change of climate, the change of diet, the *esprit de corps* encountered, etc. With regard to the cardiac cases, a large part of them were due to some cardiovascular disease marked by disturbances of tone. There was a hypertonicity of the blood-vessels with a loss of tone in the heart, and the correction of these by the resisted movements made up a large part of the treatment. This was what had made Nauheim famous, especially when this treatment was combined with the Nauheim baths. The resisted movements by acting upon the tone of the voluntary muscles helped the tone of the involuntary muscles; in this way relief was given to the heart, thus giving it a chance to improve.

Dr. Alfred Meyer said that he had made two visits to Nauheim, one when a child, another two years ago, and he was particularly interested in the *x*-ray work done there and he wondered why the attempts at outlining the heart by the *x*-ray were not made in this country. It was Beneke in 1858 who first drew attention to the value of the Nauheim baths in the treatment of the heart, and

especially of the failing heart. The value of the springs he believed to be greater than the value of the resisted movements.

Dr. Bovaird expressed much admiration for what the Germans had done in developing the work at Nauheim. In the hands of their officials the work done was truly remarkable. They did a great deal of scientific work, and in an attractive manner. There were two principal officials, one who had charge of the baths and the medical work, the other who looked after the entertainment of the visitors. Nauheim was an example of paternalism, with a pater of the right sort.

SECTION ON GENITOURINARY SURGERY.

Stated Meeting, Held February 19, 1908.

Dr. Martin W. Ware, Chairman.

Litholapaxy in the Office Under Cocaine (Two Cases).—By Dr. George K. Swinburne. The first patient was a man, 45 years old, who had been suffering from urinary disorders for a year. It was discovered that he had a stone in the bladder, and a suprapubic cystotomy was proposed, but the family objected to it, so a week later litholapaxy was done in the office. He first injected three drams of a 2 per cent. solution of cocaine into the anterior urethra, which was held for ten minutes, and just before putting the patient on the table he passed a catheter, drew off the residual urine, and injected half an ounce of a similar solution into the bladder. The patient was then placed on the operating table and six ounces of warm sterile water were injected into the bladder through a catheter, and the lithotrite gently inserted. By raising the handle and depressing the beak of the instrument in the bladder, so as to form as low a level as possible, the blades were opened and the stone fell at once into the jaws and was readily crushed and washed out through a No. 22 F. evacuating tube with the Chismore pump. The whole operation occupied about half an hour and was practically painless. The patient was sent to his home in Brooklyn to go to bed, and was told that he could go to work the following day, which he did. The second patient was a man 65 years old, who had suffered from hematuria and great bladder disturbance, which was found to be due to the presence of a mulberry calculus in the bladder. After careful preparatory treatment he was operated on January 1, 1908, in the same manner as the first patient, the operation also being done in the office. The stone was very hard and slipped many times from the grasp of the lithotrite before it could be crushed. After crushing, which occupied considerable time, an evacuator was introduced and all was washed out excepting one fragment, which was too large to come through. This was crushed and removed at a subsequent operation, a week later. After the first operation, the patient was sent home and told to go to bed. There was some reaction and fever that night, but on the following day the patient was comfortable and able to go out. There was no reaction after the second operation, the patient going home and remaining in bed for twenty-four hours. He was now perfectly comfortable; he no longer found it necessary to get up at night to urinate, and only showed from two to four drams of residual urine. The comparative ease with which the operation in these two cases was done had impressed Dr. Swinburne with the desirability of doing litholapaxy in suitable cases, with the aid of a local anesthetic when that could be done. Further, it might prove better to repeat the operation under cocaine, if all the fragments were not removed at first, rather than work over the patient to the point of exhaustion in order to get out the last fragment at one sitting.

Dr. Eugene Fuller said he had done the operation a number of times without the use of any anesthetic, local or otherwise, and he thought that the danger of using cocaine in the urethra or bladder should never be lost sight of, especially in connection with work in the office.

Dr. Frederick Bierhoff said that in cases in which litholapaxy could be done at all, he regarded it as the operation of choice. Guyon had already brought out the point emphasized by Dr. Swinburne, that it was better to do the operation in two sittings rather than to exhaust the patient too much by trying to do it in one.

Dr. James Pedersen said that in many instances he had found it difficult to obtain the necessary degree of anesthesia of the deep urethra by local means. He was of the opinion that litholapaxy could be performed oftener than it was without any anesthetic whatever. Local anesthesia was of little assistance in the operation of litholapaxy; when any anesthesia at all was required, general anesthesia was indicated. The danger of poisoning from cocaine used in the bladder was a very real one. As a substitute he recommended the use of a 2 per cent. solution of eucaine.

Dr. William G. Eckstein, in speaking of the difficulty that was at times encountered in removing the last fragment, suggested the use of the small lithotrite made in connection with the cystoscope by the manufacturer of the Nitze instrument. In that way the operation could often be satisfactorily concluded. The speaker did not approve of doing this operation in the office or dispensary.

Dr. Victor C. Pedersen said many surgeons who used cocaine had expressed the view that when morphine was given a short time before the operation, there was comparatively little danger from the cocaine, as morphine seemed to be a potent physiological antidote to cocaine.

Dr. Ware said he had always been of the opinion that litholapaxy and lithotripsy were really capital operations and should be carried out with every precaution that that term implied. After the operation perfect rest of the bladder was indicated, and he thought it was rather a precarious procedure to allow such a patient to get up and go home.

Dr. Swinburne, in closing, said he had used cocaine for years in his genitourinary work, and he could recall only one instance where dangerous symptoms resulted. In using cocaine solution in the bladder, it was his practice now to wash out the bladder after leaving the solution in for a short time. He wished to emphasize the fact that if the patient was properly protected and accustomed to urethral manipulations prior to the litholapaxy, the operation was but little more serious than cystoscopy, which was continually being done in office work.

Stone Removed from the Pelvis of the Kidney, with Primary Suture.—Dr. Joseph Wiener reported the case of a married woman, 25 years old, who was admitted to the Mount Sinai Hospital on March 13, 1907. Her family history was negative. A year ago she had an attack of cramp-like pain in the right side of the back, radiating to the right labium. Since then she had had several similar attacks, each worse than the previous one. An *x*-ray picture, which was taken in October, 1906, showed a stone in the pelvis of the right kidney. This was subsequently verified by a second radiograph, taken just before the operation, and on March 14, 1907, the right kidney was exposed through an oblique incision. The stone was removed through a one-inch incision through the cortex. The kidney was then sutured, and the abdominal wall closed, excepting for a small gauze drain down to the kidney. When the patient left the hospital, twenty days later, she had a small discharging sinus, which soon healed. Her subsequent history was uneventful.

Stones Removed, After Nephrectomy, from the Other Kidney.—Dr. Joseph Wiener reported the case of a man 48 years old, whose right kidney was removed for pyelonephrosis in 1901. For five years following the nephrectomy the man had many attacks of left lumbar pain, associated with purulent urine, and what the patient stated to have been small stones passed per urethram. At various times there had been fever and chilly sensations. For four days prior to his readmission to the hospital, on December 8, 1906, no urine had been voided, and the patient had to be catheterized, although at night he stated that he could void some urine. He complained of severe left lumbar and hypochondriac pain. No mass was palpable. Two *x*-ray pictures had been taken, with negative showings. For two days after the patient's admission no urine was excreted, in spite of hot packs and diuretics. Repeated catheterization showed an empty bladder. The patient had daily chills, with a temperature of 102° F., severe headaches, vomiting, and drowsiness. On December 11, 1906, the left kidney was exposed and opened. It was found to be distended with pus, with a large and a small stone in the pelvis. The pus showed streptococci and *Bacillus coli*. There was very little kidney tissue left. For twenty-four hours after the operation there was some improvement in the patient's condition. The dressings were saturated with urine and pus, but the bladder remained empty. Death occurred two days after the operation.

Partial Resection of the Bladder for the Removal of Carcinoma.—Dr. Eugene Fuller said that as most papillomatous growths of the bladder were carcinomatous, or became secondarily malignant, even though apparently primarily benign, it was always best, in operating on these cases, to be as radical as possible. The only form of operation which deserved to be called radical consisted in a removal not only of the growth, but also of the bladder wall containing the pedicle of the neoplasm. Many times such a resection of the bladder was not possible, as, for instance, when the pedicle included the ureteral orifice, or when the perivesical structures were also involved. The first case was that of a man, 51 years old, who presented himself in May, 1903, complaining of frequent vesical hemorrhages, which were first noticed two years before, and which had gradually become more severe. There was some urinary frequency, and, when bleeding occurred, some difficulty in starting the stream. A cystoscopic examination showed a papilloma about the size of an adult thumb, growing from the posterior vesical fundus. A suprapubic cystotomy was done, and the bladder wall containing the papilloma was invaginated into and through the suprapubic opening. In that position a large vesical resection was accomplished. By means of long threaded needles, the opposing invaginated bladder walls were sutured together, the opposite peritoneal surfaces being thus brought into tight apposition. Above the line of sutures a needle, threaded with double heavy silk ligatures was passed through the invaginated bladder walls, and the tissues on either side were tied off and strangulated. This accomplished, the papilloma was cut off, while the pedicle and the strangulated resection were dropped back into their natural vesical position, the silk ligatures being left long, so that they protruded from the suprapubic opening. On the ninth day after operation, gentle traction on the protruding ends of the silk ligature brought away the sloughing strangulated vesical resection. The patient left the hospital at the end of five weeks, urinating normally, with a bladder capacity of six ounces, which six weeks later had increased to eight ounces. Dr. H. T. Brooks pronounced the growth carcinoma. The patient remained well and active and free from hemorrhage until the middle of December, 1905, a period of two years and seven months, when there was a slight recurrence of the hematuria. Cystoscopic examination at this time showed a papilloma about the size of a raspberry, near the middle of an otherwise perfectly smooth scar which formed the site of the vesical resection. Through a perineal opening this papilloma was excised, together with its pedicle, they being seized by cutting prostatectomy forceps. The patient left the hospital well, and eighteen months afterwards (making four years after the first operation) he was still enjoying good health. Since then he has been lost sight of. The second growth was reported by Dr. Brooks to be a "villous epithelial growth with features strongly suggesting malignancy."

The second case was that of a man, 45 years old, who complained of hematuria and frequent and very painful urination, which at times was difficult, and occasionally the stream would suddenly shut off completely. The urine was foul, containing pus, bacteria, and blood. The patient was feeble, anemic, and septic. Cystoscopic examination disclosed a large villous growth. Suprapubic cystotomy showed this growth to spring from a fleshy pedicle about the circumference of an adult forefinger. The pedicle was at the posterior fundus, about two inches from the right ureteral opening. A vesical resection operation, similar to that described in the first case, was done, and the growth was removed. In this instance, however, the line of sutures was near enough to the right ureteral orifice to constrict the caliber of that canal, and for several days following the operation there was much pain and tension referable to the right kidney. With the detachment of the resected slough, however, the ureteral constriction was relieved, and the right renal symptoms disappeared. The recovery in this instance was slow and tedious, owing to the existence of general sepsis at the time of operation, which was intensified by the operation. About three months after operation the patient left the hospital relieved of his vesical symptoms, and urinating naturally and normally. He had since been lost sight of. A histological examination of the growth removed from the bladder showed it to be carcinoma.

Fragmented Filiform Removed from the Urethra.—Dr. V. C. Pedersen showed a specimen of whalebone filiform guide, about 8¼ inches of which broke off in the deep urethra while a tunneled and grooved sound was being passed. The patient was a laborer, 57 years old, who had a stricture of the anterior and posterior urethra and hypertrophy of the prostate, with secondary chronic suppurating cystitis. On February 4 a filiform was passed and seemed both to the patient and to Dr. Pedersen to have reached the bladder. A 17F sound was then threaded over it and the attempt to insert it into the bladder was made. As the sound did not pass very well and as the filiform did not work freely either within the urethra, gentle traction on the filiform was made. Resistance was encountered, which gave way rather suddenly. On this account it was concluded to abandon instrumentation. Upon withdrawing the sound and filiform, it was then found that the latter was about 8 inches short. How to recover the fragment was the next question. The three-inch endoscopic tube was inserted, size 28F, and the filiform was found about 2 1-2 inches back from the meatus, with the torn tapering end rolled upon itself. An ordinary knitting needle with a hook point was now passed down to this loop, and by its aid the loop was straightened out until the tip of the fragment presented about ¾ inch back from the meatus. It was then rather an easy matter to seize this with a pair of Kelly's "mosquito" artery forceps, and remove it. Through the endoscopic tube the bulk of the fragment could be seen as it lay straight in the urethra beyond the curled up tip, which at least suggested the fact that the accident was not due to a folding of the filiform upon itself, for in that case the other end would ordinarily have been seen also.

The Radical Treatment of Carcinoma of the Bladder.—Dr. A. A. Berg, in this paper, said that the percentage

of ultimate cures effected by the various radical operations for carcinoma of the urinary bladder was very small, and did not bear favorable comparison with that which was achieved in the radical treatment of carcinoma of other organs. These bad results were partly owing to the complicated problems we were called upon to meet in dealing with malignant neoplasms of this viscus, and partly to the fact that we had neglected to fully appreciate certain points in the pathology of this disease. The radical operative cure of a malignant tumor, according to our modern conceptions, demanded a wide removal of the primarily diseased tissue and secondarily affected lymphatics and glands. When malignant deposits had extended beyond the immediate local glandular apparatus, or had appeared in distant organs, the idea of a radical extirpation of the primary disease could no longer be entertained. It was surprising how these axiomatic principles for the radical cure of malignant tumors were constantly ignored in cases of malignant growths of the urinary bladder. Thus it had been, and still was, the common practice to entirely ignore the lymphatics and glands in the radical operation for cancer of this viscus, owing possibly to the idea that these structures were usually not affected. That supposition, however, was entirely erroneous. In the very early stages of the malignant growth, when the neoplasm was confined to the mucosa, and was not ulcerated, the lymphatics and glands usually showed no malignant changes, but as soon as the tumor invaded and infiltrated the muscular coats of the bladder, the spread to the lymphatics and glands took place, and no operation could be a radical one that did not include a wide removal of these latter structures. In 56 cases of infiltrating cancer of the bladder collected by Guyon, glandular enlargements were positively recorded in 15, and in 41 no special mention was made of this fact. If the reservoir function of the bladder could be entirely dispensed with, or satisfactorily and safely replaced or substituted in some manner, a vesical carcinoma could be dealt with much as was a carcinoma of the gall-bladder; namely, by complete excision of the affected organ; but thus far all our experience had not succeeded in showing how to safely replace or substitute this urinary function of the bladder. The use of the rectum, vagina, or partly excluded loop of intestine, *e.g.* the sigmoid flexure or small intestine, as a substitute for the bladder had been mostly abandoned because of the danger entailed thereby of an infection from these viscera ascending the ureters to the kidneys, with consequent pyelonephritis and death. Similarly, the doing away entirely with a urinary reservoir by implanting the ureters onto the skin of the abdomen or loin, or by direct drainage of the kidney-pelvis through the loin, exposed the kidneys to the same dangers of infection, and because of the attention and care that had to be expended upon the toilet of the urinary fistulæ, it placed additional worry, annoyance, and discomfort upon the patient. It was, therefore, very desirable in the radical operations for vesical cancer to preserve enough of the bladder to act as a urinary reservoir, provided this was consistent with the requirements of a radical extirpation of the disease. In cases where the carcinoma was primary in the bladder, and limited to one part thereof, a wide removal of the neoplasm (partial cystectomy), together with all the lymphatics and glands, would afford as sure a protection from recurrence as would a complete extirpation of the organ. Furthermore, the immediate operative mortality after partial cystectomy was not half as high as that after entire removal of the bladder, and the objections raised by Watson to ureteral implantation into the intestine, vagina, or skin did not apply to ureteral reimplantation into a remaining healthy portion of the bladder. Dr. Berg was, therefore, forced to the conclusion that when we had to deal with growths limited to a third of the bladder, and especially when their site was on the fundus and lateral walls, partial cystectomy, with reimplantation of the ureter into the remaining portion of the bladder, was by far the operation of choice. When the cancer was diffusely spread over the greater part of the bladder, thus forbidding us to save a sufficient portion thereof to form a reservoir for the urine, or when there was a bad cystitis that did not yield immediately to therapeutic measures, and which necessarily increased materially the dangers of ascending ureteral infection after reimplantation of the ureters, then complete extirpation was advisable, provided the patient was otherwise sound. The preliminary operation of lumbar nephrostomy would certainly seem to be indicated when complete excision was done.

Dr. Howard Lilienthal said he was quite in accord with the views expressed by Dr. Berg, and in dealing with this condition of carcinoma of the bladder, he thought that no one would deny the necessity of early and very radical operation. The bladder was an organ the muscles of which ran in every conceivable direction. It was an organ that was constantly in motion, either being emptied rapidly or being gradually filled. When a neoplasm of the bladder got below the mucosa and invaded the muscular structure in the slightest degree, the extent of the diseased tissue would be apt to be very much greater than would appear on direct examination with the unaided eye. Therefore, even with an apparently small vesical cancer, an extremely wide resection would be the proper thing. Partial cystectomy, in order to be successful, should be performed in what we were accustomed to call selected cases. As to the other cases, in which the disease had progressed so far that a partial cystectomy was out of the question, under those conditions it was also a question whether any operative procedure of a radical nature should be undertaken. The outlook then was extremely hopeless, and only simple operations for the relief of the patient should be undertaken. Dr. Lilienthal thought there was no doubt that the use of urotropin and other formalin liberating drugs had greatly improved the outlook for all bladder manipulations, and especially for operative procedures on that viscus, and the statistics quoted by Dr. Berg might possibly be changed if a similar number of cases were gathered since the introduction of urotropin and a realization of its value. As to the Watson operation of simultaneous double bilateral lumbar nephrostomy in these cases, to which the reader of the paper referred, Dr. Watson advised it only in suitable cases in persons who were so situated that they were not obliged to work and who could be properly cared for afterwards. The procedure was certainly of greater value than was a colostomy in cancer of the rectum, and the latter was certainly of enormous value in carcinoma of the rectum. It was undoubtedly true that ureteral implantation into the functionating gut would invariably be followed by septic nephritis and death, usually within a year. This fact had been demonstrated experimentally and also in practice. In suitable cases of carcinoma and also of extrophy of the bladder he had on former occasions already advised the possible expediency of doing an ileocolostomy with exclusion of the cecum and ascending colon, and then implanting both ureters into this nonfunctionating section of gut, possibly utilizing the appendix as a urethra.

Dr. F. Tilden Brown said that the radical operation for carcinoma of the bladder was one regarding which surgeons naturally did not feel very enthusiastic, and, from a personal standpoint, believed that if such a patient was made moderately comfortable, he would be better off than to risk the danger and discomforts of a successful radical operation. The speaker thought that the danger of infecting the kidneys by lumbar implantation of the ureters, or even by nephrostomy, was no greater than by implantation into the viscera.

Dr. Fuller said that in bad cases of carcinoma of the bladder he strongly questioned the wisdom of a radical operation. Much could be done to relieve these patients

by palliative measures. The bladder could be opened above the pubes, and much of the growth removed with the curette, especially when it involved the urethral outlet and gave rise to pain or suppression; or, in suitable cases, the involved bladder wall could be invaginated through a suprapubic opening and removed in the manner he had described in his two cases of tumor of the bladder. Nephrostomy did not appeal to him, excepting for the purpose of prolonging life.

Dr. Joseph Wiener said he thought the consensus of opinion among surgeons was that complete excision of the bladder did not give as good results as a partial resection. The speaker called attention to the comparative frequent occurrence of malignant changes in the hypertrophied prostate, and he suggested the advisability of removing the prostate in all cases of carcinoma of the neck of the bladder in the vicinity of the prostate, even if its involvement at the time was not apparent. The added danger of this procedure to the patient was almost *nil*.

Dr. Edward L. Keyes, Jr., said he agreed with Dr. Fuller that when the bladder wall was the seat of a comparatively small growth, its radical removal was indicated, but in cases where one-third or more of the bladder had to be removed, the chances of a successful operation were very slight. These tumors were often of very slow growth, and he recalled cases where the patients were comparatively comfortable for a period of five years and longer. The speaker said that while he considered Dr. Wiener's suggestion to take out the prostate in connection with tumors of the neck of the bladder a most excellent one from a pathological standpoint, still this would be by no means a small addition to the operation, because it would imply removal of the capsule of the prostate, as well as its glandular tissue.

Dr. Berg, in closing, said he thought that patients with cancer of the bladder had been done an injustice; too many of them had been allowed to die of their malady without an attempt having been made to save them. The state of affairs was analogous to that which formerly existed in connection with cancer of the stomach, which for a long time was a disease that surgeons were afraid to touch. Commenting on Dr. Lilienthal's plan of implanting the ureters into a section of the excluded ascending colon, Dr. Berg said that a German writer had suggested making a side-to-side anastomosis of the two loops of the sigmoid at their roots, excluding unilaterally the afferant loop and implanting the ureters into this section of the bowel. This method would be much less hazardous than the one suggested by Dr. Lilienthal. The speaker agreed with Dr. Keyes that the removal of the prostate in these cases, in order to be efficient, must also include the removal of its capsule. It was unnecessary, he thought, to do this in tumors of the papillomatous and squamous type, unless they secondarily extended into the prostate, as these types of tumors were primary in the bladder; it should only be resorted to in connection with tumors of the adenomatous and fibroid or scirrhus type. The suggestion of Dr. Fuller was only feasible when the cancer involved the peritoneal surface of the bladder; it was impossible to do it with extraperitoneal tumors.

An Indirect Vision (Prismatic) Double-Catheter Telescope for Composite Cystoscope.—Dr. F. Tilden Brown demonstrated this instrument.

New Phosphorus Medication in the Treatment of Rickets.—Paul Sittler has used various of the newer forms of phosphorus compounds in rickets, and has found a combination of the glycerophosphate of lime and the nucleate of soda of the greatest value. The amelioration of symptoms is rapid. A child under one year takes a powder of .05 gram of the glycerophosphate and 0.1 gram of nucleate in sweetened water or milk twice a day. With older children the dose is taken oftener. The author obtains better results when hygiene and fresh air and hydrotherapeutics are added to the medication.—*Revue Mensuelle des Maladies de l'Enfance.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners, Territory of Arizona. *October, 5 and 6, 1908.*

ANATOMY.

1. Give a description of the general lymphatic system.
2. Give the histology of compact bone.
3. Give the structure of the spinal cord.
4. Name the muscles of the back, grouping them in their different layers.
5. Give the origin, insertion, action, blood and nerve supply of the following muscles; occipitofrontalis, pectoralis major, deltoid, adductor longus, rectus abdominis, and sternomastoid.
6. Name the lobes and fissure of the brain.
7. Describe the peritoneum.
8. Name the anatomical structures derived from the epiblast, mesoblast, hypoblast.
9. Give the gross and minute anatomy of the kidney.
10. Describe the brachial plexus and give its distribution.

MATERIA MEDICA.

1. Explain the distinction between the physiological action and the therapeutic use of drugs; between rational and empirical therapeutics.
2. What ratios do hypodermic and rectal dosage bear to that by the mouth? Give rule for children's dosage.
3. What are alkaloids? Give the four official alkaloids of cinchona bark.
4. Give a safe and efficient dose for an adult of morphine sulphate; strychnine sulphate, cocaine hydrobromide; hyoscine hydrobromate; tr. digitalis; tr. aconite.
5. Give the active principles of digitalis; give indications and contraindications for the use of the drug in diseases of the heart.
6. Name five potassium salts commonly used in medicine. State dose.
7. Give source and action of ergot.
8. Name some of the chief alkaloids of opium and state the therapeutic differences in the use of opium and morphine.
9. What hypnotic should be avoided if patient has a weak heart?
10. What anesthetic do you use, and why do you prefer it?

PHYSIOLOGY.

1. Upon what theory is physiology founded? What is the structural basis of all organisms?
2. Life is in its ultimate analysis the metabolism of plasm; define plasm and metabolism. Give chemical constituents of plasm.
3. Lymph: where elaborated; how conveyed; composition and function.
4. Give source and function of adrenalin, thyroidin, and opsonin.
5. Describe the local peculiarities of the circulation of the blood in the brain, lungs, liver, and erectile organs.
6. Give mechanism of respiratory movements; ratio of respiration to pulse; effects of atmospheric pressure on respiration; influence of respiratory movements on heart and circulation of the blood and lymph.
7. Give the source and action of the various secretions concerned in the process of digestion.
8. Where are the following centers: (*a*) Parturition, (*b*) auditory, (*c*) respiratory, (*d*) visual, (*e*) micturition?
9. Define: (*a*) Amnion, (*b*) corpus luteum, (*c*) leucin, (*d*) erythrocyte, (*e*) neuron, (*f*) hemolysin.
10. Distinguish between cerebral and spinal paralysis in (*a*) muscle-tonus, (*b*) nutrition of muscles, (*c*) electrical reactions of muscles.

CHEMISTRY.

1. Define decomposition. Name three physical decomposing agents.
2. Sulphur: (*a*) occurrence in nature, (*b*) physical and chemical properties, (*c*) what compound of sulphur is liberated in decomposing organic matter?
3. Give chemical formula for (*a*) hydrochloric acid, (*b*) sulphuric acid, (*c*) Epsom salts, (*d*) Rochelle salts, (*e*) Glauber salts.
4. What is an alkaloid? Name five important ones and give derivation of same.
5. What are ptomains? Give usual symptoms present in ptomain poisoning.
6. Name the general properties of carbohydrates and mention the occurrences in nature.
7. Describe in detail (*a*) a chemical test for blood; (*b*) for pus in the urine. (*c*) What urinary test is considered

most important from a diagnostic and prognostic standpoint in pulmonary tuberculosis? (*d*) How may the amount of total solids passed in the urine in 24 hours be approximated? (*e*) How many grains of total solids should a man weighing 160 pounds pass in 24 hours? (*f*) Give normal sp. gr. of human urine. (*g*) Give test for albumin in urine; (*h*) for sugar in urine. (*i*) What is the normal amount of urea passed by man in 24 hours, and give a method of estimating the amount excreted.

8. (*a*) Name a test by which arsenic may be detected with certainty. (*b*) Give antidote for arsenic poisoning.

9. Name some drugs which combined in a prescription would be chemically incompatible. Give chemical formulæ.

10. Give chemistry of pancreatic ferment in digestion.

PATHOLOGY.

1. In what diseases does hypertrophy of the heart most commonly result? Why?

2. What are the commonest underlying conditions in angina pectoris?

3. What are the microscopic characteristics of the exudate in croupous pneumonia? In catarrhal pneumonia?

4. What pathological conditions are productive of icterus?

5. Differentiate, pathologically, between a typhoid ulcer and a tuberculous ulcer of the intestine.

6. Give the usual methods of metastatic extension of carcinoma and of sarcoma.

7. In what locations in the body is the typhoid bacillus found in typhoid fever?

8. Name the parasite of malaria and describe its development in the blood.

9. Describe briefly lesions in the cord in tabes dorsalis.

10. What is pathological leucocytosis?

PRACTICE.

1. Give differential diagnosis between measles, scarlet fever, and smallpox.

2. Give treatment of acute gastrointestinal catarrh in children.

3. Give predisposing cause and treatment of pulmonary hemorrhage.

4. Describe the etiology and pathology of typhoid fever.

5. Give diagnosis and treatment of pneumonia.

6. What is the prognosis as to the cure of epilepsy? Treatment of epilepsy?

7. Give treatment of acute bronchitis.

8. What are the complications and sequelæ of scarlet fever?

9. Give varieties of erysipelas, with treatment.

10. Give treatment of asthma.

SURGERY.

1. What is the point of election for ligation of the subclavian artery? Describe fully the technique.

2. Give differential diagnosis of osteosarcoma and tuberculous knee-joint.

3. Differential diagnosis of renal and cystic calculi. Give treatment of each.

4. How does the Halstead differ from the Bassini operation for inguinal hernia?

5. Symptoms, diagnosis, and treatment of prostatic hypertrophy.

6. Etiology, diagnosis, and treatment of fistula in ano.

7. Diagnosis and treatment of embolism of the mesenteric vessels.

8. Diagnosis and treatment of ulcerative perforation of the intestine.

9. Differential diagnosis and treatment of hydrothorax and pyothorax.

10. Describe minutely the operation for enucleation of the eye.

OBSTETRICS.

1. Describe the changes that take place in the mucous lining of the uterus preparing it for the reception of the fertilized ovum. If it becomes attached, what further changes take place? If it passes without becoming attached, what further changes?

2. Describe the conditions most likely to result in laceration of the cervix and perineum and what remedies would you use and what treatment would you employ to reduce the danger as much as possible?

3. Describe fully how you would conduct a face presentation.

4. Describe how you would conduct a breech presentation to decrease the danger to both mother and child as much as possible.

5. Classify, give symptoms, and treatment of extrauterine pregnancy.

6. Give classifications, symptoms, and treatment of placenta prævia.

7. Give technique of obstetric asepsis and antisepsis during pregnancy, parturition, and the puerperium.

8. Mention four important causes of active uterine contractions of normal labor.

9. Give the cause and treatment of puerperal sepsis.

10. Give the three important diameters of the fetal head at term; the diameters of the normal female pelvis.

GYNECOLOGY.

1. What are the most common causes of pelvic cellulitis?

2. State how chronic purulent salpingitis may cause sterility.

3. Give differential diagnosis between acute nonpuerperal ovaritis and appendicitis.

4. Describe urethral caruncle and give treatment.

5. When is ventral fixation contraindicated?

6. What is vaginismus? Give its causes and treatment.

7. Give treatment in detail of retroversion of less than one year's standing.

8. Explain how fibroid tumors may cause ascites.

9. When would you perform trachelorrhaphy and when amputation of cervix in cervical lacerations? Give technique of trachelorrhaphy.

10. What is the cause of chronic inflammation of Skene's glands? Give treatment.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, TERRITORY OF ARIZONA.

October, 5 and 6, 1908.

ANATOMY.

4. MUSCLES OF THE BACK. *First layer:* Trapezius, and Latissimus dorsi.

Second layer: Levator anguli scapulæ, Rhomboideus major and Rhomboideus minor.

Third layer: Serratus posticus superior, Serratus posticus inferior, Splenius capitis et colli.

Fourth layer: Erector spinæ, Iliocostalis, Longissimus dorsi, Spinalis dorsi, Cervicalis ascendens, Transversalis cervicis, Trachelomastoid, Complexus, Biventer cervicis, and Spinalis colli.

Fifth layer: Semispinalis dorsi, Semispinalis colli, Multifidus spinæ, Rotatores spinæ, Supraspinales, Interspinales, Extensor coccygis, Intertransversalis, Rectus capitis posticus major, Rectus capitis posticus minor, Obliquus capitis superior, and Obliquus capitis inferior.

6. *Lobes of the brain:* Frontal, parietal, occipital, temporal, central, limbic, and olfactory.

Fissures of the brain: Longitudinal, transverse, Sylvian, of Rolando, calcarine, parietal, and parieto-occipital.

8. From *the epiblast* are derived: The skin, and its appendages (hair, nails), and glands (including the mammary glands); the nervous system (brain, spinal cord, ganglia and nerves); the epithelial parts of the organs of special sense.

From *the mesoblast* are derived: The skeleton; connective tissues; muscles and bones; heart, blood-vessels, lymphatics, and spleen; the urinary and generative organs.

From *the hypoblast* are derived: The epithelial lining of the alimentary canal and its glands; the epithelial lining of the respiratory tract, Eustachian tube, thyroid and thymus.

MATERIA MEDICA.

1. The *physiological action* of a drug is the influence which the drug exerts upon the various bodily organs or tissues in a state of health. The therapeutic use signifies the use of drugs in accordance with "rational" or "empirical" usage as defined below.

Rational therapeutics is the use of remedies based on a combined knowledge of their physiological action and of the pathological condition present in the patient.

Empirical therapeutics is the use of remedies based on no other "reason" but that some one has found them useful or beneficial in conditions similar to the one under treatment.

2. If the dose by *mouth*, is one grain, the *hypodermic* dose would be about one-half grain, and the dose by *rectum* about one and a half grains.

Rule for children's dosage: Let x = the age of a patient; then $\frac{x}{x+12}$ = the fraction of the adult dose which the patient should receive. Thus, a patient of four years old should receive $\frac{4}{4+12} = \frac{4}{16} = \frac{1}{4}$ of an adult dose.

3. *Alkaloids* are organic nitrogenized substances, alkaline in reaction, and capable of combining with acids to form salts in the same way that ammonia does.

The *four official alkaloids of cinchona bark,* are: Quinine, quinidine, cinchonine, and cinchonidine.

4. Morphine sulphate, dose, gr. ¼; strychnine sulphate, dose, gr. 1/64; cocaine hydrobromide, not used, the dose of cocaine hydrochloride is gr. ¼; hyoscine hydrobromate, dose, gr. 1/128; tr. digitalis, dose ɱxv; tr. aconite, dose ɱviij.

5. Digitalis. *Active principles:* Digitalin, digitalein, digitin, digitoxin, and digitonin.

Digitalis is indicated in diseases of the heart, (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in non-valvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high.

6. *Five potassium salts:* Potassium bromide, dose, gr. xv; potassium iodide, dose, gr. vijss; potassium acetate, dose, gr. xxx; potassium citrate, dose, gr. xv; potassium chlorate, dose, gr. iv.

7. Ergot. *Source:* The sclerotium of the claviceps purpurea.

Physiological action: Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

8. *The chief alkaloids of opium,* are: Morphine, codeine, thebaine, narceine, narcotine, papaverine, and pseudomorphine.

Therapeutic differences in the use of opium and morphine: Opium is more slowly absorbed, acts more slowly, the effect lasts longer, and its immediate local effect on the intestines is more marked. Morphine is less irritating, less constipating, less diaphoretic, less stimulating to the heart and nervous system, and affects the secretions less than opium. Morphine is more liable to cause skin eruption and itching, it is more certain and rapid as an anodyne and hypnotic, and is also more quickly eliminated.

9. If a patient has a weak heart, *chloral* should not be used as a hypnotic.

PHYSIOLOGY.

1. Physiology is not founded upon any theory; it is rather based upon a knowledge of anatomy, histology, chemistry and physics.

Perhaps the examiner wants "Virchow's cellular theory."

Cells are the structural basis of all organisms.

2. *Plasm* (or *protoplasm*) is the physiological basis of life, being the substance of which the cells are made.

Metabolism is the name given to the entire series of changes which occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive, called *anabolism;* and (2) destructive, called *katabolism.*

The *chemical constituents of protoplasm,* are: Water, and solids; the chief of the latter are proteids (which contain carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus); lecithin; cholesterin; and chlorides and phosphates of calcium, sodium, and potassium.

4. *Adrenalin* is obtained from the medulla of the suprarenal gland. It is supposed to maintain the tonicity of the muscles, also to maintain the blood pressure, and to stimulate the muscle fibers of the heart and arteries.

Thyroidin is found in the thyroid gland. It is supposed to have some favorable influence on general metabolism, and to antagonize certain toxic substances.

Opsonin has its origin in the blood serum. It is said to increase the phagocytic action of the leucocytes.

7. The various secretions concerned in the process of digestion, are the saliva, gastric juice, pancreatic juice, bile, and succus entericus.

The *source* of the saliva is the salivary glands; of the gastric juice, the glands of the stomach; of the pancreatic juice, the pancreas; of the bile, the liver; and of the succus entericus, the glands of the small intestine.

The functions of the saliva are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

The functions of the gastric juice are: (1) To change proteids into proteoses and peptones, and (2) to curdle the casein of milk.

The functions of the pancreatic juice are: (1) To change proteids into proteoses and peptones, and afterwards decompose them into leucin and tyrosin; (2) to convert starch into maltose; (3) to emulsify and saponify fats; and (4) to cause milk to curdle.

The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

The functions of the succus entericus are: The secretion of enterokinase, secretin, and crepsin, which assist the pancreatic juice in digestion.

8. The *center* for (*a*) *parturition* is in the lumbar enlargement of the spinal cord; (*b*) *auditory,* is in the first and second convolutions of the temporal lobes of the brain; (*c*) *respiratory,* is in the floor of the fourth ventricle; (*d*) *visual,* is in the occipital lobes of the brain; (*e*) *micturition,* is in the lumbar enlargement of the spinal cord.

9. (*a*) *Amnion,* is the innermost of the fetal membranes, it secretes and contains the liquor amnii.

(*b*) *Corpus luteum* is the scar or yellow body left on the ovary at the site where a Graafian follicle has discharged its ovum.

(*c*) *Leucin* is amidocaproic acid; it is found in the pancreas, spleen, liver, kidneys, thymus, lymphatic and salivary glands; it is due to the decomposition of proteins by acids or alkaloids, and during putrefaction.

(*d*) *Erythrocyte* is a red blood-corpuscle.

(*e*) *Neuron* is a nerve cell with all its processes.

(*f*) *Hemolysin* is "a substance produced in the body of one species of animal by the introduction of red blood corpuscles derived from the body of another species; it is capable of dissolving the red blood corpuscles of the animal species from which the blood was obtained."—*Gould.*

10.

	Cerebral Paralysis.	*Spinal Paralysis.*
(*a*) Muscle tonus.	Spastic; may be contractures.	Flaccid.
(*b*) Nutrition of muscle	Normal, or slight atrophy.	Marked atrophy.
(*c*) Electrical reaction	Normal.	Little or no response to faradic current; partial or complete reaction of degeneration to galvanic current.

CHEMISTRY.

1. *Decomposition* is the splitting up of a compound into simpler compounds or into its constituent elements.

Three physical decomposing agents: Heat, light, and electricity.

2. Sulphur. (*a*) *Occurrence in nature:* It is found free, also in combination in the sulphides and sulphates, and in proteids, especially the keratins.

(*b*) *Physical and chemical properties:* Yellow crystalline solid, slight odor and taste which are characteristic, insoluble in water, soluble in carbon disulphide, it is dimorphous; on being heated, it first fuses to a thin yellow liquid, on further heating it becomes thick and brown, at a still higher temperature it again becomes thin and lighter in color, and at a higher temperature again it boils, at the same time giving off a brownish-yellow vapor. Suphur has a valence of two or six, atomic weight of 32, molecular weight of 64; it readily combines with other elements; heated in air or oxygen, sulphur dioxide is produced; if burnt in hydrogen, hydrogen sulphide is produced. The compounds of sulphur are similar in constitution and (to some extent) in chemical properties to the compounds of oxygen.

(*c*) In decomposing organic matter, sulphuretted hydrogen H_2S is liberated.

3. (*a*) Hydrochloric acid, HCl; (*b*) sulphuric acid, H_2SO_4; (*c*) Epsom salts, $MgSO_4$; (*d*) Rochelle salts, $NaKC_4H_4O_6$; (*e*) Glauber salts, Na_2SO_4.

4. An *alkaloid* is a basic nitrogenous substance of alkaline reaction and capable of acting with an acid to form salts in the same way that ammonia does.

Five important alkaloids: (1) Strychnine, from strychnos nux vomica; (2) Atropine, from atropa belladonna; (3) Coniine, from Conium maculatum; (4) Nicotine, from tobacco; (5) Cocaine, from coca erythroxylon.

5. *Ptomains* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction.

Ptomain poisoning. Symptoms: Chilliness, headache, vertigo, muscular twitchings, hallucinations, imperfect vision, weak and rapid pulse, nausea, vomiting, diarrhea, cyanosis, early dyspnea, often subnormal temperature, and

occasionally cutaneous eruptions. The prognosis is guardedly favorable.

7. (*a*) *Chemical test for blood in the urine:* To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

(*b*) *For pus in the urine:* Acidify the urine with acetic acid, then filter it, and treat the filter with a few drops of freshly prepared tincture of guaiacum; a deep blue color denotes the presence of pus.

(*c*) Ehrlich's diazo reaction.

(*d*) and (*e*) The average amount of solids in the urine is about 850 to 950 grains in twenty-four hours. It can be estimated as follows: Take the specific gravity of the twenty-four hours' output; multiply the two last figures of this specific gravity by the number of ounces of urine passed in the twenty-four hours; multiply this product by 1.1; this represents the total urinary solids in grains.

(*f*) The normal specific gravity of the urine is about 1015 to 1025.

(*g*) *Test for albumin:* "The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

(*h*) *Test for sugar:* First remove any albumin that may be present, then "render the liquid strongly alkaline by addition of sodium carbonate. Divide about 6 c.c of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."

(*i*) The normal amount of urea passed by a man in twenty-four hours is about five hundred and twenty grains.

A comparatively easy test for *Urea* is that of Fowler, based upon the loss of the specific gravity of the urine after the decomposition of the urea by hypochlorite. "To apply this method the specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ (Squibb's). One volume of the urine is then mixed with exactly seven volumes of the liquor sodæ chlorinatæ, and, after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted; every degree of loss in specific gravity indicates 0.7791 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature; and that of the mixture only when the evolution of gas has ceased entirely."—(Witthaus' *Manual of Chemistry.*)

8. (*a*) *Test for arsenic:* Reinsch's test is as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

(*b*) The chemical antidote for arsenic poisoning is freshly prepared ferric hydroxide. The ferric hydroxide changes the arsenic into ferrous arsenate, which is nonpoisonous.

9. Lead acetate, Pb ($C_2H_3O_2$), and Potassium iodide, KI, are chemically incompatible in a prescription.

10. The pancreatic juice contains three ferments: (1) *Trypsin,* which changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; it only acts in an alkaline or faintly acid medium. (2) *Amylopsin,* which converts starches into maltose. (3) *Steapsin,* which emulsifies and saponifies fats.

PATHOLOGY.

1. Hypertrophy of the heart most commonly results from the following diseases: Arteriosclerosis, chronic interstitial nephritis, exophthalmic goiter, valvular disease (particularly aortic), pulmonary emphysema, adherent pericardium.

2. The commonest underlying conditions in angina pectoris, are: Arteriosclerosis (either general, or of the aorta); obstruction of the coronary arteries, from atheroma, embolism or thrombosis; degeneration of the myocardium.

4. *Pathological conditions productive of icterus,* are: Catarrh of the duodenum and common bile duct, pancreatic disease, gallstones, cirrhosis of the liver, obstruction of the bile ducts, septicemia, acute yellow atrophy of the liver, tumors of liver, pancreas, stomach, or kidney.

5. *In the typhoid ulcer:* (1) The main axis of the ulcer lies parallel with that of the intestine; (2) it lies opposite to the mesenteric attachment; (3) it has smooth floor and undermined edges; (4) it commonly leads to perforation.

In tuberculous ulcer: (1) The long axis of the ulcer lies at right angles to that of the intestine; (2) it is not necessarily situated opposite the mesenteric attachment; (3) its floor is not smooth nor are its edges undermined, but rather funnel-shaped and irregular; (4) it is not apt to perforate, but it does not tend to heal, rather to spread.

6. The usual method of metastatic extension of *carcinoma,* is by the lymphatics, occasionally by the blood-vessels; of *sarcoma,* by the blood-vessels.

7. In typhoid fever, the typhoid bacillus may be found in: The intestinal lesions, intestinal contents, spleen, liver, kidneys, urine, blood of the macular spots in the skin, lungs, parotid glands.

9. In *locomotor ataxia,* the posterior columns of the spinal cord are gray and shrunken and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbrosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent.

SURGERY.

4. *The Halstead differs from the Bassini operation for inguinal hernia,* in that in the Halstead operation: (1) A new and closely fitting internal ring is made; (2) the internal oblique and transversalis muscles are incised as well as the external oblique; (3) the spermatic cord is left between the skin and the aponeurosis of the external oblique; and (4) most of the veins of the spermatic cord are excised.

5. *Symptoms of hypertrophy of the prostate gland:* Slowness in starting urination; difficult micturition; frequency of micturition, particularly at night; the presence of residual urine; dull, aching pain in the perineum and above the pubes; enlargement of the lateral lobes of the prostate; there may be cystitis and retention of urine.

Treatment consists in: Catheterization, under proper precautions; prostatectomy may be required; formerly less radical measures were occasionally employed, such as castration, vasectomy, and Bottini's operation.

7. *Embolism of the mesenteric vessels* is *diagnosed* by the sudden onset of intense pain, which is sometimes persistent and sometimes has paroxysms of extra intensity, rapid pulse, subnormal temperature, abdominal rigidity, exhaustion, nausea, vomiting, and in about half the cases bloody diarrhea; meteorism may be present, and a mass may be palpated over the affected region.

Treatment: Exploratory laparotomy, and if the affected area is small, resection of the part of the intestine involved is indicated. If a large portion of the intestine is gangrenous, little or nothing can be done.

10. *Enucleation of the eyeball* is performed as follows: "A general anesthetic is generally given. After introduction of the speculum, the conjunctiva is divided all around the cornea, as close to its border as possible, and dissected back as far as the insertions of the recti muscles. A squint hook is passed beneath the tendon of the internal rectus, and the latter is divided with the strabismus scissors close to its insertion; then the other straight muscles are cut in the same way, together with the subconjunctival connective tissue for some distance beyond the equator. The points of the scissors must always be directed toward the eyeball and the latter stripped as clean as possible to avoid any unnecessary removal of orbital tissue. Instead of commencing with a circumcorneal division of the conjunctiva, we may begin with a tenotomy of the internal rectus and then divide the conjuctiva as we pass from tendon to tendon. The hook is passed around the globe to make sure that the attachments of the muscles have been completely divided. The eyeball is then dislocated forward by pressing the speculum backward, and thus the optic nerve is put on the stretch. A pair of enucleation scissors, closed, are passed between sclera and conjunctiva, feeling for the optic nerve; they are withdrawn, slightly opened, and the nerve is divided close to the sclera. The eyeball

is held between the thumb and index finger of the left hand, and the oblique muscles, and other unsevered attachments are divided. The orbit is plugged for a few minutes to control hemorrhage, and the conjunctiva is usually closed with a single suture, which is passed through its edge at intervals and tied like the string of a pouch. The eye is bandaged and the patient kept in bed for a day."—(May, *Diseases of the Eye.*)

GYNECOLOGY.

1. *The most common causes of pelvic cellulitis,* are: Traumatism during labor or the puerperium, abortions, sepsis, gonorrhea, an ill-fitting pessary, spread of inflammation from any part of the genital tract.

2. *Chronic purulent salpingitis may cause sterility,* by: Destroying the cilia in the tube, and so hindering the transmission of the ovum; causing adhesions, thickening, stenosis, kinking, or atresia of the tube, and thus hindering the transmission of the ovum; pathological secretions may also destroy the ovum.

3. In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *inflammation of the right ovary* the pain is not localized, but may be bilateral, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender.

4. *Urethral caruncle* is a small red fleshy growth generally situated on the posterior part of the meatus of the urethra. There are local pain and tenderness, which may be excessive; a burning sensation is experienced on urination; it may bleed. The proper treatment is to excise it or destroy it with the thermocautery.

5. *Ventral fixation is contraindicated* when there is any possibility of a future pregnancy.

6. *Voginismus* is a condition of painful and spasmodic contraction of the vaginal orifice, which renders coitus either painful or altogether impossible. Its *causes* are irritable hymen, ulcer, or fissure anywhere in the immediate vicinity, urethral caruncle, caruncule myrtiformes, a long perineum with vaginal orifice placed too anteriorly. The *treatment* consists in removing the cause when possible, tonics and general constitutional treatment, dilatation of the vaginal orifice; local application of a 5 per cent. solution of cocaine will relieve the hyperesthesia and allow coitus. The condition is sometimes incurable.

8. Fibroid tumors cause ascites by pressure on the large vessels which thus induces an effusion of liquid through the walls of these vessels.

9. *Trachelorrhaphy* should be done: When the lesion is slight, and there is not much loss of tissue or erosion; or in uncomplicated cases.

Amputation should be done: When the lesion is greater, or stellate, or where there is much loss of tissue, or when complications are present.

10. Generally gonorrhea, or maybe tuberculosis.

Treatment: The tubules should be slit open and cauterized with pure carbolic acid, or excised.

Louisiana.—The Louisiana State Board of Medical Examiners recognizes at present certificates of examination issued by the following State boards: Colorado, Connecticut, Delaware, District of Columbia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, South Carolina, Texas, Utah, Vermont, Virginia, Wisconsin.

Texas.—The regular semiannual examination of the Texas State Board of Medical Examiners will be held in Cleburne, June 22, 23, and 24, 1909. All applicants should be present at 9 A.M. Tuesday, June 22. The order of examination as determined by a published schedule cannot be varied from in any respect, and every applicant who desires to be examined must commence the examination on the morning of Tuesday, June 22. No person will be examined on June 22 except those who have made proper application on the blank forms issued by the State Board of Medical Examiners and have paid the fee on or before June 10. The fees paid will be returned to those unable to appear for examination. The application and fee must be sent to the Secretary, Dr. M. E. Daniel, at Honey Grove. The applicant must present his diploma for inspection at the examination. The filing of an application or the taking of the examination does not entitle applicants to practise, the only legal authority being a certificate from the State Board of Medical Examiners recorded in the district clerk's office of the county of residence or in some county in the State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending December 12, 1908:

	Cases	Deaths
Tuberculosis Pulmonalis	493	143
Diphtheria	381	42
Measles	384	10
Scarlet Fever	222	10
Smallpox	—	—
Varicella	232	—
Typhoid Fever	64	13
Whooping Cough	25	2
Cerebrospinal Meningitis	6	7
Malarial Fever	—	—
Totals	1807	227

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, for the week ending December 11, 1908:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, San Francisco	Nov. 15–21	3	
Illinois, Springfield	Nov. 27–Dec. 3	1	
Indiana, Lafayette	Nov. 15–30	6	
Kansas, Topeka	Nov. 22–28	13	
Kentucky, Covington	Nov. 22–28	13	
Maine, Saint David	Nov. 22–28	1	..
Michigan, Grand Rapids	Nov. 15–21	1	..
Saginaw	Nov. 22–28	3	..
Montana, Butte	Nov. 4–17	7	..
Ohio, Cincinnati	Nov. 21–27	1	..
Texas, San Antonio	Nov. 22–28	2	..
Vermont, Bellows Falls	Dec. 4	1	..
Brattleboro	Nov. 1–Dec. 4	60	..
Saunterstown	Nov. 1–Dec. 4	2	..
East Dover	Nov. 1–Dec. 4	22	..
Putney	Dec. 4	1	..
South Londonderry	Nov. 1–Dec. 4	2	..
West Charleston	Dec. 4	1	..
Wisconsin, La Crosse	Nov. 22–28	5	..
Manitowoc	Nov. 15–21	25	..
Milwaukee	Nov. 15–21	3	..

SMALLPOX—INSULAR.

Philippine Islands, Manila	Oct. 18–24	5	2

SMALLPOX—FOREIGN.

Arabia, Aden	Nov. 2–9	..	2
Brazil, Para	Oct. 25–Nov. 7	2	1
Rio de Janeiro	Oct. 19–25	411	190
Santos	Oct. 5–18	17	5
Canada, Charon Brook	Nov. 22–28	1	..
Edmunston	Nov. 22–28	5	
Halifax	Nov. 15–21	1	
Kingston	Nov. 15–21	40	
St. Anne Quisibis	Nov. 22–28	1	
St. Basil	Nov. 22–28	4	
Egypt, Cairo	Oct. 15–21		5
France, Paris	Nov. 8–14	3	
India, Bombay	Oct. 27–Nov. 3	..	1
Calcutta	Oct. 11–17	..	2
Italy, General	Nov. 8–15	34	
Genoa	Oct. 1–31	7	
Naples	Nov. 8–15	18	1
Java, Batavia	Oct. 11–24	4	
Mexico, Mexico City	Oct. 4–17		6
Norway, Christiania	Nov. 1–7	1	..
Russia, Moscow	Oct. 18–Nov. 14	55	25
Riga	Nov. 8–14	2	
St. Petersburg	Oct. 21–27	8	
Warsaw	Oct. 18–21		12
Spain, Barcelona	Nov. 11–21		29
Seville	Oct. 1–31		1
Valencia	Nov. 1–14	5	
Vigo	Nov. 1–7		1
Turkey, Constantinople	Nov. 9–15	..	5
Zanzibar, Zanzibar	Oct. 24–30		1

CHOLERA—INSULAR.

Philippine Islands, Manila	Oct. 10–24	95	44
Provinces	Oct. 10–24	1,534	864
India, Calcutta	Oct. 11–17	..	17
Madras	Oct. 23–30	..	4
Russia, General	To Oct. 25	25,509	11,962
St. Petersburg	Oct. 26–Nov. 1	19	22
Riga	Nov. 8–14	..	2
Straits Settlements, Singapore	Nov. 25–31		2

YELLOW FEVER.

Brazil, Manaos	Oct. 25–31		1
Para	Oct. 25–Nov. 7	5	5
Ecuador, Guayaquil	Oct. 24–31		1
Mexico, Mexcanu	Oct. 14–21	1	..
Merida	Nov. 15–21	1	..
Martinique, Fort de France	Nov. 1–7	1	1

PLAGUE.

Brazil, Rio de Janeiro	Oct. 19–25	8	6
China, Tongshan and vicinity	Aug. 20–Oct. 17	20	12
	Oct. 31 still present.		Daily
Venezuela, Caracas	Oct. 7	1	

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TUBERCULOSIS AMONG THE JEWS.*

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AMONG the many peculiarities observed among, or attributed to, the Jews, the most noteworthy is their alleged immunity to the noxious effects of contagious diseases, especially tuberculosis. Physicians practising their profession among Jews have repeatedly spoken of the rarity of Jewish consumptives; vital statistics compiled in Registrars' Offices of various countries and cities have shown that the number of Jews who die from tuberculosis is proportionately smaller than that of the non-Jewish population around them. About fifty years ago physicians stated that a Jewish consumptive was very rare; to-day it is only stated that, while there is no lack of tuberculous Jews and the Jewish Sanatoria for the treatment of tuberculosis are crowded with patients and have, as a rule, long lists of patients waiting for their turn to gain admission to the institutions, still, demographic statistics, wherever available, show that tuberculosis is proportionately less often a cause of death among Jews than among non-Jews in the same cities and countries.

In a report on the vital statistics of the Jews in the United States the Census Bureau has given proof of the incidence of consumption among the Jews in this country.[1] From the returns of an investigation among 10,618 Jewish families, including 60,630 persons, living in the United States December 31, 1889, it is seen that the death rate from consumption per 1,000 total deaths was among Jews, 36.57, and among Jewesses, 34.02, as against 129.22 among men, and 146.97 among women in Massachusetts in 1888. This would lead one to conclude that the general population of Massachusetts is liable to die from tuberculosis about four times as much as the Jews in the United States. But considering that the Census Bureau, while collecting these Jewish statistics, has dealt with a select class of people whose addresses have been obtained by its agents, it must be conceded that comparisons with the general population of any State may lead to rather odd results. Indeed, among the Jews included in the above investigation, 18,115 were reported as having some definite occupation, and of these 14,527 were wholesale or retail dealers, bankers, bookkeepers, clerks, etc., while only 84 were reported as being laborers, and 383 as engaged in agricultural pursuits. Such a group of persons should be compared only with another group which in the main follows the same class of occupations before attempting to draw conclusions as to the liability to tuberculosis of either group.

In 1901 I reinvestigated this problem in New York City. Not having any denominational statistics published by the Census Office or the Board of Health it is impossible to determine the exact death rates of the Jews in any city in the United States. But owing to their voluntary segregation in certain parts of a city, especially in New York, the mortality of the Jews can often be ascertained more or less near the true coefficient. My results showed that in the fourth ward, inhabited mostly by Irish and some Italians and Greeks, and very few Jews, there was the highest rate of tuberculosis mortality, 565 per 100,000 population; the first and sixth wards, inhabited by Irish and Italians respectively, also showed a mortality of between 400 and 500 per 100,000 population. In the wards inhabited mainly by Jews, I found that the thirteenth showed a tuberculosis mortality of 110; the tenth ward, 172; the eleventh ward, 155, and the seventh ward, 213 per 100,000 population. This showed that the Jews in New York City have only one-quarter of the tuberculosis mortality observed among the Italians and Irish who live in the same neighborhood.[2] Moreover, we are not dealing here with a select class of Jews, following certain occupations which are not conducive to morbidity, as I pointed out was the case with the statistics of the Jews compiled by the Census Office. The Jews living in the seventh, tenth, eleventh, and thirteenth wards, which are well known as the lower East Side of the city, are not all merchants. Most of them are artisans, working for long hours daily in tailoring shops, often of the sweatshop variety. Their dwellings are of the worst types of tenements, and an idea of the overcrowding can be gained when I mention that at the time this investigation was made, there were in the seventh ward 360, in the tenth ward 643, in the eleventh ward 407, and in the thirteenth ward 539 persons to the acre of land. If it is recalled that a very large proportion of the Jews living there were immigrants, *i. e.* adults between the ages of 15 and 45, when tuberculosis is most apt to occur, it is the more surprising that the mortality was found to be so low.

Nor is New York City unique in this regard. In Eastern Europe where 7,500,000, out of a total number of 12,000,000 Jews in the world, live in the three countries, Russia, Austria-Hungary, and Roumania, the same has been observed. Statistics collected in the just mentioned countries show that when compared with the Christians among whom they live, the mortality from tuberculosis is lower among the Jews. In Vienna it was elicited that during 1901-1903 the following were the proportions per 10,000 population:[3]

	——Tuberculosis——	
	Pulmonary.	All forms.
Catholics	38.8	49.6
Protestants	24.6	32.8
Jews	13.1	17.8

Roughly speaking, the Catholics in Vienna have a mortality from tuberculosis about three times, and the Protestants about two times that observed

*Paper presented to the International Congress on Tuberculosis, Washington, D. C., September 30, 1908.

among the Jews. In the Province of Galicia, where the poverty among the Jews is known to be appalling, they have a higher mortality from this disease than in Vienna, but still not as high as that observed among the Christians in that region. Thus in Lemberg, a city with 159,619 population, 44,258 of which were Jews during the census of 1900, the average annual number of deaths due to tuberculosis during the six years 1897-1902 were 734.3 Christians, and 135.6 Jews; in Cracow there were 25,670 Jews among a total population of 91,653, and the average annual number of deaths due to tuberculosis during 1896-1900 was, among Christians, 436, and among Jews, 52.6.[4] The tuberculosis mortality per 10,000 population was consequently as follows:

	Lemberg.	Cracow.
Jews	30.64	20.49
Christians	63.51	66.41

In other words, the tuberculosis mortality is proportionately among the Jews only one-half that observed among the Christians in Lemberg, and only one-third in Cracow.

In Budapest, Hungary, the census of 1906 shows that among a total population of 791,748, there were 186,047 Jews, or 23.5 per cent. During 1905 there occurred 3,195 deaths due to pulmonary tuberculosis, of which 408 were Jews, *i. e.* 12.8 per cent. Per 10,000 population there succumbed 21.93 Jews and 46.01 Christians to this disease; again one-half the rate among the Jews when compared with others.

In Roumania, where the mortality from tuberculosis is very high among the general population, although most of the people are engaged in agricultural pursuits, the Jews are also less often victims of this disease. Proca shows that in Bukarest the mortality was 38.7 per 10,000 Roumanians, and only 25.6 per 10,000 Jews.[5]

Not having any available vital, and demographic statistics about conditions in the Orient, where a large number of Jews live, I am unable to state definitely as to the morbidity and mortality from tuberculosis in those regions. Drs. Tostivint and Remlinger have, however, spoken of it in a paper on the subject published in 1900.[6] They show that in Tunis during 1894-1900 the tuberculosis mortality was among the Mussulman Arabs, 11.3; among the Europeans, 5.13, and among the Jews only 0.75 per 1,000 population. Any one who has seen the unsanitary surroundings and the poverty in the Jewish district of Tunis will be surprised at this favorable showing made by them in regard to their tuberculosis mortality.

In western countries many similar reports are available. The most recent inquiry made in London showed that the tuberculosis mortality of the Jews in the city is about one-half that observed among the general population. During 1897-1901 the number of deaths due to tuberculosis constituted 5.2 per cent., and during 1901-1906, 5.6 per cent. of the total number of Jewish deaths, while according to the Registrar General's returns, the number of persons who die from tuberculosis make up in London 9.2 per cent. of the total mortality. Per 10,000 population the mortality, was among the Jews, 13.3, and among the general population, 17.9.[7] It must be mentioned in this connection that the bulk of the Jewish population in London lives in the well-known Whitechapel district, and the majority is engaged at indoor occupations, especially tailoring and bootmaking. Still, when compared with the general population of London, or England and Wales, their mortality from tuberculosis is much lower. Similar conditions have been reported from Australasia, especially New South Wales, where the tuberculosis morbidity and mortality of the Jews is stated to be lower than that of the Christian population.

While discussing the statistics of the United States Census Office I pointed out that they are not conclusive, because an unusual proportion of merchants and other professional men are included, among whom tuberculosis is less frequent than among artisans. This objection does not hold when we speak of the Jews in Eastern Europe, or in London, New York, Chicago, St. Louis, Baltimore, etc. It is well known that the city dweller is more liable to contract tuberculosis than the inhabitant of the open country, especially the agriculturists are a favored class. The Jew all over the world is a city dweller *par excellence*. In Prussia over 50 per cent. of the population lives in the country, while only one-seventh the number of Jews live in rural communities. In Russia, while only constituting 4 per cent. of the total population, they make up 15.6 per cent. of the total urban population. The same is true of Austria, Hungary, and Roumania. Of the 2,000,000 Jews in the United States I have calculated that over 60 per cent. live in the nineteen cities which during the last census were found to have had over 200,000 population, while only 16 per cent. of the general population of the country were found in those cities. The Jews are essentially urban dwellers, and are more inclined to live in the great cities than in the small towns. This is natural, considering their occupations; they can only find an outlet for their activities in the large modern commercial and industrial centers. This again is important in its bearing on the liability to contract tuberculosis. It is well known that Jews prefer to work at tailoring, but few appreciate, when speaking of pulmonary diseases, the extent to which they are thus working at these dangerous trades. According to the Russian census of 1907, 782,454, or one-seventh of the total number of Jews who were gainfully employed, were dependent on the garment industry for subsistence. In this class were included tailors, shoemakers, hatters, capmakers, milliners, glovemakers, etc. In Austria also it was found during the census of 1900 that 81 per 1,000 Jews were engaged at the garment industry, as against only 40 of the Catholics. The same is true of the Jews in Hungary and Roumania. While we have no denominational statistics about conditions in the United States, still the figures compiled by Rubinow from the Reports of the Commissioner General of Immigration are showing that the same obtains here. Among the 330,573 Jews who were admitted to the United States during 1901-1906 there were 78,502 tailors, and 13,123 shoemakers,[8] *i. e.* 28 per cent. were garment workers. Here many of the Jewish immigrants who were not tailors in Europe learn the simpler kinds of machine operating, so that an estimate that 35 per cent. of all the immigrant Jews in the United States are garment workers will be about correct.

We all know the sweatshop worker. In the first place he is as a rule of poor physique even before he engages in tailoring. Men with well-developed muscles find more remunerative occupations. His chest is flat, presenting all the stigmata of the so-called *habitus phthisicus*. This chest, while to a great extent due to the malnutrition and anemia which is very prevalent, still it owes its miserable appearance mostly to defective muscular development. Flabby muscles cannot keep the ribs at a respectable elevation, but permit them to drop down at an acute angle in relation to the spinal column. The result is that the so-called "Jewish" or tailor's

chest is not only flat, but also of inferior capacity. In healthy individuals the horizontal circumference of the chest is over 50 per cent. of the height, but in the majority of tailors in New York City I have found by actual measurement that the girth is hardly one-half the height of the body.* The cramped attitude of the tailor's body while he is at work, as well as the lack of muscular movement, because sewing by no means involves free exercise of most of the muscles, in conjunction with the defective ventilation of the usual sweatshop, all conspire to reduce the vitality of the tailor and render his lungs predisposed to infection by the tubercle bacillus. As a matter of fact, statistics collected all over Europe show conclusively that tailors are more liable to tuberculosis than workers at other trades, excepting stone cutting, printing, and the like.

It is remarkable that in spite of this large contingent of Jewish tailors in Eastern Europe, England, and America, their mortality from tuberculosis is lower than that of any other class of artisans. The causes of this lesser liability to die from tuberculosis has been discussed by many medical authors. Some are inclined to attribute it to a special inherent vitality of the Jewish "race," which is also alleged to manifest itself in a low mortality from all other contagious diseases. Some have even maintained that the "Semitic" blood which flows in his veins renders the Jew immune to the virus of infection, and gives him an advantage in the struggle for existence when compared with the "Aryans" among whom he lives. But this argument is fallacious for various valid reasons: The Jews are by no means as pure a race as has been thought by some who depend more on sentiment than on scientific observation in their judgment of the subject. When we recall that we have about 30 per cent. of blond Jews, that there are tall and short Jews, dolichocephalic, mesocephalic, and brachycephalic Jews, we must acknowledge that we do not deal with the pure ethnic group. I need not enter here into details beyond saying that anthropologists of to-day deny the purity of the Jewish race as much as they deny the purity of the so-called Latin, Anglo-Saxon, Slavonic, and other "races." Be that as it may, we know that, on the whole, tuberculosis displays no racial preferences. Within certain limits, depending on social conditions, the white, black, yellow, and red divisions of mankind are attacked by this disease in the same manner, and the variations observed in the frequency, type, and course of the disease in different groups of people are alike traceable to the same causes, irrespective of racial affinities. We know that the variations displayed by the various social groups of white humanity, such as the differences in the incidence of the disease between city and country dwellers, rich and poor, those engaged in indoor or outdoor occupations, persons active in a dusty atmosphere as compared with such as are working in clean, airy shops, and the like, are just as great, often greater than the differences observed in the white, black, red, or yellow races. When we find that the morbidity and mortality from tuberculosis of the black and yellow races in the United States are excessive and appalling we cannot say that this is due exclusively to the differences in the anatomy and physiology of these and the whites. There are many social groups of whites who have just as high, even a higher morbidity and mortality, as can be seen from demographic statistics published in many countries, where causes of death are given according to the occupations of the inhabitants. Stone cutters, furriers, upholsterers, printers, and others who are engaged in an atmosphere laden with organic and inorganic particles of dust have also an excessive mortality from tuberculosis. On the other hand, the Indian living in our Western plains unaffected by modern conditions of civilized life, which in his case often consists mainly in the abuse of alcoholic beverages; the negro in his home in Africa, or even here during slavery, are only very rarely affected by tuberculosis. The same is true of the native tribes in Australasia, among whom tuberculosis was very rare, some even say it was unknown, before the advent of the white man, who while introducing a civilized mode of life brought along the white plague which is to-day decimating the native population. Similarly in Polynesia tuberculosis has been spreading like a wild fire among the natives, and it is stated by competent observers that the majority of deaths are due to this disease.[9] One hundred years ago a physician traveling among these races could justly say that tuberculosis is a very rare disease in Australasia, Polynesia, or in the Western region of the United States, and try to explain it as due to the superiority of the climate of those regions, or to the great power of resistance displayed by these races.

Another potent reason against the theory that the lower mortality of the Jews from this disease is due to an inherent racial resistance to the disease is the fact that intermarriage with non-Jews does not at all increase the number of consumptives among them. One example will suffice. In Berlin the number of mixed marriages between Jews and Christians is very large, reaching 44 per cent. of the pure Jewish marriages in 1905. We know that certain racial immunities, like those of the negro against malaria and yellow fever are impaired in the mulatto. By analogy we should expect that the number of Jewish consumptives should be higher in Berlin than in Austrian-Galicia, where practically no intermarriages are taking place between Jews and Christians. As a matter of fact, however, conditions are as follows. There were in 1905, according to the census returns, 98,893 Jews among a total population of 2,040,148 in the city of Berlin. During the same year there occurred in that city 4,302 deaths as a result of pulmonary tuberculosis, of which only 97 were Jews,[10] showing a mortality per 10,000 population of 21.66 Christians, and only 9.81 Jews. In Cracow, where no intermarriages take place, the tuberculosis mortality was 30.64—three-fold that observed among the Jews in Berlin. The fact that intermarriage does not increase the mortality from tuberculosis is, I believe, sufficient proof that there is no ethnic immunity to be elicited.

Some have maintained that the lesser mortality from tuberculosis is due to the elimination of most of the Jews who were predisposed in former times, thus leaving a race which is refractory to the effects of the tubercle bacillus. By breeding in-and-in, this resistance was fixed within the race. Reibmayr, who elaborated this theory, maintains that the Jews may abandon all their habits and customs, and as long as they abstain from intermarriage with non-Jews, their immunities to contagious diseases, including tuberculosis, will not be lost.[11] But, as we have seen, intermarriage does not render them vulnerable to the disease, but, on the contrary, the number of Jewish consumptives is much smaller in Berlin, and also among the native Jews of France, Italy, England, Australia, etc., than among the Jews in Eastern Europe, who do not at all intermarry with non-Jews. As I will soon show, these differ-

*See M. Fishberg, "Materials for the Anthropology of the Eastern European Jews," *Memoirs Amer. Anthrop. Ass'n.*, Vol 1, pp. 1-146. The girth of the chest is discussed in detail on pp. 50-56.

ences are due to social conditions and not racial causes.

Some authors have maintained that the ritual dietary laws practised by Jews are responsible for the lesser number of deaths from tuberculosis among them. As is well known, Jews, before pronouncing meat as fit for human consumption (*kosher*), subject every carcass to a thorough examination by an expert. Special attention is paid to the condition of the viscera, particularly the lungs, pleura, liver, and spleen. Those animals whose lungs present any adhesions to the thoracic walls or adhesions between the lobes of the lungs, or in which small nodules are discovered scattered over the surface of the lung are pronounced *terefa*, or unfit for human consumption. It has been stated that bovine tuberculosis is thus prevented from gaining a foothold among the children of Israel. In the light of our present knowledge of the origin and spread of tuberculosis, some of the foremost authorities (Calmette, Behring, and others) being of the opinion that tuberculosis is more often acquired by ingestion than by inhalation, the Jewish dietary laws should be an excellent preventive when strictly adhered to. But as a matter of fact, all the evidence is against this view. In Eastern Europe, where the Jews follow the dietary laws, strictly adhering both to the letter and spirit of the sacred ordinance, there is more consumption among them than among their coreligionists in Western countries who disregard the dietary laws in part or completely. In Germany, France, England, Italy, etc., where the majority of the native Jews are constantly seen eating in Christian restaurants, and many are not particular to procure *kosher* meat at home, there is less consumption among them than in Eastern Europe, the East End of London, or the East Side of New York City, where the poor, as they generally are, pay exorbitant prices for meat which is, or is alleged to be, *kosher*.

The incidence of tuberculosis among Jews depends more on their economic and social environment than on racial or ritual affinities. In Berlin, where they are as a class economically prosperous, there is but little tuberculosis among them. The death rate of pulmonary tuberculosis during 1905 was 9.81 per 10,000 Jews. In Vienna, where a large proportion are on a high plane economically, but where many poor Jews are found, the death rate is higher than in Berlin, reaching 13.1 for pulmonary and 17.9 for all forms of tuberculosis. In Budapest and Bukarest, where there are more poor Jews than in Vienna, the rates are higher, 21.93 and 25.6 respectively. In Galicia the poverty of the Jews is appalling; in fact, I do not know a poorer lot of humanity than is met with in the small towns of Austrian-Galicia. It is there where we have found the highest rate of mortality among Jews, reaching 30.64 per 10,000. The influence of economic conditions on the incidence of tuberculosis among Jews is well illustrated by conditions in New York City. In a recent report of the Charity Organization Society[12] I find an analytical table of the cases of tuberculosis registered in New York City. Altogether there were in Manhattan and the Bronx registered with the Board of Health 10.29 cases of tuberculosis per 1,000 population. In the Fourth, Sixth, Eighth and Tenth Assembly districts, which are almost wholly inhabited by Jews, the majority of whom are poor artisans engaged in the garment industry, the number of registered cases was 11.9, 12.0, 13.5, and 11.7 respectively per 1,000 population, while in the Thirty-first Assembly district, in Harlem, where the majority of the population consists also of Jews, but such as are on a higher economic plane, most of them merchants, manufacturers, professional men, and the like, the number of cases is proportionately the lowest of any assembly district in the city, being only 3.6 per 1,000 population. The Jews in the lower East Side are more orthodox, more strictly adhering to their faith and traditions, and still have proportionately a higher rate of morbidity from tuberculosis than their coreligionists in Harlem who, as is characteristic of Jews all over, with their prosperity have more or less discarded many of their religious practices, the first of which consists in consuming meat not prepared according to the dietary laws.

The social and economic aspect of tuberculosis has been studied quite carefully during recent years. Demographic statistics have shown that there are more deaths from tuberculosis in cities than in rural districts and that it is essentially a disease of people who live indoors. The concentration of population in cities is a comparatively recent phenomenon. Only about 100 years ago the urban population of any European country was only a small percentage of the total population. To-day there is a constant migration of the country dweller to the large industrial centers, where the opportunities for advancement are better than in the villages. But that the average country dweller is more or less incapable of resisting the deleterious effects of overcrowding, with its concomitant facilities for the spread of contagious diseases, is evident from the fact that very few of the inhabitants of the modern large cities in Europe can trace back their ancestry for more than three generations. It appears that the country dweller, after immigrating to the city, is the most vulnerable; he has the most chances to contract contagious diseases, particularly consumption. To begin with the extreme type of country dweller, those who live always in the open air, as the nomadic Kirghiz Tartars in the Siberian plains, or the aboriginal inhabitants of Australasia, Polynesia, or North and South America, we find that tuberculosis was quite unknown before the advent of the white man, who brought to these tribes not only civilization, often in the shape of whiskey, but also the tubercle bacillus. Never having met with these bacilli, these tribes were very vulnerable, like virgin soil. This is not only the case with tuberculosis. We know that the same is true of measles, scarlet fever, smallpox, etc. Whenever they are imported into a country where these diseases were unknown before they attack almost everybody. Similarly the rural population of our modern civilized states, owing to their open-air life not having undergone as rigid a process of selection in which most of those predisposed to tuberculosis have succumbed, are more often infected when they migrate to the city and begin to live in overcrowded houses, lacking fresh air and sunshine, and enter the modern factory and mill, where they often meet with fellow-workers who suffer from tuberculosis. It is this class of rural dwellers, not adapted to indoor city life, that is lacking among the Jews, who have for 2,000 years lived exclusively in cities, and during Medieval ages were confined in the worst parts of cities, the Ghettoes. Indeed, only rarely was the Ghetto enlarged to meet the demands of a growing population, but the Jews were compelled to accommodate themselves the best way they could in a small area. Under such conditions most of the Jews who were predisposed to tuberculosis succumbed, leaving no progeny. The same process is to-day going on with most other inhabitants of large cities. The Jews have only the advantage of having passed through a process of infection during past cen-

turies. Hence their lower mortality to-day from tuberculosis.

An excellent illustration of this process is going on before our eyes in New York City. The large number of immigrants who have settled in the East Side of the city consists mainly of Italians and Jews. The former come mostly from southern Italy, Sicily, Calabria, Basilicata, etc., where the mortality from tuberculosis is the lowest in that country, and lower than in many northern and western European countries. During 1904 the mortality from tuberculosis in Italy was 16.4 per 10,000 population, while in Calabria it was only 9.6; in Basilicata, 10.6, and in Sicily, 11.5; while in northern Italian provinces, where a large proportion of the population lives in modern cities, the tuberculosis mortality was much higher, 21.6 in Liguria, 21.1 in Lombardy, etc.,[13] and in the cities of Rome, Turin, Genoa, etc., the rates are even over 30 per 10,000 population. It is thus seen that in his native home the southern Italian does not display an excessive vulnerability to tuberculosis. But coming to the United States, as was pointed out by Dr. Stella, three-quarters of them settle in large cities, though in southern Italy nine-tenths of these immigrants lived in rural districts.[14] In New York City their mortality from tuberculosis is 276.3 per 100,000 population,[15] nearly three times as high a rate as in their native land, and even this does not at all give us the real rate, because many Italians contracting tuberculosis in New York City return home for a cure or to die. Every steamer going from New York or Boston to Mediterranean ports has in its steerage many tuberculous Italians who are returning to their native land.

The exact opposite is the case with the Jewish immigrants in New York City. Although their overcrowding is not so great as that of the Italians, and their standard of life is much superior on the average, still they more often engage in indoor occupations, where the opportunities for infection are very great. But in spite of the unfavorable surroundings in which they find themselves, their mortality from tuberculosis is lower than that of people of any other faith. According to Gilfoy, it was 172.4 per 100,000 Russian Jews in 1906. The main reason is, as was already indicated, the fact that the Jew does not make any material change in his milieu by changing his abode from eastern Europe to America. He lived there in a city, and here again settles in a city; he worked there at some indoor occupation, and does the same here; he lived there in an overcrowded dwelling, and moves here into a "double-decker" tenement. He has paid the price for urbanization already for several hundred years, while the Italian, Syrian, Irish, Slavonic, and Hungarian peasant coming to the United States meets with the urban conditions for the first time and must pay an exorbitant price for it in the shape of victims to the white plague.

The effects of the thorough urbanization of the Jews are manifesting themselves in many other ways. It has been observed by many physicians that even when infected by the tubercle bacilli, the prognosis is more favorable in the Jew than in other people. The course of the disease is slower. I have seen very few cases of tuberculosis of the fulminant or galloping type among several thousand cases of consumption in Jews. Acute miliary tuberculosis is very rare indeed among them. The cases in which the victim is stricken with high fever, rapid extension of the disease with cavity formation within a few weeks or months are also rare. But cases of the extreme chronic type, running on for years and still permitting the victim to make himself useful at some easy occupation, are common; more so than among other people of the same social status. Of course, to a certain extent this is also due to the infrequency of alcoholics among them, but this alone does not explain the condition. It appears that thoroughly urbanized humanity does not offer a good soil for the growth and development of the tubercle bacilli, while the inhabitant of the open plain, and less so the peasant or farmer in modern European and American villages, offers a virgin soil for these parasites. This is the only reasonable way we can explain the high rates of morbidity and mortality from tuberculosis of the rural dwellers who emigrate to cities. Being more predisposed to infection they also more often supply cases of the acute fulminant or galloping type, as well as acute miliary tuberculosis.

There are indications that this advantage of the Jews is not permanent. It appears that in eastern Europe tuberculosis has been on the increase during recent years, and the same has been reported from London. In New York City the number of applicants to the United Hebrew Charities who suffer from tuberculosis has exceeded 1,000 during 1907, while six years ago only one-half that number applied. The total number of applications for relief has not increased materially during these years. It seems that, adapted as they are to indoor life, they still cannot resists infection when their economic conditions become very unfavorable.

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1337 MADISON AVENUE.

The Elimination of Uric Acid in Children in Normal and Pathological Conditions.—E. Modigliani gives us the results of his estimations of the elimination of uric acid in well and sick children, fed on a diet of milk and bread, and kept in bed during the time of estimation. The diet is kept up for four days before estimations begin and then estimates are made for four days. The results obtained are that the elimination varies with body weight in well children, the limits being from 0.61 to 0.168 gr. in children from two to six years of age. In sick children it varies between 0.062 and 0.300. The amount is in relation to the body weight, the age, and the amount of leucocytosis.—*Rivista di Clinica Pediatrica.*

ITALIAN IMMIGRATION AND INSANITY.*

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The first meeting of the Italian parliament was convened in Turin in 1861 and Victor Emanuel was proclaimed King of Italy; but Rome and Venice were still under the control of the enemy, and Cavour died in that year. You may reckon the existence of United Italy from that date, if you choose; but "Italy free" was not an accomplished fact until Jules Favre, foreign minister of France, withdrew the French troops from Italian soil and the King, entering Rome, was left in sole control on September 20, 1870.

An amalgamation of many different peoples cannot be accomplished in one generation; scarcely in two generations. Florence, with all her beauty, could not accomplish within the span of our own lives the unification of the Italian peoples. Rome, with all her grandeur, could not compel rapid homogeneity of race in the land which music calls her own.

In the days of Hannibal, Carthage was a regal city, set upon a fertile soil, with a population of 700,000 boasting the prestige of local naval supremacy, controlling Sardinia, Sicily, Malta, Corsica, and the north coast of Africa, profiting from the returns of rich argosies engaged in trade with Spain, Britain, and the Baltic countries, with enormous income from a trade with the interior of Africa, and enjoying a certain wealth that seemed to assure her ambitious citizens a continuous prosperity. Yet she cut down her forests and suffered the devastations of war, and the former powerful rival of Rome dwindled into insignificance. To-day the site of Carthage is marked by the habitation of a few hundred struggling Arabs.

Not so Italy. The storm of the French Revolution broke in 1792 and Napoleon, four years later, entered Italy and "let loose the dogs of war." She has been partitioned repeatedly by hostile forces. Taxes and tithes have been wrung from her by rapacious conquerors. Greed and avarice have combined to drain her very lifeblood. Yet she is emerging rapidly from the gloom of oppression, and in another generation is destined to resume the occupation of recording a brilliant history, such as was written for centuries before.

One-tenth of the territory of the country is barren rock. One-third consists of mountains. The destruction of her forests has rendered her soil dry and comparatively unproductive. Yet terraces have been formed by patient labor, and earth has been gathered and conserved, gardens have been constructed, and the unconquerable spirit of the Italian people has asserted itself until the sheer force of their industry, perseverance and shrewdness compels the admiration of the world.

Metternich once said, "Italy is nothing but a geographical expression." By this he meant that it is a name given to a territory in which live several groups of distinct peoples, with almost tribal differences. The student or traveler of to-day receives the same impression. Thus it becomes necessary, in describing Italy and the Italians, to consider separately North Italy and South Italy, as distinct countries with distinctive inhabitants.

Some of our Italian immigrants come to us from provinces of North Italy—from Genova of Liguria, Bologna of Emilia, Udine of Venetia, and Pesaro of Marches. By far the greater number comes from the southern provinces, notably Napoli, Caserta, and Avellino of Campania; Chieti of Abruzzi; Campobasso of Molise, and Reggio di Calabria; while many Sicilians sail hither from Messina, Catania, and Palermo.

Not only are there differences in manners and in character, but there are marked physical, really ethnical differences. In the North there is more activity in industrial pursuits and the Northerners are more generally progressive. A keen interest is evinced in political education and in social questions. There is a greater advance in the accumulation of wealth, in the extension of trade and in education. An examination of recruits for the army revealed a percentage of 14.98 illiterates among the Piedmontese, and of 18.42 among the Lombards. The Piedmontese and Tuscans are excellent landlords; they use chemical fertilizers to enrich the soil and they pursue successful dairy farming. The men are all tall and strong. The Northerners show the persisting influence of former Austrian rule.

In the South, on the other hand, are found the results of the corruption and cruelty of the Spanish and Bourbon rulers of the olden times. The South is wholly agricultural and is poor. Many of the men are undersized and apparently ill-nourished. The social and political questions of the day are viewed with apathy. There is less advance in trade or education than in North Italy. The proportion of illiterate recruits from the province of Napoli was 51.57 per cent., from Sicily of 55.04 per cent. There has been in the past greater tendency to crime. Nine times as many murders have been reported in Sicily as in Venetia or Lombardy. Taxes fall rather heavily on the agriculturist and less money has been spent for purposes of education, of railways and of public works.

Brigandage, however, originally a political movement, later a powerful alliance of criminals for robbery or murder, no longer exists. For many years it survived as an expression of poverty and of hatred of the landlords, and until a decade ago was maintained in some localities simply for revenge and robbery in the form of the Mafia or the Camorra. The present system known as the Mafia levies toll on farmers' wine-growers and orange growers, threatens those who resist, and in rare instances influences judicial decisions and public contracts. Camorra, flourishing only in Naples, was an organization of thieves and dishonest people of the lowest class. Formerly its members levied tolls on trade and professions. At great expense, the government has eradicated it.

In the Southerners there is an Albanian and Greek intermixture, and in Sicily and Sardinia the Arabic blood is strong. This fact accounts for the remarkable differences in physique, temperament and characteristics of northerners, southerners and islanders.

Italy is said to average as cold as England; but the warmer weather in the South is an alleged reason for the decrease of steadiness and for the increase of laziness and passionateness one notices in traveling from central to southern Italy.

In the time of the Bourbons and up to about 1850, Southern nobles have been described as ignorant, overbearing, lazy and corrupt. They absented themselves at Rome and Palermo; they were spendthrifts, and excited an evil influence in politics; they were hated by the peasantry with a few shining exceptions. In the cities the youths of the wealthy class of those days secured little education,

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passed their time in driving, hunting, traveling, and spending money, and showed a rooted aversion to work. Professional men were very poorly remunerated. A large number of government officeholders received mere subsistence.

Why should not the peasants of that time have been unhappy and resentful? Their soil was nearly exhausted, they had little or no farm machinery. They raised wheat, corn, wines, olive oil, oranges, and lemons. They had few cattle in the South, and little pasture. For greater safety, they dwelt in villages frequently on hilltops and walked miles to their work. They were half starved, ill-clad. They knew the meaning of misery. In the interior of Sicily at that time the greatest poverty was found, and the people were far from provident. The petty accumulations of months were often spent on a single feast day. The irregular day laborer was the most miserable. He dwelt in a rude hut and suffered from absentee landlords, yet he did not resort to drink.

The lapse of over half a century has made an astounding difference. The conditions I have described have absolutely disappeared; but they undoubtedly left their impress and were responsible for certain characteristics of the Italian people. The most remarkable fact in connection with this matter is that the Italians were not crushed by such circumstances. They emerged patient, courageous, industrious, and hopeful. In fact, Southern Italy has contributed a large percentage of the professional men, art critics, painters, philosophers, and patriots of late years.

Two prominent industries have been the sulphur mines and the marble quarries. In Sicily, men and boys, all peasants, labor in the sulphur mines, with little return because of the primitive methods employed and the falling price of sulphur. The miner (*picconiere*) works six to seven hours a day for five days in the week, at forty cents to sixty-five cents per day. The *carusi*, or carriers, boys of seven to eighteen years old, stagger out of the headings with 70-pound loads from seven to eight hours a day, each having been leased by his parents to the miners for $10 to $60, which sum is worked out slowly under frequently brutal task-masters. The miners are ignorant, quarrelsome, deficient in moral sense, and prone to gambling.

The quarrymen, on the contrary, who labor in the mountains in the province of Massa in Northern Tuscany, are stalwart specimens of manhood, careless and extravagant, somewhat turbulent and restless, and fond of adventure.

In the North and certain other parts of Italy among the newer industries are the manufacture of silk, linen, and cotton; ship building, sugar beet raising; and the manufacture of steel goods, locomotives and electrical machinery. Among the people engaged in trades and regular occupation thrift and frugality are noticeable.

For many long years the taxes constituted a heavy burden; and they so continued under the old policy of the Bourbons. The State, until about two decades ago, took about 30 per cent. of one's income. There was an income tax and a family tax; a tax on horses, carriages, servants, and dogs. While saddle horses went free, the peasants' donkeys were taxed. The poor were the greatest sufferers, for how could an agriculturist, earning sixteen cents to twenty-nine cents a day (or in the South, eight cents to ten cents a day and his lodging) afford to pay a tax? All this is changed to-day, and now the taxes are levied in accordance with the English law; they fall heaviest on the owners and landlords.

The peasant's foods must needs be simple. He has a bread made of Indian corn (*polenta*) or of wheat. He has no meat. He has beans, celery, radishes, fruit, a little salt fish, bacon, frogs, and snails. The majority of laborers live on *polenta* and macaroni only. Butter is rare in the South. So many suffer from inadequate food that the government a year ago proposed to provide extra food for the school children in the village of Vercelli in Piedmont, as an experiment, in the hope that the race might thereby be improved in stature.

Several families occupy one room, dress in rags, and yet are cheerful. In the South one sees castles surrounded by hovels, with donkeys, cattle, pigs, and human beings in close proximity. There is no poor law, yet there are many splendid private charities for the infirm, insane or infants, especially in the North.

There is a great deal of sickness among the peasants. Dr. Cavalire Antonio Stella, of New York, is authority for the statement that while prevalent among Italians in America, tuberculosis is almost unknown in Italy except where imported by returning emigrants. Malaria is the worst scourge. It was reported a few years ago that 80 per cent. of the Southerners are exposed to it, and that 20,000 died annually in Basilicata, Calabria, Maremma, and Sardinia. The reclaiming of the Pontine Marshes is resulting in great improvement in the death rate of Southern Italy. The peasants are driven by malaria into the town; but they prefer town life. They have strong attachment for the house or home, and for their native village. They take little interest in sanitary conveniences, bathing once or twice a week, when well-to-do; otherwise only in the months of July and August. In the cities the poor live in crowded quarters in large tenements, without ventilation. In Naples many live in damp cellars, several families together, fostering disease, filth, and vice.

Italians at home are prolific, the birth rate being nearly the highest in Europe, and parents are very fond of their children. Burly and apparent rough laborers are gentle and tender with the babies. But in this country, in the second generation, owing to the work the women do in the shops, or stooping over sewing machines, and also owing to venereal disease, absolute sterility or one-child-sterility is common.

Women are respected. There is little sexual immorality among the Italians. Family ties are properly regarded. A married woman or engaged woman will not be seen in the company of any but her own man. In the South travelers tell us the women are much like Mohammedan women. They are uneducated except as regards the kitchen, the linen closet, their children, and the work of the fields. The high sense of honor among Italian men in respect to women is probably better preserved for the reason that there are practically no drunkards among the Italians, while there are no abstainers.

Religion is a primitive affair among the Italian peasantry. In South Italy there is a simple belief in miracles and mysteries, and a surprising amount of superstition. Fifty years ago the clergy were uneducated, and belonged largely to the lower classes of society. The average priest of that time mastered only reading and writing, and did not lead an austere or pure life. But a tremendous change occurred, and the enlightenment of Italy as shown to-day came largely through a new, educated and devoted clergy.

The army is a great feature of Italian life. When on a peace footing Italy maintains a standing army

of 330,000 men, and about 3,250,000 in time of war, recruiting by conscription from the able bodied men from twenty to forty years of age. A few are in exempt classes. The discipline of army life has a very salutary effect in removing provincial differences and in cultivating order and self-control. Besides this, the recruits are instructed by their officers and profit much thereby.

An educational system is being elaborated by some zealous and able men, but is not yet entirely efficient. Parents find a way to evade the compulsory education law. However, the proportion of illiterates fell from 78 per cent. in 1867, to 67 per cent. in 1881, and to 36 per cent. in 1896, in the South. In Venetia and Lombardy only 6 per cent. of the children of school age are absentees, but in the South the figure is much larger. The proportion of the population attending schools in 1895 was 8.2 per cent., while the proportion in England at the same time was 17.5 per cent. The illiterary of Italian immigrants into the United States is 46 per cent., while that of German immigrants is less than 3 per cent.

We have thus examined hastily and generally the many factors that combine to influence or modify the physical and mental development of the Italian people who come to our shores, and have fairly weighed their temperamental and acquired mental traits. Now, let us consider them as immigrants.

It is stated that 600,000 Italians emigrate annually into European countries, to Tunis, Egypt, South America, and the United States.

The statistics of the Department of Labor of the State of New York obtained from the authorities at Washington show that the total number of immigrants into the United States from Italy during 1907 was 264,208, of which number, 1,809 were debarred, leaving 262,399 in the country, of which total probably 100 were returned after landing. Of these people 45,545 came from North Italy, including 4,145 illiterates and 3,418 who had been in this country before. South Italy sent us 218,663, of whom 107,132 were illiterates and 13,546 had been in the United States previously. Every year 160,000 return to Italy. This year (1908) 200,000 did so.

The Rev. Antonio Mangano tells us what reasons operate to send the Italians from home to-day. Mr. Mangano was educated at Brown and Columbia Universities, and is a Baptist clergyman in charge of a missionary chapel in Brooklyn. His articles on Italians in the publication, *"Charities and The Commons,"* are of much interest. He says that Italians leave home because of poverty, wretchedness and want; high rent; the indifference of absent landlords, and the severity of agents; class distinctions; occasional failure of crops; comparatively heavy taxation; systematized repression; temptation of steamship agents; glowing tales told by returned emigrants; and the very laudable desire to rise in the world, to educate their children, and to become respected property holders.

From the reports in the *"Bulletin"* of the National Department of Labor at Washington, by Emily Foote Meade, who made an exhaustive study of "The Italian on the Land" in this country, we must conclude that Italians have good instincts that are easily awakened, latent tendencies that only need opportunity, strength and resistence of fiber, imitativeness and adaptability, and that they become desirable and useful citizens.

Into what occupation does the Italian immigrant drift, or what work does he choose, in this country? How much stress and strain are his portion in the first years of life in this new land? The occupations in which we usually see Italian peasants employed are the following: In the cities they become day laborers, sellers of fruit, nuts and candy; dealers in coal, ice, and wood; furnacemen, caretakers of unoccupied houses, watchmen over new buildings; street cleaners; while others become shoemakers; plasterers; importers of fruit, florists, caterers, public officials, bankers, merchants of wine and oil, and most efficient policemen. The women become factory hands and dressmakers. Of the garment workers in New York city 95 per cent. are Italian men and women.

In the country, men become successful gardeners and farmers, berry pickers; brick makers, glass polishers and general factory workers; mill hands, builders, and contractors.

Mr. Severn, New York State representative of the Italian-Swiss Agricultural Colony of California, states that next to Chinese labor, fruit growers find nothing equal to Italian labor. He corroborates the statement made by Elliott Lord in "The Italian in America," wherein a number of Italian fruit garden colonies scattered through New England, as well as through the South and West, are described. Lord shows that Italian colonists increase surrounding land values very materially wherever they settle.

About 1892 an Italian named John Carini went to South Glastonbury, Conn., in the employ of the New Haven and Hartford Railroad Company as an axeman to cut railroad ties. It is reported that at the end of two years he had saved enough money to purchase a farm and send to Italy for his family. The entire family worked upon the farm until it produced enough income to enable him to buy additional land, and to-day he owns 1,500 acres, almost all of which is under high cultivation. He raises peaches, apples, plums, pears, grapes, small fruits, and vegetables.

J. H. Hale of South Glastonbury is authority for the statement that the Italian cultivates successfully land which others find too difficult to use on account of rocks and stumps. The perseverance and the courage of the Italian in matters of agriculture are indomitable.

With the willingness to work at anything and with work to be had, there is no very severe pressure, no great confusion or difficulty experienced except in the coldest part of the winter. We should, therefore, not expect to see much mental alienation among the Italians in this country; and the fact is, there is little.

Of alcoholic intemperance I can not make a definite statement illustrated with figures; but all reports are to the effect that there are remarkably few cases. As to epilepsy, its incidence among Italians in this country is practically negligible. Of 2,450 epileptic patients received into Craig Colony for Epileptics, at Sonyea, N. Y., up to April 10, 1908, but 7 were born in Italy, and but 16 were born in America of Italian parentage.

Many of the figures quoted hereafter regarding the Italian insane were complied by Dr. Thomas W. Salmon, formerly a physician in one of the New York State Hospitals for the Insane, and now an assistant surgeon in the U. S. Marine Hospital Service, at Boston, Mass. Of 100 immigrants certified for insanity at Ellis Island, New York City, where all the immigrants are inspected by U. S. Government and New York State alienists, 12 were Italians, 12 were Austro-Hungarians, 12 were Greeks, 17 were Russians, or Finns, 13 were English and 19 were Irish. Of 100 deported from public institutions 10 were Italians, 5 were Germans, 21 were Austro-Hungarians, 29 were Russians, or Finns, 5

were English, 19 were Irish. The percentage totals of all arrivals that year were as follows:

Italians	28.8
Germans	3.5
Austro-Hungarians	25.4
Greeks	2.
Russians, or Finns	19.6
English	3.7
Irish	2.6

This makes a very favorable exhibit for the Italians.

For the fiscal year of the New York State Hospitals for the Insane ending September 30, 1905, Dr. Salmon gives some very instructive figures, quoting from material collated by Dr. William L. Russell, Medical Inspector of the New York State Commission in Lunacy. The percentage of the whole number of foreign-born patients in these hospitals was as follows:

Italy	3.9
Germany	25.9
Austria-Hungary	6.3
Russia and Poland	8.8
England and Wales	5.9
Ireland	36.

The percentage of the whole number of foreign-born in the State of New York at the same time was:

Italy	9.6
Germany	25.3
Austria-Hungary	6.9
Russia and Poland	12.4
England and Wales	7.5
Ireland	22.4

The ratio of insane to population was therefore as follows:

Italy	1 to 431
Germany	1 to 173
Austria-Hungary	1 to 199
Russia and Poland	1 to 249
England and Wales	1 to 209
Ireland	1 to 111

Before the "New Immigration" from Italy began, the proportions of the foreign-born insane in the State Hospitals was much as shown by Dr. Russell's statistics of Willard State Hospital, namely:

Italy	3.
Germany	26.
Austria-Hungary	4.
Russia and Finland	6.
England	8.5
Ireland	43.

The changed conditions are illustrated by Dr. Russell's figures regarding foreign-born admissions to Manhattan State Hospital in New York City, in 1905, namely:

Italy	6.5
Germany	18.
Austria-Hungary	14.
Russia and Finland	13.
England	3.
Ireland	24.5

With the vast numbers of Italians entering into the country since the "new immigation" began in 1900, the ratio of insane Italians to the whole population in the United States is only 1 to 439; Austro-Hungary presenting 1 to 292 and Russia and Finland 1 to 380.

Dr. Salmon remarks: "In spite of the most effective inspection which can be devised, there must every year be admitted many immigrants already insane, and many thousands who are destined, under the unusual stress of the first ten years in the United States, to become insane." This statement, one must say on reflection, does not apply to the Italian immigrants.

There are dangers to be feared in the case of Italy. Her illiterates are a drawback, though they learn rapidly and the second generation furnishes a satisfactory if not an admirable class of citizens. The idiots and imbeciles, the mentally defective and the constitutionally inferior we receive from Italy constitute indeed a menace.

It is probably a fact that practically all the able-bodied peasants of certain localities are now in this country, but the statement is untrue that an effort is being made to aid the diseased and inferior who had been left behind in these localities, to come over also and share the advantages of this foster country.

Naval Surgeon Colonel A. Montano of the Italian navy, in the official bulletin of Italian immigrants published at Rome in 1907, makes the following report:

Number of cases of mental diseases found among Italian immigrants who came to North America or returned from North America to Italy during 1906:

Number of Cases Counted on the Ships.

	Bound for the United States		Bound for Italy		Total
	Men	Women	Men	Women	
Alcoholism	..	..	2		2
Mental Alienation	..	..	23*a*	3	26
Dementia	..	..	9	3	12
Sensorial Phrenosis	..	..	1	..	1
Melancholia	..	..	8	9	17
Acute Mania	..	..	2	..	2
Persecution Mania	..	..	5	..	5
Religious Mania	..	..	1	..	1
Paranoia	..	1	4	..	5
Sudden Alienation	1*b*	..		..	1
Total	1	1	55	15	72

a—One committed suicide on board. *b*—Jumped overboard and was drowned.

On almost every vessel that carries Italian immigrants into or out of the United States a representative of the Italian navy sails, charged with the duty of examining his fellow-countrymen in the matter of all diseases that affect their physicial or mental condition, and of reporting to his Government at the time the ship reaches port. It is the desire of the Italian Government that sick, and especially insane, Italians shall not be sent out of their country.

Investigation reveals the fact that the Italian insane in New York State are recruited almost exclusively from the rosy, round, well-nourished vegetarian country people, who, after immigration into our country, settle in our large cities in close quarters, engage daily in long hours of in-door labor, and live upon a diet consisting largely of meat of bad quality. A year of such life works havoc with them.

Italy is caring for her poor and diseased at home. Italy is preparing to enforce her compulsory education laws, to make effective her humanitarian schemes, to uplift her people at home.

The problem will be easy and immediately solved if we assist to suburban or, better, to farming localities the peasants from the country regions of sunny Italy.

It is our duty and our opportunity to join hands with the active, scientific and wise Italian organizations in New York City—the great entrance gate of this country; to enforce with no faltering hand the rules that must govern all immigration, and to co-operate with the Italian Government in making, as it now does, a careful selection of immigrants at the Italian ports of embarkation. Thus our country will receive a valuable class of desirable new citizens, unusually free from insanity or a tendency thereto.

THE OPIATE HABIT.

By WILLIAM F. WAUGH, A.M., M.D.,

CHICAGO, ILL.

The potent and seductive drug extracted from the poppy is and has ever been one of the most important weapons in the arsenal of medicine. In every country where it is known we find also that many acknowledge the sway of the spirit inhabiting it, and the most powerful of human intellects have bowed beneath its imperious domination. When De Quincey published his "Confessions" they came like a shock upon England. "Opium eating" was one of those unaccountable vagaries of the Oriental, which could scarcely be comprehended, much less assimilated, by the West. Since De Quincey wrote his opium-inspired dreams the use of this drug in some form has become only too familiar. We have been told that an incredibly large percentage of physicians puncture their skins with the hypodermic needle, while in every large city where a Chinese colony is planted there are numerous victims of "the pipe."

Draw a broad line of demarcation between these two. The physician resorts to the needle to enable him to keep at his duties and continue on his rounds, when otherwise exhausted nature would compel a rest. The man who "hits the pipe" is simply a jaded *roué* in search of new vices. The end for both is the same. Once under the domination of the opium fiend every day sees a new strand added to the bonds. The manner in which opium insinuates itself into the life of its victim is diabolical—appalling. The metabolism of the body is conducted under its influence. The organic functions lag and refuse to commence the vital activities until put in operation by a dose. The mental faculties are similarly enslaved—the mind is torpid until the potent thebaic stimulus sets it in operation, and this lasts only until the effect of the drug is exhausted. The moral realm is invaded—the man *thinks* opium, he believes only in opium, he enshrines it as his God. Very often his whole life is absorbed into this one ruling, all-pervasive influence—everything else sinks into nothingness, and he lives only to renew his daily supply of the drug.

In others, however, even in many cases, there is a persistent moral revolt against the enslavement. The victim protests against it, he struggles Titanically to free himself, but in vain. The relentless, never for a moment intermitting, steady pressure drives him back to his prison. He may resolve never so courageously—while under the influence of the drug—and he may do without his accustomed portion for a varying length of time, but the pressure constantly increases, resolution weakens as the stimulus dies out, the reasons for stopping the drug grow shadowy, and the specious arguments in favor of taking it grow more forcible, until he succumbs and the struggle is "postponed." The most appalling feature of this drug is the manner in which it can convince its slaves that the only right and proper thing is to return to their chains. It becomes actually a duty to take a dose.

Nevertheless, there are brave souls that to the last protest against their enslavement, and finally put an end to life rather than remain in such degrading subjection. A venerable physician, after 30 years' opium taking, applied for aid in throwing off the habit. When told it was impossible, his physical condition being such as to prohibit any attempt to discontinue the drug, he departed with tears streaming down his face, saying that if he could not live free he would not live at all. The next week a notice appeared telling of his sudden death.

Every attempt to elucidate the pathology of the opium disease by autopsy has failed. No material lesion has ever been established as essential to or characteristic of this drug's action. It is only by a study of the vital phenomena presented during life that the problem can be solved. But by this method the mystery quickly ceases to be such. The solution is unexpectedly easy. We have simply to note the effects of a single dose of opiate and follow from that point.

When an average dose of any opiate has been taken the victim experiences a sense of ease, of comfortable well-being, denominated euphoria. Under this influence the sense of physical and mental fatigue is lost, and unremitting exertion of body and mind becomes possible as long as the effects of this dose continue, or while it is sustained by subsequent doses. As with the so-called stimulant doses of alcohol, self-consciousness is depressed, the fancy is loose from restraint, and a delightful sense of freedom, of superior powers ensues, endowing the victim with unwonted brilliancy of thought and speech. The brakes are off—the velocity is exhilarating. As these effects subside the patient sinks into a corresponding state of dullness; he is sluggish, inanimate; thought lags, mental depression supervenes, and every exertion requires an effort. Another dose—"the hair of the dog is good for his bite"—and, presto! the miracle is wrought and the former state of happy, buoyant animation is resumed.

Sooner or later the victim finds that the period of brightness is less marked and more evanescent, the gloom deepens. Larger doses are requisite, and still larger and more frequent. Besides, he gets to crave the sense of euphoria, and hopes that by taking more opiate he may experience more of the delights. Vain hope! The more of the drug he takes, the more rapidly its pleasures evaporate; and he finds himself in a state where it is necessary to him, not to excite pleasure but to sustain the energies—to live, in fact.

Here the histories diverge. Some settle down to a certain dose and adhere to it for years; others devote their lives to the effort of absorbing all the opiate they can crowd into their systems. The life of the former runs on uneventfully. They live, perform a certain limited series of mental and physical evolutions, but their progress ceases, their career culminates. They gradually retire from the activities of the community and grow yearly more contracted in their operations and their sympathies. Ambition is dead, incentive has perished—they just live and no more. The man collects his little rents, sees to his little kitchen garden, eats a trifle, wears his old clothes and sits alone at home, reading a bit, meditating long, ruminating most of the time; producing nothing; a quiet, inoffensive, retiring hermit, of no use to himself or to anybody else, neither hated nor loved by any mortal man. Only the druggist knows the truth.

The other keeps up his activity, works at high pressure, pushing feverishly along in his chosen vocation, sometimes doing brilliant work—and making frightful mistakes at others—always crowding the drug and rapidly exhausting its euphoric power, until he reaches a point where it gives absolutely no relief. Then he grows desperate. "D—— it, I'll see if I can't get enough to do the work!" and he takes a huge dose—and the community is shocked to hear of the sudden death of the popular young doctor. "Accidental overdose," says the

coroner; "suicide" is the whisper that goes about.

Both wrong: The end is inevitable when we consider the physical action of the drug. When a dose of opiate has been taken a large part of the toxic excretive disappears from the urine. A search in the blood fails to detect it. What has become of it, since evidently it has not been excreted from the body? It has been thrown back into the cells by which it was first separated and thrown off into the blood for excretion. Somewhere in the cellular structures of the body this toxic matter is locked up, away from the circulation and therefore latent, inactive.

The inhibitory effects of the opiate subside, the cells give off their stored toxins, reinforced by the new supply produced by the metabolism of the inhibition period. This enters the circulation and becomes thereby active, and the result is the general depression above described. These toxins weigh heavily upon the mental and physical powers, poisoning the wellsprings of life. Wherever there is a *locus resistentiæ minoris*, the effect is manifested by a return of the customary local malady, a neuralgia, catarrh, or other recurrent affection.

Repeat the opiate and relief quickly follows; the subsequent depression being more marked after each repetition, as the abstracted toxins increase in bulk. Inevitably the patient becomes rooted in the conviction that for all the ails that torment him when he seeks to discontinue the opiate, it alone will prove effective—since it alone will throw back the toxins into their cellular storehouses. Hence, the obdurate pessimism with which he regards every suggestion to obtain relief from other remedies.

Here, again, is where the histories diverge. There is a saturation point at which the cells reach the limit of their capacity to store toxins. Some meet this condition by reducing to the minimum their vital expenditure and consequent manufacture of toxins. They reduce their ingestion of foods to the lowest possible limit, and only he who has studied this attentively can realize how very little food is required to sustain an inactive life. His activity is likewise reduced to the minimum, and thus the toxin formation is restricted to the point where the modified elimination, under moderate daily doses of opiate exactly balances it, and the individual goes on for years in this torpid, reptilian existence.

The other leads a life of superactivity, constantly increasing the daily opiate, until the cells become so engorged with toxins that even the opium barrier is insufficient to hold back the flood, which forces its way into the blood despite the most frantic efforts to hold it back. We then see that frightful final stage, where the patient is unable to live with or without opium. He presents a typical picture of autotoxemia. The body exhales a cadaveric odor mingled with that of the poppy—even when pure morphine has been the only opiate taken. The digestive functions being inhibited, the feces and food lie in the alimentary canal until they decompose. The breath becomes fetid and all the symptoms of fecal toxemia are manifested in an aggravated form. The respiratory centers are affected, the patient feels a frightful load on his chest, he gasps for breath, and suffers the agonies of suffocation. His body is racked by convulsions. Sleep is broken by horrid dreams and terrifying nightmares, from which the patient awakes choking. In agony he implores his attendants to keep him awake when he is dying for sleep. His lost opportunities, misspent life, sacrifices of prospects, friends, career, usefulness, all come to fill his waking moments with remorse—all sacrificed—to what? An unnatural craving for a useless drug; all lost for lack of the manly power to bear a little suffering; "little" that is, in comparison to what he is now undergoing. Every man who has witnessed the last days of one of these unfortunates acquires a horror of the drug, and becomes hardened to a certain extent against the lamentations of the withdrawal period, knowing that the suffering then experienced is trifling compared with what the patient is escaping. And this is literally true, without seeking in the least to belittle the ordeal through which the patient passes on his way to freedom.

Few, however, live to reach this point. As before stated, a huge dose of opiate is taken, not by accident or with suicidal intent, but in the desperate endeavor to dam up the flood of toxins pouring into the blood, and obtain a temporary respite.

Why is it that an opium habitué makes up his mind to seek freedom from his master? What is it that at one time rather than another induces him to make the effort? On the reply to this question depends our own decision—whether we will undertake the cure or not. If the patient cannot give a reasonable explanation of his resolution, are we justified in taking his case? Is he really in earnest, or does he merely imagine he wants to be cured?

One man applied for relief because he had just "experienced religion" at a revival, and his conscience would not permit him to continue the degrading habit. (It is regrettable that the "conscience" did not hold out to the payment of his fees.) Another came because he was convinced that the spirit of his dead wife would look down with approval on him. This man endured his sufferings with a fortitude rarely equaled, went home in good condition, and when he visited his physician a year later, while on his wedding trip with a second wife, was still free from the habit. More than one mother has broken the dominion of the opium fiend, because her children were approaching the age when the truth could not be kept from them—and she could not consent to live without the respect of her children.

But the vast majority give no special reason for their resolution to quit the drug. The following episode may throw some light on the question: Some years ago the writer selected 500 letters he had received from habitués, asking about the means of cure, but who had not applied in person. A circular letter was sent to these, asking what had been their subsequent history. The result was remarkable—all but about a dozen of the letters were returned, marked "Dead"! Was the impulse to seek a cure due to an inward premonition of an impending break-up?

In a number of instances where a cure was sought and secured, the symptoms were such that patient and physician were firmly convinced that death would soon have followed if the drug had not been discontinued. The problem presenting was not so much the cure of the opiate habit as saving the patient's life.

If the view here taken of the pathology of the opium disease be correct, the treatment follows as a matter of course. The indication is unmistakably elimination. We must rid our patient of his stored toxins, must disembarrass his system of the excess, and reduce his manufacture of new toxins to that point at which he will need no opiate inhibition to make him comfortable. If elimination is thus established he will find the need for opiate lessening with each discharge of excretory material, and it will be merely a matter of time when he will need none. Empty the impacted colon, loosen the masses of

toxins stored in the liver, keep the renal action up to its highest level of efficacy, incite the skin to aid in throwing off the toxic products whenever there is evidence of their active presence in the blood. Meanwhile, give a non-nitrogenous diet, and keep the patient at rest as absolutely as circumstances permit. The means to be employed to secure these ends need not be detailed here—besides, they vary with each case, and the physician who treats such maladies must be qualified to fit his treatment to the varying indications that present.

With this application of therapeutics to the pathological condition, such a degree of success follows as fully vindicates the correctness of this theoretic conception of the malady. The "ordeal" is wanting; the "withdrawal symptoms" fail to put in their appearance. There remain, however, certain results of the habit's continuance that require consideration. It is not all of therapeutics to remove the cause of a disease—its results may remain. Plucking a dagger from a wound does not heal it.

First we have a remarkable hyperesthesia to cope with. The nerves, relieved of the benumbing effect of the opiate, take on exuberant action, and this excessive sensibility must be moderated or the patient will suffer needlessly. I hesitate to suggest a remedy, for fear it will be seized upon and efforts made to utilize it as a "cure for the morphine habit." Besides, different cases respond differently to remedies and each requires to be treated on its own merits, with the remedies indicated in that particular case. Part of this hyperesthesia is toxemic and subsides after a grain of calomel in broken doses, followed by a saline laxative; or after a diaphoretic hypodermic of pilocarpine. As one learns to study closely these cases he finds that one or another of a large and increasing group of remedies is especially indicated now and again. Thus, one finds special indications for physostigmine, picrotoxin, emetine, solanine, nuclein, cicutine, apomorphine, strychnine, rarely thebaine, and, above all, gelseminine. If there be one drug more frequently, almost generally, indicated in this malady, it is this priceless educt from the yellow jasmine. No other remedy so completely assuages the craving for opiates, soothes the hyperesthetic nerves, calms the restlessness, and induces quiet, natural, restful sleep. So great is the relief that patients anxiously ask if there is danger of a gelseminine habit. Up to the present no instance has presented itself. In the worst cases ever treated by the writer during the twenty years he has been studying this malady, the patients use the gelseminine for a time, a week or a month, very rarely longer, and invariably in decreasing frequency until it is no longer desired.

Another and a more serious, because more persistent, difficulty is the influence of habit. This requires a combination of physical, mental, and moral treatment impossible to preconize. The environment, whatever it may have been, must be altered as radically as possible. The patient who resides in the lowlands should betake himself to the mountains, and *vice versa*. A pessimistic family circle, immovably convinced that the cure is illusionary and relapse certain, will render every precaution nugatory. Change of occupation should involve the disuse of all opiates. The physician must learn to practise without them, or give up practice.

A further proof of the correctness of the toxin theory is found in the fact that every attempt at work, everything involving an expenditure of vital force and an increase in toxin-formation, indulged in during the months immediately following the cure, serves to bring back a craving for opium. The patient has had the *habit* of working only under the influence of morphine and feels powerless without it; he persists, however, resulting in an increased metabolism and toxin formation, and at once the need for morphine is felt. What is the remedy?

How can one possibly expect, after ten years of opiate habit, to quit the drug and in a few weeks be able to live and work without it? Nature does not work miracles—neither do we. Voltaire's definition of a physician as "an unfortunate gentleman who is expected to work miracles every day," must surely have applied to one who treated opium users. The habits of years are not discontinued readily, nor without inconvenience resulting. Time must be allowed for the altered conditions to be established, for the patient to learn to live without drugs, for the various organs to accustom themselves to functionate independently of drug control. It is not too much to exact a year's absolute rest, of real playtime, after the cessation of the habit.

During this period the metabolism is apt to fall into arrears, and toxins tend to accumulate. One of the most significant symptoms of this period is a subnormal temperature. Another, usually accompanying it, is respiratory oppression. These demand instant action, in emptying the bowels, unloading the liver, and stimulating all the vital functions by the use of that priceless vitalizer, strychnine. Calomel, emetine, pilocarpine, strychnine, juglandin, and salines should be always at the patient's disposal, and he himself should be carefully instructed in their application, so that he may be independent of the chance practitioner, who may be of the sort who look on "suffering as an indication for morphine!"

With a year of rest, properly so-called, there is no reason for any cured patient relapsing. But—people are not always reasonable—and who can guarantee a man against the curiosity that leads him to "try one dose to see if it has any attraction for me"!

EARLY DIAGNOSIS OF GASTRIC CARCINOMA.*

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Surgery offers the one cure for stomach cancer, and success in this depends absolutely upon a diagnosis being made early in the case. For when the malignant growth is large enough to be easily diagnosed, involvement of the organism is usually so great in extent, that surgical interference merely hastens the fatal ending. Bringing consideration down to the clinical details of the subject, it is truly unfortunate that no absolutely positive symptoms or methods of examination have been found for early cancer of the stomach. Nevertheless, as the result of a close observation of this subject, running over several years, I am convinced that a number of these cases can be diagnosed in the early stages of the disease, and in time for hope of cure in the surgical way. It may be said at the onset that this is but rarely done to-day, and further, that little can be expected along the lines of simple clinical observations of these cases.

Three main facts appear as the *sine qua non* of an early diagnosis: (1) A very close study of the laboratory findings and symptomatic details in all cases

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of gastric disease that do not accurately or most plausibly belong to the benign affections; (2) full experience in observing and examining cases of gastric disorders by one who is always on the alert for cancer, and who has a courageous, willing, and intelligent patient to deal with, and (3) the assistance of an understanding surgeon, whose depth of mind, as well as whose technique of hand, is broadened by ripe experience.

Cancer is a disease which begins as a small nidus in the glandularis. In its incipiency it is a small accumulaton of cells, microscopic in size, causing no symptoms, either subjective or objective, and thus cannot be diagnosed. Insiduously the cells rapidly multiply, accumulate in mass, and infiltrate surrounding tissues. Clinical changes now ensue which are mostly objective, and but rarely observed by the patient. The diagnosis of such early disease can be made only from the laboratory findings of the gastric contents, to which it may be said that the subjective and other objective symptoms are but rarely present, or if so, are of no value in the specific way. Of course, a case must be seen early, and it must be remembered that in these cases we deal only with small clinical facts, in a stomach at best but little known to us. Therefore it is that mistakes—mostly of omission—are liable to occur. The one significant keynote to lead us right in the work is the constant and progressive presence of abnormal findings in the gastric contents. What are they?

Hemorrhage.—This is usually minute is but rarely seen as such, and is almost always occult. The expression method of extracting stomach contents must not be resorted to—it is too liable to be performed with trauma—but just a simple aspiration, enough to overcome the force of gravity and to raise the meal through the tube. The bottle I have described serves well for this. (Extracting Test Meals, *New York Medical Journal,* June, 1908.) If retching occurs during the process the presence of blood is of no value in the suggestive way, and should be discounted. We should not be anxious to empty the stomach at these times—10 or 20 c.c. will do for these examinations. When a patient strains continually and under all conditions, and our suspicions of malignancy have been aroused in the case, a few meals extracted under nitrous oxide anesthesia may be wise. When blood is constantly present in meals extracted twice a week, we should be on our guard—It is more liable to be cancer than ulcer. This symptom is found in about 20 per cent. of the early cases, and its absence does not necessarly exclude cancer, since in about half of the cases of this disease hemorrhage is not observed in the vomitus even late; but still in many of these, blood in small quantities is present in the stomach from an early date. Examining the feces for blood in these early cases is of no value—the blood is too small in amount and is digested and absorbed, and thus not liable to give the reaction. We should be careful not to permit the taking of flesh food for twenty-four hours preceding the test meals. Washing the stomach before the meal is taken, or the night before, is inadvisable. Lavage of the empty stomach and examining the water for blood is not so good as the test meal method—we want the longer presence of the meal in the stomach, the gastric motility, the secretion, and the normal increase of the blood to the stomach during digestion to encourage the bleeding from the free surface.

Pus Cells and Bacteria.—These come next in significance. Pus cells are not products of a normal stomach, and when they are found (excluding that which may be swallowed in sputum, from the oral cavity, or in the stomach of a phlegmonous gastritis) they are indicative of ulceration. In my experience, they are often found in the stomach in early cancer, proving, I believe, that ulceration is common in early malignant growths. They are not very numerous and rather difficult to discern among the amylum of test meals. Lavage, or extraction after 10 minutes of normal saliva instillations and centrifuging the return, gives the best results in the way of examination. The cells are sometimes found in dense conglomeration suggestive of a slough from an ulcered surface. When these cells are regularly found, and particularly when red blood cells are also present, we should be on our guard. With them the bacterial flora of the stomach contents is also increased. The cocci seen are either the staphylococci, streptococci, or diplococci. A common type of organism, which may be markedly predominant, is a streptobacillus. Loops from the test meals suffice well for the bacterial examinations. The presence of what may be considered as increased numbers of microorganisms can only be judged in a relative way. They are found in test meals from nonmalignant and normal stomachs, and their nature, whether suppurative or not, is difficult to determine. But when one type of them largely predominates, and is present constantly with blood and pus cells, they are of much significance. The Boas-Oppler bacilli are found late in cancer.

The presence of minute particles of tumor tissue may be found and would be conclusive. These are very uncommon in early cases. The same may be said of loose tumor cells which are always doubtful in their nature—they resemble the free nuclei of digested normally free cells too closely.

Hydrochloric Acid.—In the beginning of cancer in an otherwise healthy stomach the acid is slightly increased. This is due to irritation of the growth or its toxins, and is significant only when it is on the increase up to a certain point and then takes on a steady fall. In some cases of cancer, and in ulcus carcinomatosum, it may be present to the very end. Then again, stomachs (normal and pathological) vary so in their hydrochloric acid contents, and this secretion is influenced by so many conditions, that its mere presence or absence at one time is of no value in this connection. The practical point in the way of diagnosis is its steady progress, either upward and then downward, or just downward (according as the case is early or later). Its rise upward is much more rapid than its subsequent fall. When it begins to decline it starts slowly, acquiring speed as it comes downward, and runs an average fall of about 4° in a week. In a suspicious case giving this excursion or a downfall of total hydrochloric acid, we should be on our guard, lest a tumor be palpable in the epigastrium a month or two afterward.

On the gastric enzymes so much reliance cannot be placed. The tests for them are not so accurate as those for acid, and they are liable to vary more than the HCl—depending upon the part of the stomach that is affected, and this may be anywhere. As the hydrochloric acid runs low, the organic acids begin to appear. Tests for their beginning should be made, as well as for other evidences of fermentation and delayed motility. There is liable to be retardation in motility before actual dynamic obstruction exists. In other cases little delay is observed, although fermentation is liable to be increased above the normal.

The Solomon test for gastric carcinoma is sometimes positive in an early case. Its absence is not

significant in the negative way since it may not be present even in an advanced case. But it is a measure along with the others which may be helpful. The method consists of washing out the stomach the evening before, and then on the following morning introducing 400 c.c. of normal salt solution. This solution is removed after a short stay in the stomach, and tested for the presence of albumin and for the proportion of nitrogen. Marked turbidity with Esbasch's reagent (picric acid), or the presence of more than 30 mg. of nitrogen indicates the presence of carcinoma.

Upon the history of heredity and subjective stomach symptoms, little dependence can be placed in the matter of diagnosis. "Family cancer," even more than "family tuberculosis," is only of historical significance. Subjective symptoms, one and all, are of no value in the way of early diagnosis, since many, if not most, cases begin and progress markedly without as with them. When they are present, they are the same as those found in the benign and simple stomach conditions, and may even be of less intense form. Marked anorexia, eructations, aversion to meats, pain, pressure, distress, vomiting, hematemesis, tumor and so on are all late symptoms. Of some value, however, is loss of weight. This begins rather early in the case in a slow way, and hastens later on. To record this best, it is advisable for the patient to weigh himself stripped each morning after his bladder and rectum have been emptied and before he has partaken of food or drink. Careful observations should be made and a record kept in ounces of the changes in weight. A loss of a pound or more in a week is suspicious, and conclusive when the laboratory picture continues strongly suspicious. But when making these observations nothing should be said about dieting, excepting that the patient should continue eating and drinking as before. If we curtail a normal person's diet, he is liable to lose in weight; and if we enlarge it, or add a fluid or semisolid diet—a common practice in treating digestive disorders—he may gain even in the face of a cancer being present in the stomach. Above all, we should be watchful for the patient who has dieted himself before coming to us.

To tell a patient, in a soft, guarded way, that he has a tuberculosis which can be cured, usually insures his hearty cooperation to bring this result about. Likewise, in a suspicious case of carcinoma, to inform him that a serious stomach disorder is imminent (we need not mention cancer), and that it is impossible to find out what it is unless he carries out our orders and reports regularly for observation and examination, usually makes him attentive in the way of carrying out our wishes. Office visits are better in these observations than placing the patient in a hospital.

In patients who present themselves for treatment of gastric troubles, view with suspicion every one over 40 years of age who does not show improvement after a course of treatment, whatever the diagnosis may be. Penzoldt rightfully advises that, in these cases, the diagnosis of cancer must either be made or refuted. At those ages also we should be on our guard with every case that gives a history of a "good stomach" before the present illness. In the diagnosis of early cancer laxity in thoroughness and expectant measures may be handmaids of disaster leading to a disagreeable surprise. It should never be forgotten that it is the usual thing that when a tumor manifests its presence, the case is past the hope of cure. In favorable cases it takes from one to four weeks of steady observation to make a diagnosis of early malignant disease of the stomach. In these, the careful examination of six or more test meals is unusually necessary. Then, with a reasonable certainty that cancer of the stomach exists (and that it is not in the cardia), the case should be turned over to a surgeon for exploratory incision, and if the diagnosis has been confirmed, total extirpation of the diseased area, adhesions, and metastases should be performed. It may be incidentally remarked that unless the abdomen is very fat, exploratory incision can be satisfactorily performed under one-tenth of one per cent. solution of cocaine. Under this, when the peritoneal cavity is entered, some care should be exercised not to impinge roughly on the parietal peritoneum (it is sensitive), nor should there be any tugging on the mesenteries when examining the stomach or intestines (patients are liable to vomit). In most instances, with a little extra care and patience, the examination can be made most satisfactorily under this form of local anesthesia, the posterior wall of the stomach can be explored, and, if need be, the entire hand can be put into the peritoneal cavity so as to reach some distance beyond the incision of entrance. Patients will submit to an exploratory incision under cocaine, but often refuse operation when a general anesthetic is to be used. Usually about an ounce of cocaine solution is employed at these times, representing only one-half a grain of cocaine, a safe quantity for an adult. Ether or chloroform can be quickly substituted when operative intervention is indicated.

There is no always nor no never in medicine. This is well exemplified in the early diagnosis of this disease. The surgeon has a right to believe that many of these cases can be diagnosed earlier than he usually sees them. But he must also remember that a few cannot. And the internist likewise must be respectful of his full duty to these patients, and not fail to gain or not lose sight of the valuable moment in which substantial help might have been offered.

SYSTEM AND THE DOCTOR.

By LEONARD K. HIRSHBERG, A.B., M.D.,

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The successful lawyer is usually methodical; the financier and business man always; the doctor, perhaps, never. Doctors may come and doctors may go, but there is very little interruption to the ever-present confusion. Reform may rake the ships of state, finance, and law, fore and aft, but the noble old sloop of medicine remains untouched. Jupiter may have brought order out of chaos, but Æsculapius omitted to obtain his fair share.

Only the other day the remark was made to me by a well known financier: "In my broad experience with men of the medical profession, I have reached the conclusion that in a business sense physicians are a hopelessly irresponsible, unmathematical, careless class of society. However 'long' they may be on medical skill and knowledge, on practical affairs and the methodical care and management of important matters, they are most 'short.'"

If there are extenuating circumstances for a few fairly educated physicians to feel themselves exempt from the proper systematization of their affairs, the university trained doctor cannot honestly allow himself any such excuse. There is really no reason for his lackadaisical bookkeeping and worse office arrangement.

When the doctors of the nineteenth and preceding centuries died, many of them with lucrative

practices of $20,000 a year cash income, they frequently left forty and fifty thousand dollars worth of uncollectable debts. The chaotic condition of their accounts, the negligent method of their collections, the careless entries of charges entailed frequent poverty upon their widows and heirs. Such a condition now is by no means exceptional, it is rather the rule. The exceptions are the other way about. Even to-day, a period perhaps in the future to be called The Age of System, the few doctors who are practical and precise in their methods, although steadily on the increase, are by no means in the numbers naturally to be expected.

When we consider there is no group of men, whether mechanics, business, or professional men, so quick to adopt innovations, new remedies, new instruments, new surgical procedures, new books, new journals, and new scientific discoveries of any proved value, does it not seem strange that in matters affecting their worldly welfare, their daily bread, and their wives and children, physicians should be so negligent, so short-sighted, so derelict in their duty as to ignore the benefits coincident with and derived from system.

Since my sophomore year in the Johns Hopkins University (Medical Department), I have been in the habit of using a most valuable series of card devices for various purposes, as I shall try to indicate. Dr. William Osler, great in medicine, science, and the humanities, was, if that were possible, greatest in the marvelous manner in which he disposed of his work. His system was as complete in detail as it was perfect in its comprehension. He gave clinics, delivered lectures, made addresses, attended banquets, wrote monographs, journeyed miles in consultations, saw students, examined patients, read all the medical and general periodicals, received his royalties, and gave ready references to anything without ever taxing his memory or losing one jot of his genial demeanor and ever-ready wit. It all worked like clock-work, yet no one could ever accuse Dr. Osler of automatism.

As a student, I first learned of this when he suggested that we employ a card index system in obtaining the past diseases, present complaints, and results of physical examination of every patient with whom we came in contact. The beauty and value of such a plan was evident and began immediately. For every patient seen, examined, and treated in the dispensary, in his home, and in the hospital, I made out a separate card. Upon it went his name, age, occupation, nativity, condition, date, complaint, personal history, family history, illness, examination, diagnosis, and treatment. Frequently three and four cards had to be pinned together for one patient, especially when he was seen frequently or interesting developments occurred.

By the time I graduated, I had nearly two thousand records of patients I had seen, complete and detailed. Every common disease was many times represented, and many, many rare ones. Eighty odd typhoid patients, almost as many pneumonia, and such rare diseases as Addison's and hemachromatosis were among them. This is a vaster and more valuable experience than physicians have in fifteen years of a profitable private practise.

In addition to this card index system for patients (which has been continued in both my private and hospital practice since graduation) I began simultaneously a system of cross references to all the worthy contributions in the current American, German, French, English, and Italian medical literature. Every week I would take a couple of hours from my practical work and retire into the libraries and take references on cards. If the subject was bacteriology, I would index it under that subject, with the author's name and the name of the periodical (such as *Medizinische Wochenschrift*, No. 26, Vol. XXI, 1900) as two cross references.

Now when we consider that textbooks of medicine, like all scientific volumes, are so quickly out-of-date, it can be readily seen how valuable my card index of references is to me in writing memoirs, contributing original work, or delivering a lecture or a clinic to my medical students. But it proved its value to me, long before I graduated, for in each of my sophomore, junior, and senior years it helped me to publish original contributions to medical science. This was greatly facilitated by the accumulated references to current medical problems in five countries.

Since my return from Europe in 1902, the two volumes on "Bacteriology" and "Action of Light" were aided very definitely by these references which I continue to collect on my cards. Every journal and book read has its annotations on these cards. Every lecture heard has its gist filed away under its appropriate title, easily referred to.

System in my home and in office has extended and ramified in such a manner that my wife predicts that the individual coals in the bin will only remain to be tagged, filed away, and indexed.

A doctor's rapidly growing library can be correctly cared for only by a system of card indices. This fact, though well understood by librarians, is usually lost sight of in the doctor's office. At the beginning of private practice, I started the system of sectional bookcases and the card index for my library. It works admirably in both instances. No more flexible method of growth and expansion could be adopted. As the volumes increase, so do the cards and the sections. They grow in a natural, logical manner. Nothing could be simpler.

Where the physician has, hitherto, erred most grievously, however, where the results of his complacent negligence have entailed most serious consequences, is in the keeping of his accounts, in the capital, investment, debits, and credits. It is just here, most of all, that the systematic adoption of some carefully regulated method is a tower of strength and a delectable mountain of glory.

It has been my custom since the first pay patient to employ about the plainest, clearest kind of ledger cards. At the top is a space for the name and address. Below are series of columns with the twelve months, named one below the other, and thirty-one perpendicular columns for the days of the month. Above the months, the year may be inserted or two, three, or four years without destroying the card. A very simple code is indicated above the columns by the appropriate abbreviations—V, visit; N, night call; S, operation; O, obstetrics; P, office treatment; C, consultation, etc. Beneath the spaces are lines upon which brief notes of treatment, diagnosis, charges, or other family names may be entered. Totals are carried out in the last perpendicular column under the word, Total. The appropriate symbol in any space indicates the kind of visit, treatment, month, and day. When a circle surrounds a symbol, it means that treatment has been paid for, and a line drawn through the total indicates complete payment for that month. Upon the reverse side are six columns, headed date, credits, date, charges, balance, memoranda, which allow additional but self-explanatory entries to be made.

Although most physicians claim to lose (and from their haphazard and antique book methods, I am sure they do lose) from 20 to 35 per cent. of their bills, I believe I allow a liberal percentage if I say I lose 5 per cent. of my charges. Besides the ease of manipulation, the accessibility of the cards, the flexibility of the system, and the limited space required, there is the added advantage of simplicity. For were anything to happen to me, my affairs would be as plainly and methodically accessible to the veriest school boy, as they are to me. Not one of my patients could escape his just debts because of any lack of system or confusion in my affairs.

What is more, I have a sixth, but more limited card index to my insurance papers, will, bankbooks, real and personal property, debts, uniform expenditures, and what I designate a day card. On this day card is printed the year, month, and days. If the card happens to be December 4, 1905, it would read:

EXPENDITURES.

November electric light bill	$ 3.30
November telephone bill, C. & P. phone	3.55
Millinery bill	12.00
Stamps	.10
Car fares	.60
Lunch	.40
Drug bill	4.25
Theater, etc., in the evening	3.40
Total	$27.60

INCOME.

Cash	$12.00
Bill paid by United Railways	45.00
Total	$57.00

At the end of every month the day cards of that particular month are totaled and the actual income and expenses compared. References to items can be made at any time.

The best feature, however, in systematizing the modern doctor's office is to employ a stenographer and purchase a standard typewriter. All bills should be sent out monthly and typewritten. It makes them legible, keeps them clean and dainty, and the dignity it gives the physician more than pays for itself. The stenographer is able to look after the accounts, study the patients, and urge the delinquents.

Another idea which has proved of value in adding substantially to the completion of my scientific records, is to send a personal letter every year to patients who have not called on me for more than twelve months. Asking them in this way what has been the subsequent course of their illness, my history cards are kept up to date, and, at the same time, I am able to discover in a delicate way, those patients who have drifted into other hands. The ledger cards of these patients are removed from the file and destroyed.

Metal cases for any of these indices may be obtained but the best way to protect them from injury, especially fire, is to purchase a fireproof iron safe, into which have been fitted compartments of just the size for the various system of cards. This completes the link in a systematic chain of medical necessities.

1937 Madison Avenue.

Cow's Milk and Rickets.—A writer in *The Hospital* says that about 9 per cent. of the milk consumed in Great Britain is obtained from cows in calf; and to this he attributes the prevalence of rickets. As the embryonic calf grows, it requires more calcium for its bones, which is obtained at the expense of the milk. Children fed on this milk are not getting the necessary elements which go to form healthy bones. This milk-drain must also have a bad effect on the calf.

PANSINUSITIS DEXTRA WITH PARALYSIS OF THE RIGHT VOCAL CORD.

By IRVING WILSON VOORHEES, M.S., M.D.,

NEW YORK.

J. O., Austrian, aged 32, was seen by me in the Department of Laryngology, Vanderbilt Clinic, July 5, 1908. As the patient spoke very little English a good history was not obtained; suffice it to say that for eight years he had complained of pain in head, discharge from the right nasal cavity, front and rear, and pain and cough in the right chest, This pain and cough had remained about the same and had not kept him from work. He came to the clinic on account of headaches, insomnia, and complete loss of voice, which had peristed for the past three months in spite of all treatment.

Patient is of slender build, round shouldered, and flat as to the chest. He seems to have lost some flesh and is rather sallow as if septic. T., 99°; P., 82; R., 20. The frontal sinus is somewhat but not markedly tender on percussion and palpation, as is also the antrum of Highmore. Anterior rhinoscopy shows a deviation of the septum high up and to the left. The middle turbinate is enlarged and looks cystic. There is some pus between the septum and middle turbinate, and in the middle meatus. Rhinoscopy on the left side reveals a practically normal condition. Posterior rhinoscopy shows hypertrophy of right middle and inferior turbinates with yellowish pus in the nasopharynx which appears chronically inflamed. The tonsils are of the embedded type and contain caseous masses in the crypts. The tongue is coated with whitish fur, and the teeth are not in good condition. Mucous membranes normal save as already noted. Cervical lymph nodes slightly enlarged. Both membranæ tympani appear normal. Laryngoscopy shows some hypertrophy at base of tongue and chronic congestion of mucous membranes. The right vocal cord appears smaller than the left and is in a position of cadaveric rigidity. During efforts at phonation the left cord swings far inward and crosses the median line. A hoarse whisper is all that the patient is able to produce.

Examination of the chest by a number of physicians elicited a variety of opinions as to the presence or absence of aortic aneurysm. As a matter of interest, the writer examined the chest and found an area of dullness and bronchovesicular breathing about two inches in diameter over the second right intercostal space. There was no thrill or cough upon palpation and percussion. Heart sounds normal. Pulse at the wrists about the same on each side in force, frequency, rhythm, and fullness. If there was any difference at all the left pulse was stronger than the right. Tracheal tugging was absent. The eyes were normal. The chest symptoms were probably due to an enlarged lymph node pressing on the right recurrent laryngeal nerve. It was impossible to rule out aneurysm, but the weight of evidence was against this diagnosis.

Under cocaine anesthesia I explored the right nasal cavity on July 11. The middle turbinate proved to be nothing but a sac of pus. All bone was destroyed save for a thin lamella adjacent to the septum, evidently the last remains of a rarifying osteitis. After complete extirpation of the middle turbinate I found to my surprise that with little difficulty one could pass a bent probe into the frontal sinus. This was followed by a copious discharge of pus. The antrum, ethmoid, and sphenoid regions were all likewise explored with some discharge of pus from each. At a second sitting it was found

that a Eustachian catheter could be passed into the frontal sinus and moved about in various directions, consequently saline irrigations at 110° F. were begun and continued daily for three weeks. Curettage of all the sinuses was carried out as thoroughly as possible during the second and third sittings. No great amount of granulation tissue was removed, but there was considerable necrotic membrane with pus. After the fifth irrigation protargol, 25 per cent., was instilled into each sinus following each daily washing, and the outlets of cavities were packed with gauze in order that the protargol might be retained. After four weeks the discharge had practically ceased and the patient expressed a feeling of great relief. After nearly four months there has been no repetition of the intranasal disturbance. The laryngeal condition remains the same.

This case is of interest chiefly because it was amenable to intranasal treatment. It is seldom that one finds a case of such long duration which yields to any other measure save radical external operation. Whether the intrathoracic condition was related in any way to the intranasal condition it is quite impossible to prove.

Broadway and One Hundred and Forty-fifth Street.

THE PREVENTION OF HEMORRHAGE DURING OPERATIONS UPON THE NOSE AND THROAT.

By HENRY HUBBARD PELTON, A.M., M.D.,

NEW YORK.

ADJUNCT ASSISTANT ATTENDING PHYSICIAN TO BELLEVUE HOSPITAL; CHIEF OF THE MEDICAL CLINIC, PRESBYTERIAN HOSPITAL, OUT-PATIENT DEPARTMENT.

Having occasion not long since to excise a patient's enlarged tonsils and adenoids the idea suggested itself to the writer that the always annoying and sometimes dangerous hemorrhage which may result from such operations might be mitigated to some extent by the previous administration to the patient of one of the calcium salts. It is well recognized that the internal administration of calcium chloride and, more especially, of calcium lactate, has a distinct influence in increasing the coagulability of the blood.

The patient, a boy of seven years, was accordingly given eight grains of calcium lactate three times daily, after meals, for two days previous to the operation. At the time of operation the bleeding was comparatively slight and ceased very quickly.

To a second patient, an adult, whose elongated uvula was to be amputated, twenty grains of calcium lactate were given three times in the twenty-four hours before the operation. On returning for the operation the patient remarked that he had scratched his finger rather deeply that morning and that, to his surprise, the blood "quickly became brown and dried," while, as a rule, he was accustomed to bleed rather freely after such injuries. The uvula was amputated and the hemorrhage was quite inconsiderable.

While the instances reported are far too few to lead to any definite conclusions it would seem that the administration of calcium lactate as a routine preliminary to operations upon the nose or pharynx might be a measure worthy of trial. It certainly is a harmless one and if it causes a diminution of the bleeding at the time of operation not only will the blood be conserved to the patient but the operator will be benefited in that the field will be less obscured by the accumulating blood and the procedure will be easier and more quickly performed. A lessening of the tendency to postoperative hemorrhage is an additional advantage which will accrue.

The ordinary adult dosage of calcium lactate is twenty grains thrice daily. The doses for children should be regulated in accordance with the age of the patient.

It is said that the administration of the salt for a period longer than two or three days brings about a condition of lessened coagulability; on this account it is unwise to prescribe it for a longer period than twenty-four to forty-eight hours at a time, which is quite long enough to produce the full effect of the agent.

345 West Eighty-fifth Street.

The Overcoat.—The season of overcoats is approaching, and probably in no other department sartorial is there exhibited so much indifference to hygienic considerations. The greatest fallacy of all, perhaps, in regard to the choice of an overcoat is that the terms "weight" and "warmth" are synonymous. As a matter of fact they are nearly always diametrically opposed. Heavy materials are often good conductors of heat and are calculated therefore to allow the heat of the body to escape, while light materials are bad conductors and so preserve the heat and energies of the body. Moreover, the heavy overcoat is a tax on the resources of the organism and destroys the economy which a good insulating cloth is intended to secure. Further, heavy material encourages an uncleanly and unhealthy state of the body chiefly by imprisoning the exhalation of the skin. That cloth is best, therefore, which gives the minimum of weight and the maximum of warmth whilst being porous enough to admit of ventilation. It is not generally realized that in protecting the body from the dissipation of its own heat—*i.e.*, from cold—clothing really serves as an economizer of fuel—that is, food. Could we accustom ourselves to wearing no clothing at all under cold climatic conditions we should have to consume much more food than we do in order to compensate for the rapid loss of heat which would happen if the body were not wrapped in nonconducting materials. This point needs to be borne in mind by those who advocate the banishment of the overcoat. It is, of course, possible to dispense with an overcoat, provided that the clothes worn are particularly warm. The overcoat, however, offers the decided advantage that it can be superimposed over a comparatively light suit of clothes, and thus while preventing the escape of heat, provides also an air space between the ordinary clothes and itself—an air space which is open to ventilation. There seems to be little doubt that a well-chosen overcoat surrounding a warm but light suit of clothes is for the reason just given much more comfortable than a heavy suit of ordinary clothes. There is another important point about the qualities of an overcoat, and that is in regard to the color of the material. The choice of a somber hue—black, dark gray, dark brown, or dark blue—is totally opposed to scientific indications. The polar bear is not provided with black fur; if he were he would not be able to defy the cold with that impunity which he does. Light colored material, as a matter of fact, does not so easily give up its heat as does dark material, and this would appear to teach that our notions as to the suitability of color of garments for winter wear are illogical. Fashion and custom bind us hard, and are seldom on all fours with reasonable ideas. If he would follow the dictates of science and common sense, the purchaser of winter clothing would choose, if he were able to do so, garments of a light rather than of a dark hue. And why should every one be clothed in a funereal type of material just when winter sets in, when every effort is necessary to compensate for the dreariness and darkness of its days?—*The Lancet.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE INFLUENCE OF EXERCISE AND HABIT UPON REFLEX AND AUTOMATIC PHENOMENA.

IT is a matter of common knowledge that any unusual circumstances interfering with the normal processes of the organism are followed by various reflex and automatic phenomena aimed at the protection of the organism or the compensation of a disturbed function. The usual opinion, however, is that these reflex and automatic phenomena cease as soon as the physical stimuli that have called them forth have disappeared. Writing in the *Deutsche medizinische Wochenschrift* for November 12, 1908, Dr. Treupel claims that such is not the fact: the processes called forth by the unusual circumstances continue for some time after all seeming significance of them is gone, and Dr. Treupel considers that this is due to the influence of exercise and of habit upon the nervous mechanisms of such phenomena. Thus, a fit of coughing is the logical outcome of an inflammation of the pharynx with accumulation of secretion which is gotten rid of by the cough; long after the inflammation and increased secretion have subsided attacks of coughing continue to trouble the patient. The hoarseness or even the total aphonia accompanying inflammation of the vocal cords continues after the parts have assumed their normal anatomical relations. Examples of this sort may be multiplied indefinitely, one of the commonest being the constant winking that may be noticed in persons who had gone through an attack of conjunctivitis.

Of course, while we say that no physical causes remain that may explain the continuation of these processes, yet, as Treupel correctly states, the cells of the nervous system may be assumed to retain some effects of the unusual stimuli that called the protective or compensating processes into action and it is these changes in them which lead to the continuation of these processes. Our crude histological methods, however, are not able to demonstrate such changes in the cells of the nervous system. Treupel's observations are of great interest when we apply them to many clinical phenomena. Certainly the loss of some special function that is often met with in hysterical or highly nervous individuals, after disease or accident affecting this function, is thus explained; the therapy of these conditions, too, may sometimes be greatly influenced by having the patient carry out this or that action in a normal manner by dint of mental or even physical compulsion; once the success of this is demonstrated to the patient the inhibiting factors are easily overpowered by subsequent exercise.

Reeducation of the nervous mechanism of action is really at the bottom of many such therapeutic processes, just as the loss of function is often due to temporary interference with the proper functioning of this mechanism. The very successful treatment of the ataxia of tabes dorsalis introduced by Frenkel depends upon such reëducation, while a number of examples may be cited where habit changes the response of the nervous mechanism from the usual or normal to what is really very unusual or abnormal, but is not so interpreted by us simply because of our familiarity with such phenomena. As an instance of this, one need only compare the effects of alcohol or of tobacco upon the man who indulges in these stimulants for the first time and upon one who has the habit of using them. A more striking example, simply because it is more rare, is quoted by Treupel: A patient in whom the taking of the smallest portion of an egg as food was always followed by most intense phenomena of reaction was given small doses of egg albumin in the shape of pills, the dosage being gradually and constantly increased; within a short time he could take in the shape of these pills as much albumin as is contained in an egg without any discomfort, and then easily passed on to enjoying eggs in their usual mode of preparation. Whatever changes took place in his organism they certainly must be accounted for by the influence of habit due to gradual and constant accommodation of the nervous system to the stimuli that formerly called forth an intense reaction.

Treupel's observations thus point out the real significance of many functional disturbances and at the same time furnish therapeutic hints for the management of these affections. The difficulty consists in finding the ultimate cause which has set such disturbances into action, the cause in nervous individuals being often extremely insignificant in itself. Careful attention to the minute details of the anamnesis of such patients often gives the clue to the proper procedure in freeing them from their affection.

THE ABSENCE OF CONTRAINDICATIONS TO NURSING.

TEXTBOOKS of obstetrics and of pediatrics usually name a number of conditions in the presence of which maternal nursing should not be attempted. Among these are enumerated tuberculosis, serious complications in pregnancy, in labor, or the puerperium, previous ill-success in nursing, grave chronic disease of whatever nature, and extreme nervousness. Writing in the *Münchener medizinische Wochenschrift* for November 24, 1908, Walcher, the director of a large school for midwives in Stuttgart, tells his experience in disregarding all these supposed contraindications and insisting that every mother delivered in the establishment under his charge should nurse her own child. In his opinion there are no anatomical conditions that could be looked upon as preventing nursing, outside, of course, of accidental defects in the mammary glands; there certainly are no physiological or moral reasons for the neglect of a function so important for the welfare of the in-

dividual child and of the whole race. The only stimulus necessary for sufficient production of milk is persistence in allowing the child to nurse, the quantity of milk produced being proportionate to the demands made upon the glands. The other important factors influencing the secretion are the will of the mother, the degree of her love for the child, and the realization of the great injury done to the latter in robbing it of its natural food; this with the provision for abundant diet for the mother is all that is necessary to insure the success of nursing.

Walcher has confirmed these theoretical considerations by the practical results obtained by him in his clinic, where before his advent only twenty-three per cent. of women nursed their children entirely. His first order was to increase the food allowance of the puerperal women from the very first day after the birth of the child, and then use every possible means of impressing upon the patients as well as upon the attendants that every woman who has been able to give birth to a child should also be capable of nourishing it entirely with her milk. The final result has been that bottle-feeding is restricted in his clinic to the unfortunate babies whose mothers died in labor or the puerperium; all other babies, averaging about eight hundred a year, have been given breast milk alone while in the hospital. This has been accompanied by an average gain in weight that was much more marked for the stay of thirteen days in the hospital than the figures for former years. The effect upon the mothers has also been very favorable, even tuberculous patients being benefited by the increase of appetite coincident with nursing and the psychic influence of the consciousness that they were able to fulfill the functions of a nursing mother as well as healthy women.

Walcher concludes his paper by calling attention to the economic causes that often prevent mothers from nursing their children and compels them to leave the babies in charge of some old woman relative whose methods of feeding are the cause of a frightful mortality. Little better are the results obtained in various homes for taking care of the babies of working mothers, overcrowding being added to the other factors detrimental to the well-being of the children. According to Walcher the factories employing women should provide special conveniences so that mothers among them could attend to their children at certain stated intervals, for the mortality among the babies of the poor can be fought successfully only when the truth is recognized that "the only true home of a nursing child is the mother's breast."

THE ENIGMA OF MALIGNANT DISEASE.

The study of malignant disease has been very eagerly taken up by numerous observers in recent years, the advances in biochemistry and in our knowledge of the tumors of animals having given an impetus to such work. The realization of the frightful prevalence of the disease and of the helplessness of the medical profession has led lay persons and associations to organize various committees and scientific institutes for the prosecution of the fight against cancer. Yet in spite of all this activity it must be confessed that we are as little advanced as before so far as our knowledge of the etiology of cancer is concerned; that our therapeutic successes have not been much increased, either, is shown with painful clearness in Zangemeister's review of the recent methods of treatment, in the *Deutsche medizinische Wochenschrift* for November 19, 1908. Of the many attempts to effect the cure of cancer by various physical methods, among them the use of heat, cold, electrical energy, light, and rays of every kind, the use of radium alone seemed to have been attended with some success in the treatment of superficial cancerous growths. But of course such success offers hardly any advantages over the use of the knife and introduces new elements of unknown danger from the powerful agent used.

Of the chemical methods of treatment the use of ferments has had a brief though an extensive popularity. Trypsin especially raised the hopes of many, yet the results have been a disappointment, the necrotic changes produced in cancer tissues by local injections of the remedy proving to be of no use in curing the organism of deep-seated disease. The experimental workers have attempted to produce specific cytolytic sera for the treatment of cancer: but the favorable results obtained in animals have not been repeated in human beings and the analogy of tumors of mice and rats to the cancer of human beings has been seriously questioned by some acute observers. The latest avenue of attack has been opened by the finding of various ferments in cancer tissue that may be supposed to have detrimental effects upon the organism either in overcoming local resistance to the growth of tumor cells or causing a general cachexia. A multitude of antiferments have therefore been tried as of possible use in stopping the progress of malignant disease, but the results have not been satisfactory, however enthusiastic some of the early reports have been. Zangemeister concludes that up to the present no therapeutic measure has been found that could compare in effectiveness with the operative treatment that has been in vogue for so many years. This simply means that the many new measures proposed by the enthusiastic workers in cancer research have only a local destructive effect; the progress of surgical technique, however, has been such that the use of the knife is the safest way of attaining such effects if the site of malignant disease is at all accessible. The only effect of the widespread agitation of the cancer question has been the accentuation of the advisability of early operation, and there is little enough hope in that.

Sporotrichosis.

In recent times the attention of clinicians has been drawn to the diseases caused by infection with various yeasts; in addition to the saccharomycoses and blastomycoses, the picture of which has been fairly well worked out, there has been added another similar affection caused by the organism first described by Beurmann and called after him the *Sporotrichium beurmannii*. The importance of knowing the possible *rôle* of this organism in the causation of disease is illustrated by two cases reported by Spillman and Gruyer in the *Annales de Dermatologie et de Syphiligraphie*, Vol. IX, No. 10.

The first patient presented a typical picture of multiple cold abcesses situated on the fingers and arms. The clinical picture of the affection and the fact that the patient suffered from a chronic cough, while his history gave a number of cases of tuberculosis in his immediate family, led to the diagnosis of a tuberculous affection of the skin. However, a bacteriological examination of the pus of the abcesses showed the presence of *Sporotrichium beurmannii*. The second patient, a veterinary physician, presented a lesion the size of a quarter dollar on his left cheek, that had the appearance of an actinomycotic ulcer, the profession of the patient and the involvement of the regional lympatic nodes lending strength to this diagnosis. But here also bacteriological examination revealed the presence of the above organism. These cases show the necessity of keeping in mind the possibility of an infection with this organism in all cases that clinically resemble one or another of the commoner chronic affections of the skin of parasitic origin: in every such case a bacteriological examination should be made without fail, not only because of the scientific interest attached to this rare affection, but also because correct diagnosis may be followed immediately by proper treatment, which consists in the administration of potassium iodide. It may be expected that further cases of infection with this yeast will soon be published, attention having been drawn to the occurrence of such a condition: with the increase of material the biology of the causative organism too may be cleared up; so far it is only known that it leads a saprophytic existence upon certain plants and animals and from them it is transmitted to the human being.

News of the Week.

Street Car Accidents.—The Public Service Commission of New York reports that during the month of November, 1908, there was a considerable drop in the number of street car accidents as compared with the previous month and with November, 1907. The total number of accidents was 3,992, which is 45 less than in November of last year, and 676 less than in October of this. Thirty-six persons were killed, and 169 others were seriously injured. For November of last year the number of persons killed was 45 and the number of those otherwise seriously injured was 198. The number of persons injured while getting on and off the cars, though slightly larger than last year, was only about one-half that for June and July, the difference being due largely to the use of closed instead of open cars.

Death Rate in New York.—The figures for the week ending December 12, show that New York is the healthiest city in the country. The number of deaths was 1,249 as against 1,667 for the same week of last year, an actual decrease of 418 deaths for one week. The rates were estimated as 14.73 for this year, and 20.29 for 1907. The report shows that the deaths from measles and scarlatina were only half as many as in the corresponding week of last year; influenza caused 6 deaths as against 42 for 1907; lobar pneumonia 96 as against 201; and pulmonary tuberculosis 153 as against 188. The only increase was in deaths from diphtheria, 42 occurring last week and 34 a year ago. In the tenement houses there was a total decrease of 222 deaths.

Death Rate in New York State.—According to the report of the New York State Department of Health, the death rate in this State for the year 1907 was higher than the average, and was surpassed only by the rates of Rhode Island and of California. The average rate for all the States was 16.1; New York's rate was 17.1. In comparing the rate with those of foreign countries, it is shown that Norway has a rate of only 14.5. Hungary's rate is 26.2, the highest. In New York, the smallest death rate of the year was in the Adirondacks and the northern section. The statistics also show that the marriage rate of New York, particularly of New York County, is unusually high.

The Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission, for the month of October, 1908, shows upon the whole good health conditions, though the sick rate has not fallen as in previous years. The sick rates for the past three years, comparing September and October, are as follows: 1906, September, 37.7, October, 33.6; 1907, September, 27.7, October, 26.9; 1908, September, 25.09, October, 26.6. The death rate of the force makes a very good showing, the total rate from all causes being 12.93, though of this only 7.7 was due to disease. Comparing again the past three years as to deaths due to disease, the following rates are given: October, 1906, 42.4; 1907, 23.6; 1908, 7.7; that is, the death rate from disease in the force during the past October was only about one-sixth what it was in 1906. The month showed an increase in the number of cases of malaria over the preceding month and over the same month of last year. There has been no case of yellow fever since May, 1906, though it exists at several points to the north and south of the Canal Zone. No case of bubonic plague has appeared since August, 1905, though that disease also has broken out not far away: and there has been no case of smallpox during the year.

Pullman Cars to be Investigated.—Dr. Harvey W. Wiley of the Department of Agriculture is authority for the statement that the Pullman cars are down for the next investigation. The interest aroused in Washington by the Tuberculosis Exhibition has revived the movement for safe and sanitary cars. Dr. Wiley thinks that thousands of cases of contagious diseases in which the source of infection cannot be traced are due to the microorganisms absorbed during railway travel, and considers the modern upholstered sleeping car as congenial a home and breeding place for microbes as is a laboratory.

The Raybrook Sanatorium.—The annual report of the State Hospital for the Treatment of Incipient Cases of Tuberculosis at Raybrook, New York, for the past year shows that 477 patients were treated, and that 163 cases are now under its care, eighty of whom are males. During the year only three patients died in the sanatorium, and 301 were discharged, most of them benefited and many of them as cured. The care of these patients costs the State $9.47 a week per capita, the total for the year for all purposes being $109,017. Of this, $37,250 was spent for provisions, and $18,301 for salaries, wages, and labor.

Optometry Regulations.—Regulations governing the practice of optometry were recently given out by the New York State Board of Examiners in Optometry, to become effective on January 1, 1909, after which date, under the new State law, no one may examine eyes for glasses without a certificate from this board. Investigation is now being made as to the qualifications of a large number of those who have applied for these certificates. Dispensing opticians who merely fill prescriptions or

sell glasses to customers on the latter's selection are not required to have certificates.

The Crusade Against Cocaine.—The new cocaine law was declared valid recently by the Illinois Supreme Court in the first case which has gone to it for decision since the act was passed by the last Legislature. The case at issue was a fine of $500 imposed upon two druggists, who were convicted in the lower court of having sold a catarrh powder containing cocaine. The court has decided that cocaine cannot be sold in patent medicines, in fact, in no form unless upon a physician's prescription. In the court of General Sessions, New York, Judge Crain recently sentenced a man, who had previously been convicted of selling cocaine, to serve five months in the penitentiary and to pay a fine of $100.

Fined for Violating Ordinance.—Two Chicago physicians were recently fined ten dollars and costs for failing to report cases of epidemic diseases to the Commissioner of Health.

Dr. Francis G. Benedict of the Carnegie Nutrition Laboratory of Boston will deliver the first of a series of special lectures arranged for the benefit of the students of the University of Wisconsin. Dr. Benedict will speak on "The Influence of Mental and Muscular Work on the Assimilation of Food."

Dr. Joseph Springer has been appointed coroner's physician, vice Dr. Otto W. Lewke, resigned.

Mrs. Mary E. Farrell of Midland Park, N. J., celebrated her 105th birthday on December 19. Mrs. Farrell was born in New Jersey, her parents being Hollanders, and has had ten children, six of whom are living.

Death of a Centenarian.—James Clancy, said to have been the oldest Civil War veteran, died at the National Soldiers' Home in Milwaukee, on December 19, aged 100 years. He enlisted with the Fourth Michigan Guards in 1862.

The Scientific Temperance Federation.—The second annual meeting of this association was held in Boston on December 8. The report of the year's work summarized the outlook for the anti-alcohol movement from the scientific standpoint, reviewed the special investigations reported during the year, and the work accomplished by the federation in disseminating this and other information. The officers elected for the coming year are: *President,* Rev. C. A. Vincent; *Vice-President,* Mrs. A. J. Gordon; *Recording Secretary,* E. L. Transeau; *Corresponding Secretary,* Cora Frances Stoddard; *Treasurer,* Robert H. Magwood.

The Milwaukee (Wis.) Medical Society, at its annual meeting on December 11, elected the following officers for the ensuing year: *President,* Dr. W. H. Washburn; *Vice-President,* Dr. L. F. Germain; *Treasurer,* Dr. Joseph Kahn; *Secretary,* Dr. A. W. Gray.

The Watertown District (S. D.) Medical Association held its annual meeting on December 10. The following officers were elected: *President,* Dr. H. W. Sherman of Doland; *Vice-President,* Dr. S. B. Dickinson; *Secretary and Treasurer,* Dr. J. B. Vaughn of Castlewood.

The Marshall County (Ia.) Medical Society, at its annual meeting on December 8, elected the following officers: *President,* Dr. Theodore Engle, State Center; *Vice-President,* Dr. H. H. Nichols; *Secretary and Treasurer,* Dr. F. P. Lierle; *Censor,* for a term of three years, Dr. E. W. Jay.

The Muskegon-Oceana (Mich.) Medical Society held its annual meeting, on December 4, at which officers for the ensuing year were elected as follows: *President,* Dr. J. F. Denslow; *Vice-President,* Dr. J. D. Buskirk; *Secretary,* Dr. Vernon A. Chapman; *Treasurer,* Dr. Jacob Oosting; *Trustee,* Dr. George S. Williams.

The Minnesota Valley Medical Association, at its twenty-ninth annual meeting on December 8, elected the following officers: *President,* Dr. F. N. Hunt of Blue Earth; *First Vice-President,* Dr. A. Strickler of Sleepy Ele; *Second Vice-President,* Dr. Lida Osborn of Mankato; *Secretary,* Dr. A. G. Liedloff of Mankato; *Treasurer,* Dr. G. F. Merritt of St. Peter.

The Grafton County (N. H.) Medical Society held its annual meeting on December 8. The election of officers resulted as follows: *President,* Dr. G. W. Hazelton of Haverhill; *Vice-President,* Dr. W. S. Woodman of West Lebanon; *Secretary,* Dr. G. A. Weaver of Warren; *Delegate to the State Medical Society,* Dr. W. D. Smith of Hanover.

The Mitchell District (Ia.) Medical Society, at its annual meeting on December 9, elected the following officers: *President,* E. N. Wagar, Bijou Hills; *Vice-President,* Bert Menser, Bridgewater; *Secretary,* W. R. Ball, Mitchell; *Treasurer,* B. A. Bobb, Mitchell; *Press Censor,* E. W. Jones, Mt. Vernon.

The Southern California Medical Society closed its fortieth semi-annual meeting at Santa Ana, on December 3, with the election of officers, which resulted as follows: *President,* Dr. F. R. Burnham, San Diego; *First Vice-President,* Dr. C. D. Ball, Santa Ana; *Second Vice-President,* Dr. J. M. Holden, Long Beach; *Secretary-Treasurer,* Dr. J. M. King, Los Angeles.

The Lake County (Ohio) Medical Society recently elected the following officers for the ensuing year: Dr. A. P. Brady, *President;* Dr. H. W. Grauel, *Vice-President;* Dr. M. H. Carmedy, *Secretary;* Dr. C. W. Hawley, *Treasurer;* Dr. H. C. Spence, *Delegate;* Dr. T. M. Moore, *Member of the Auxiliary Committee;* and Dr. J. W. Lowe, *Censor for three years.*

The Columbiana County (Ohio) Medical Society, at its meeting on December 8, elected the following officers: *President,* Dr. William N. Bailey, East Liverpool; *Vice-President,* Dr. P. C. Hartford, East Palestine; *Secretary,* Dr. Alex Cruikshank, Salem; *Treasurer,* Dr. J. B. Talmadge, Columbiana.

The Champaign County (Ohio) Medical Society held its annual meeting at Urbana on December 10. The following officers were elected: *President,* Dr. Robert Henderson; *Vice-President,* Dr. E. W. Ludlow; *Secretary,* Dr. Houser; *Treasurer,* Dr. S. M. Mosgrove; *Delegate to the State Convention,* Dr. David O'Brine.

Philadelphia Academy of Natural Sciences.—At the annual meeting held December 15, the following officers were elected for the ensuing year: *President,* Dr. Samuel G. Dixon; *Vice-Presidents,* Drs. Arthur Erwin Brown and E. G. Conklin; *Recording Secretary,* Dr. Edw. J. Nolan; *Corresponding Secretary,* Dr. J. Percy Moore; *Treasurer,* George Vaux, Jr.; *Librarian,* Dr. Edw. J. Nolan; *Curators,* Drs. A. E. Brown, S. G. Dixon, H. A. Pilsbury, and Witmer Stone; *Councilors,* Drs. Henry Tucker, Charles B. Penrose, Charles Morris, and Spencer Trotter.

Philadelphia County Medical Society.—At a public meeting held December 15, a series of com-

munications was presented dealing with "The Public Health and the Medical Profession." Dr. Joseph McFarland read a paper entitled "Vaccination as a Protection to the Public," and remarks on the same subject were made by Professor Edwin J. Jouston. Dr. George W. Wagoner, president of the Medical Society of the State of Pennsylvania, read a paper entitled "Medical Legislation as a Benefit to the Public," and remarks upon the same subject were made by Samuel Scoville, Esq. Dr. D. J. McCarthy read a paper entitled "Science and the Public Health," and remarks on the same subject were made by Dr. Henry H. Donaldson.

Obituary Notes.—Dr. Robert Henry Davis, recently of Brooklyn, died on December 14, after a brief illness, aged 81 years. Dr. Davis was a first cousin and intimate friend of Jefferson Davis, and served throughout the war in the Confederate Army. At the close of the war he settled in Texas, where he practised until his retirement.

Dr. Elias Buell Heady of Milford, Conn., died at his home on December 16, aged 62 years. Dr. Heady was graduated from the Yale Medical School in 1872, and was a member of the American Medical Association.

Dr. Abraham Morrell Cory, one of the oldest physicians of New Jersey, died at his home in New Providence on December 16, aged 81 years. Dr. Cory was graduated from the Medical and Surgical College of Philadelphia in 1857, and served as a surgeon in the Civil War. He was well known as a writer and also as an inventor, one of his inventions being a universal solar clock by which the time at any given portion of the earth's surface could be instantly determined.

Dr. Michael A. Kadien of New York died suddenly on December 15, of myocarditis, after a short illness. Dr. Kadien was born in 1859, and was graduated from the Bellevue Medical College in 1901.

Dr. Henry Clay Winger of Harrisburg, Penn., died at his home on December 6, at the age of 72 years. He was a graduate of the medical department of the University of Pennsylvania and a veteran of the Civil War. During his early life he served as a scout with Kit Carson.

Dr. J. Warren Roop of Harrisburg, Penn., died on December 8, aged 66 years. Dr. Roop was graduated from the medical department of the University of Pennsylvania in the class of 1868, and was at one time president of the Dauphin County Medical Society.

Dr. John Davis of Pottstown, Penn., died at his home on December 11, at the age of 76 years. Dr. Davis was graduated from the Eclectic Medical College of Philadelphia in the class of 1862.

Dr. Edwin Bidwell of Deep River, Conn., died at his home on December 11, as the result of a general breaking down due to old age. Dr. Bidwell was born in 1819 and was graduated from the Yale Medical School in 1847. He had practised in Deep River since 1860.

Dr. William Mackie, one of the foremost surgeons of the Northwest, died suddenly on December 9, at the home of his son in Milwaukee, Wis. Dr. Mackie was born in Scotland in 1855, and was graduated from the University of Aberdeen in 1881. Two years later he settled in Milwaukee, and had for years served as chief of staff at the Milwaukee Hospital, in which position he followed Dr. Nicholas Senn. Dr. Mackie was a member of several medical societies and a frequent contributor to medical literature.

Dr. Augustus Le Plongeon of Brooklyn, well known for his explorations in South America, died suddenly of heart disease on December 13. Dr. Le Plongeon was born in the Isle of Jersey in 1826, and received his medical education in France, going later to South America, where he practised for a number of years. Becoming interested in the ancient history of the South Americans he made a number of tours through Peru, Yucatan and Mexico, and two of his books are considered the authoritative works on Peru. During the last ten years he had lived in Brooklyn, devoting his time entirely to writing.

Dr. William Martin Ogden of Pasadena, Cal., died on December 3, after a long illness, aged 67 years. Dr. Ogden was graduated from the Harvard Medical College in 1865, and afterward the University of Edinburgh. He was a member of the Massachusetts Medical Society, at one time vice-president of the Boston Microscopical Society. He was also for many years one of the faculty of the Boston Dental College, where he filled the chair of general and dental surgery. Because of ill-health he was compelled some years ago to relinquish his practice, and had since lived in California.

Dr. John E. Russell of Mt. Vernon, Ohio, died on December 8, of disease of the kidneys, aged 48 years. Dr. Russell was a graduate of the Starling Medical College of Columbus, Ohio, and had practised in Mt. Vernon for over twenty-five years. He was a member of the Board of Trustees of the Hospital for the Criminally Insane at Lima.

Dr. E. A. Stewart of Dayton, Ohio, died at his home on December 10, of pneumonia. Dr. Stewart was born in 1867, and at one time was engaged in journalistic work. He abandoned this, however, to take up the study of medicine and was graduated from the Ohio Medical College at Cincinnati in 1897. He was one of the charter members of the Dayton Academy of Medicine, and also belonged to the Montgomery County Medical Society.

Dr. Samuel Gluck of New York, died suddenly of heart disease at his home on December 17. Dr. Gluck was born in Budapest, Hungary, in 1845, and studied medicine at the University of Vienna, graduating in 1871. The following year he came to this country. He was a member of the German Medical Society, and was at one time connected with the Mt. Sinai Hospital.

Correspondence.

ANTI-ALCOHOL MOVEMENT AMONG GERMAN PHYSICIANS.

To the Editor of the Medical Record:

Sir:—At the meeting at Basle of the V. International Congress to Combat the Abuse of Alcoholic Beverages, Drs. Gaule, A. Smith, Fürer, Legrain, and Bleuler delivered powerful addresses in favor of abstinence from alcohol. These addresses aroused great enthusiasm, and induced twenty-six men present at the meeting to form an organization of medical men for the promotion of scientific investigation of the effects of alcohol, and for the dissemination in medical circles of a clearer knowledge of the alcohol question. It is not known who was the father of the idea to form this organization, in noble-minded modesty he has not made any claim of priority; we may assume, however, that he was one of the pupils of Kraepelin.

The meeting was held on August 21, 1895, and this day is the real birthday of the Society of German Physicians for Abstinence, or, as it is called in German, "Verein abstinenter Aerzte des deutschen Sprachgebietes."

On September 20, 1896, in connection with the sixty-eighth Congress of Natural Scientists at Frankfort-on-Main, the constituting meeting took place in which the society elected its officers and adopted a constitution. The number of members on that day was seventy. More and more since its foundation this German society assumes a leading position in the temperance movement, because

this organization is working more than any other on a scientific basis; its labors have accomplished that the position of the medical profession at large toward the alcohol question has gradually changed, and that the appreciation of the temperance movement among physicians is increasing from year to year. The names of the illustrious men who during the twelve years of the existence of the society have been its presidents are: Forel, Kraepelin, Aschaffenburg Delbrück, and Bleuler. Physicians reading these names will appreciate their significance in the battle against alcohol and for the good of the society of which they have been presidents.

The development of the organization can best be judged by the increase in the number of its members.

As mentioned, there were 70 members at the time of the first official meeting in the year 1896;

in the year	1897	the society had			94	members.
" " "	1899	" " "	125	"
" " "	1900	" " "	159	"
" " "	1901	" " "	170	"
" " "	1902	" " "	192	"
" " "	1903	" " "	213	"
" " "	1904	" " "	237	"
" " "	1905	" " "	247	"
" " "	1906	" " "	300	"
" " "	1908	" " "	350	"

The activity of the society during the first year of its existence was restricted on account of limited means at its disposal, but the yearly gatherings alone which took place in connection with the meetings of the congresses of the Natural Scientists were the means for agitation; the highly valuable papers read and the truly earnest scientific discussions of these papers secured esteem for the name of the society and directed the attention of the medical profession to its aims.

Of significance are the following four theses which were discussed at the first official meeting:

1. No vocation is more able, more called for, more under obligation, than the medical profession, to conduct the much-needed combat against the drinking habit.

2. To a great extent physicians are to be blamed for the increase in the consumption of alcohol as a beverage.

3. The present methods of treatment of drinkers in the phrenocomeia are inadequate in many directions.

4. The laws concerning drinkers must be considered as impractical and insufficient.

The second annual meeting took place in Brunswick. The subject for discussion was "The Therapeutical Indications for Alcohol," by Dr. A. K. Beer of Munich, now in Milwaukee, Wis. In the discussion participated: Kantorowicz, Colla, Smith, and Hoppe, in favor of abstinence, and Schmitz (of Bonn) and Kugelmann (of Hanover), against abstinence. Three more papers were read, one by Forel, "Is the Mentally Stimulating or Exhilarating Effect of Alcohol on Sociability Commendable from the Point of View of the Physician?" and one by Hirschfeld on "Prevention of the Drinking Habit."

At the third annual meeting (1898, at Düsseldorf) Bonne spoke "On the Alcohol Question and Medical Practice," Fürer on "Neurasthenic Attacks of Precordial Oppression and Alcohol Therapy," Jordy on "Non-alcoholic Medical Wines." The last paper brought out a very long discussion.

Not without interest is the fact that two motions presented at this meeting are still under discussion at present: Legrain proposed the internationalization of the society and Kantorowicz, negotiations with life insurance companies for reduction of premiums in the case of abstainers.

The fourth annual meeting, held at Munich, presided over by Kraepelin, was especially well attended. Papers were read by the president on "The Psychical Effects of Alcohol"; by Colla, "New Clinical Experience Concerning the Effect of Alcohol," and by v. Bunge, "On the Increasing Inability of Mothers to Nurse Their Children and Its Relation to Alcoholism."

Much attention was shown at the seventh annual meeting, held in Carlsbad, by the Natural Scientists, who attended the session in large numbers. Kassowitz spoke on "Food and Poison," and his paper elicited a lively discussion. The second paper, read by Frick, was "On the Treatment of Febrile Diseases without Alcohol."

Rosemann, who had opposed some views of Kantorowitz as pronounced at the meeting in Carlsbad, spoke on invitation by the executive committee at the eighth annual meeting, held in Cassel, "On Alcohol as Food," and excited opposition on the part of some of the members. Then followed a paper by Keferstein, "The Influence of Large Amounts of Liquids on the Heart." At this meeting a prize of 300 marks was offered for the best treatise on the influence of alcohol.

At the annual meeting of 1904, in Breslau, Holitscher spoke on "Alcohol and Opium Habits"; Rösler, "On the Paramount Aims and Tasks of the Abstinent Physician."

The annual meeting of 1905 took place in Vienna. It was an exceptional success, the attendance was very great. Forel, Kassowitz, Bleuler, and Mathews read highly interesting papers, and elicited lively and valuable discussions.

I have no details of the meetings since 1905 because the history of the society written by Dr. A. Holitscher, who for several years was the general secretary of the society, and of which history I have availed myself, comprises only the first ten years. Dr. A. Holitscher has had the kindness to lend me the only copy he possesses.

From the information which I have gathered about these latest meetings I learn that they were characterized, as well as the preceding ones, by their scientific character. The principle of abstinence upheld by the members of the society is based on well-founded, indisputable, scientific investigations. The society has succeeded in gradually reducing the number of those physicians who still assume the ungrateful task of defending the use of alcohol. The society is endeavoring to furnish evidence that even the smallest doses of alcohol are injurious to the organism. They are guided by Kraepelin and his school upholding that it has been proven that alcohol injures the psychic functions and have come to the conclusion that there is more than ethical foundation for abstinence. Of especial importance are the experiments of Laitinen discussed by the society, which show that a small amount of alcohol, corresponding with the smallest amount of alcohol taken by men who are moderate drinkers, regularly administered to animals, reduces the power of resistance to infection and has a decidedly injurious influence on the descendants. Among other papers read at the meetings since 1905 were those of Delbrück and Vogt, who expressed their opinion that the administration of alcohol as a therapeutic agent was almost entirely unnecessary, and that the prescription by physicians of alcohol is furthering its use and conducive to establishing the habit. Hence if there is in existence a substitute of equal value—which is the case in nearly every instance—this should be given the preference. Vogt spoke about the firmly established facts of the physiological effects of alcohol and deduced from these the uncertainty and the falsity of most indications which to-day are deciding for the administration of alcohol.

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OUR LONDON LETTER.

(From Our Special Correspondent.)

A NEW DEPARTURE IN HOSPITAL WORK—MEDICAL COUNCIL—IDIOPATHIC DILATATION OF THE BLADDER—CANCER OF CERVIX UTERI—THE WESTMINSTER HEALTH SOCIETY—OBITUARY.

London, December 4, 1908.

A somewhat novel departure has been instituted through the generosity of Lady Campbell Clarke at the Westminster Hospital. Out-patients who in the opinion of the staff need nutriment as much or more than medicine are to be provided with meals in the hospital. Such necessaries, as milk, which are to be taken at frequent intervals, will also in certain cases be supplied by the "Lady Campbell Clarke Fund." The beneficence of her ladyship will no doubt be wisely administered under the direction of the visiting members of the staff, to whom it will prove of great value in their treatment and will further relieve many cases of great distress due to illness.

On Monday the Council of the Hospital Sunday Fund met, the Lord Mayor presiding. The report which was adopted stated the total of the year's collections as £80,181. The amount collected in places of worship was £40,239, being £2,547 less than in the previous year. The decrease was attributed to the simultaneous collection for the "Pan-Anglican Congress," a suggestion which the Bishop of London hoped was not the true reason. The Council viewed with apprehension extensions contemplated by certain hospitals and institutions, whose income by no means met their expenditure, and where a considerable number of beds were empty for want of funds. The Council considered that in the present state of hospital finances such extensions should be discouraged by the fund, unless the hospital could show that it had the means to provide and maintain them. The report was adopted without discussion and it was resolved that the annual meeting of the constituents should take place on the 16th inst.

I am pretty sure the view of the Council as to extensions and enlargements will be strongly upheld. At any rate, there has been a feeling on the part of the public for some time past to condemn the extravagance of hospital managers and the absurdity of appealing for help to enlarge hospitals and other charities

which are not working at their full strength. A subscriber who is asked for money to provide more beds for a hospital with twenty or more unoccupied, if he thinks about the matter at all, may give an unexpected but fruitful response.

The autumn session of the Medical Council is for the most part devoted to penal proceedings and this year the sittings continued throughout the week. The cases which were tried were certainly considered by the Council with the greatest care and patience and I have no intention of calling in question any of the verdicts; but I think that some of the proceedings show that this body is not well adapted for judicial proceedings. That all the members are anxious to maintain the purity of the profession goes without saying, but it is just as clear that they are reluctant to pronounce a man guilty of conduct "infamous in a professional respect" without the most ample proof, for that is the only verdict they can find. It appears that the words "in a professional respect" are so restrictive that a person may well escape condemnation for a heinous offense against society, as the Council can only punish if the offense is in the course of professional duty. For this reason I am inclined to think that some of the cases brought before the Council would have been more appropriate for investigation by a court of law. Further, it seems a clumsy arrangement to bring together two dozen distinguished professional men to consider cases which a common jury would be equally capable of trying—not to say even more so. Unqualified practice and other irregularities could also be more rapidly and more effectively dealt with by a smaller body, but the duty has been laid on the Council by the Legislature and has been discharged as well as might have been anticipated with its imperfect authority. The dental department has been more successful because the dental act is a better instrument than the medical acts. The dental societies, too, have given more assistance to the Council than the medical associations. A recent decision of the law courts in a dental case supports the view expressed above and shows, too, that if the Council would suppress quackery it should seek further powers from the legislature. This seems obvious from the proceeding of the last day. A report of a committee was brought up on unqualified practice and contained information as to the provisions for dealing with it in the colonies and foreign countries. It suggested a Royal Commission to inquire into the subject. On the same day the opinion of the Council was said to have been asked by the Privy Council on the anesthetics bill. This bill had been approved by a committee as prohibiting any one who is not a qualified practitioner from administering general anesthetics in medical, surgical, or midwifery cases. These reports were adopted and the president requested to inform the Privy Council of both decisions.

The president of the Pathological Section (R. M. S.), Mr. Shattock, exhibited on the 17th ult. a dilated and hypertrophied bladder with double hydronephrosis from a man who had never had urinary trouble. There was no enlargement of the prostate and a catheter passed easily. He called the case idiopathic in the way we speak of the colon, esophagus, or stomach with similar conditions. He remarked that in the pelvic colon the dilatation usually began soon after birth. In the bladder dilatation had been observed in infancy and in the newly born—an example being in the Hunterian Museum. He spoke only of dilatation without recognizable cause. He suggested that it might be due to incoordination between the contraction of the detrusor and the dilatation of the sphincter. It was also possible that a hypoesthetic state of the mucosa delayed the reflex of micturition until the bladder had become abnormally full. Dr. T. G. Brodie and himself had experimented on a cat and when the mucosa was anesthetized with cocaine, on the bladder being filled with warm salt solution micturition was inhibited and the bladder became markedly distended. This indicates that the reflex of micturition is initiated by the tension of the vesical mucosa, *i.e.* the contraction of the detrusor and the associated dilatation of the sphincter. Whether anesthesia or hypoesthesia of mucous membranes occurred as a hysterical phenomenon might repay investigation.

Professor C. E. Purslow of Birmingham communicated to the obstetrical and gynecological section a case of cancer of the cervix uteri with unusual microscopical appearances. The patient, aged 21, had had one child. She applied with pink vaginal discharge and occasional pains in the back. On examination a fungating growth was detected. It extended more than half round the vaginal portion of the cervix on the right side, was friable, and bled freely when touched. Uterus mobile vaginal hysterectomy was performed. The patient recovered and seemed perfectly well for three months. Then she began to lose weight, gradually got worse, and died thirteen months after the operation. Masses of growth could be felt in the pelvis, but no post mortem was permitted. The microscopic preparations which were made indicated carcinoma.

Yesterday afternoon the War Minister, Mr. Haldane, attended the Westminster Health Society's annual meeting and moved the report. Comparing his own work with the society's, he said the latter did not follow the example of general staff work. People had been asleep as to prevention of disease, though it was more important than cure, but this society was awake and an admirable example of the beginning of wisdom in this region. A notable feature of its wisdom was that its work was undertaken in consultation with and under the direction of the Medical Officer of Health. That marked it out as true public health work. In the second place it limited its object; it aimed at getting into contact with cases before they needed cure; its visiting was directed to the ascertainment of definite conditions, which, if continued, must end in disaster to those concerned. These conditions were observed, reported on, and an organized effort made to remove them. Much more would be heard of these things in the future. The great commission on the Poor Law was coming to a conclusion and their report was looked forward to for guiding legislation. This society was doing what the report might lead to being done on the largest scale by government. It did not send its members to distribute money, but to find out what was necessary. Last year 11,000 visits were paid and in many cases provision made which meant the difference between health and sickness.

The subject of medical inspection of school children has been discussed in the House of Lords, chiefly from its financial aspect. It was pointed out that the act of 1907 laid the duty on the local authorities. The Board of Education issued regulations requiring the Medical Officer to report if the schedules were not properly carried out. It was understood that a substantial grant would be made toward the expenses and the adequacy of the inspection was to be a factor in determining the efficiency of the school and so the amount of its grant. Such a regulation was said to have been *ultra vires*. Moreover, no provision has been made for the cost, which would therefore fall on the rates. For the government it was replied that no special grants were advisable, indeed multiple grants are being done away with as fast as possible. Therefore, the cost must come out of the education rate. The burden on the local authorities had been exaggerated. This seems to imply that the medical inspectors will be squeezed by the local authorities after their usual custom.

Dr. W. A. Elliston, J. P., consulting surgeon to the Ipswich and East Suffolk Hospital, died on the 27th ult. Born in 1840, he qualified in 1862 and took the M.D., Lt. Andrews, in the same year. He was on the active staff of his hospital for about thirty years, retiring as consulting surgeon in 1900. Throughout East Anglia he enjoyed the confidence of his profession and was in constant request as a consultant. He took part in the development of Felixstowe. He also interested himself in medical politics and social reforms. He was for a long time president of the Medical Defense Union and a supporter of the claims of members of the College of Surgeons. In 1890 he was president of the British Medical Association. He delivered addresses on alcohol and on milk and occasionally contributed cases to the journals.

Indications for Radiotherapeutics.—Th. Nogier gives a careful résumé of those cases that may be expected to be relieved or cured by the use of the *x*-rays, and the technique of their use. Among the skin diseases cured are hypertrichosis, trychophytosis, favus, acne, prurigenous dermatoses, eczema when local, and lupus vulgaris. Of neoformations keloids are cured. Sarcomata should be first operated on and then rayed to prevent recurrences. Lymphadeny and leucemia are benefited Cutaneous epithelioma is cured. Deeper cancers may be first operated on and then rayed. Even internal cancers are benefited in relief of pain and inflammatory symptoms. Adenitis of tubercular nature is cured. Neuralgias are relieved. Hemorrhagic fibromata are cured by the production of the premature menopause. Dangers are radiodermatitis, sterilization of ovaries and testicles, and eczematous eruptions in the distribution a nerve that has been too strongly irradiated.—*Lyons Médical.*

Progress of Medical Science.

Boston Medical and Surgical Journal, December 10, 1908.

Use of Tuberculin in Diagnosis.—F. T. Lord concludes that reactions with any one of the three tests, when properly performed, indicate tuberculosis somewhere in the body. It may not be where our clinical data lead us to suspect it, and reactions may occur in the presence of latent, inactive as well as active, foci. This must be constantly in mind in applying the results of the test to individual cases. In patients suspected of tuberculosis, a positive test is only one more factor to be considered in establishing the diagnosis, while a negative test is of much greater value and goes far toward disproving the tuberculous character of the disease in question. Of the three tests, von Pirquet's cutaneous method appears to be quite harmless and reliable. It is probably more delicate than the conjunctival and subcutaneous tests and hence more often responds to latent, inactive and unimportant fooci. So far as can now be judged, the writer holds, there need be no hesitation in its application, but he is personally disinclined to the use of the conjunctival test.

A Clinical Study of the Transmission and Progress of Tuberculosis in Children Through Family Association.—The paper of C. Floyd and H. I. Bowditch is a practical exposition of one of its most significant topics growing out of the modern propaganda against tuberculosis. They discuss influences favoring infection, mode of infection, incidence, other factors influencing infection, infantile and adult types of the disease. Signs and symptoms, various diagnostic means and their relative value and treatment. As their study is based on 1,000 cases, its statistical value is thrown into strong relief and their findings are logically summarized. In order to properly protect the rising generation, the following measures are necessary: (1) Early notification of all births. (2) Better inspection and control of the cities' milk supply. (3) Systematic school inspection. (4) Housing reform. (5) Segregation of advanced cases. (6) Required notification of the disease. (7) Provision for the care of pulmonary tuberculosis in children. (8) Education of all school children on matters of general hygiene.

New York Medical Journal, December 12, 1908.

A New Operation for Hemorrhoids.—C. W. Heitzman reviews the various current operative methods and then describes the following procedure: After the usual preparation of the patient, the tumors are exposed successively and held between the thumb and the finger or with forceps. An incision is then carried in the long axis of the bowel through the mucous membrane, care being taken so as not to wound the blood vessels. The blood vessels being now exposed, they are grasped with forceps and traction applied. This, as a rule, will liberate the vessels, if not, the use of a small, blunt spoon or currette will materially assist in breaking up inflammatory adhesions of the connective tissue. When by this method the hemorrhoidal vessels are thoroughly exposed through the cut in the mucous membrane, a ligature of small-sized catgut is applied above and below. Now the vessels are extirpated with scissors or knife. The incision in the mucous membrane is closed with like suture material. It is found, however, that unless the incision is large it heals just as readily without suturing, being hermetically sealed with blood clot. Should too much redundant tissue remain, it may be removed, carrying the incision in the form of an ellipse and closed as before. It is surprising, however, how much the mucous membrane will shrink after removal of the vessels. The only dressing used is a sterile pad over the anal region. The operation is best performed without the use of sponging, a drip of boric acid solution being employed to keep the field clean. The operation is not applicable to the friable or capillary form, nor to the so-called connective tissue or cutaneous hemorrhoids. It is at once thoroughly surgical as well as simple. Little hemorrhage during the operation and the danger of secondary hemorrhage are reduced to a minimum. It is a comfortable operation for the patient; there is practically no pain. The edges of the wound are thoroughly coaptated, causing prompt healing and the absence of a cicatrix. The cause is removed, not merely a bunch of mucous membrance, as is often the case with other operations.

Sarcoma of the Small Intestines.—J. A. McGlinn has found forty-one cases of intestinal sarcoma on record and gives a comprehensive analysis of them. He adds one personal case; that of an Italian male of 18 years, with the history of gastrointestinal symptoms of one month's duration. In one week the abdomen began to enlarge. A diagnosis of ascitis from tuberculous peritonitis was made and a quart of yellowish white turbid fluid, considered pus, was withdrawn by paracentesis, but the abdominal cavity quickly refilled. At this time he came under the author's care, who performed abdominal secion. A considerable quantity of fluid, probably chylous ascitis escaped. The great omentum hung over the bowel like a red curtain. All the organs seemed symmetrically thickened except the liver, spleen and stomach. The bladder was as large as a seven months' uterus. After the operation the abdomen rapidly refilled and the patient died from asthenia on the tenth day. Microscopical examination of a small bit of tissue removed at the time of operation led to the diagnosis of large, round cell sarcoma. The author has been unable to find a similar case the counterpart of his own.

The Application of Rest and Exercise in the Treatment of Tuberculosis.—This subject is sensibly discussed by F. M. Poltenger. He lays special stress on the necessity of particularizing each case with reference to advice in the matters of rest and exercise, just as much as we would particularize in any disease with powerful drugs. He calls attention to instability of the heart as an early sign of tuberculosis. While at rest, the pulse may not be any quicker than normal, while upon exertion it is markedly accelerated and this feature continues through the disease. In health the pulmonary and systemic circulation balance each other, and the heart works without strain. In pulmonary tuberculosis, on the other hand, an inflammatory process is present, and, according to the extent and the nature of the pathological condition present, the pulmonary circulation is impeded or cut off, and to this extent the right heart is subjected to a greater or lesser strain. At the same time, the heart is incapacitated for withstanding this extra strain by the degeneration which occurs in the heart muscle consequent upon the toxemia and general muscle atrophy, as well as the interference in the nervous mechanism of the organ through the binding down of the vagus in adhesions and in masses of enlarged glands. The heart, then, must always be carefully considered in tuberculosis. It must be spared and strengthened for the great strain to which it is subjected. Early in the disease this care should be instituted, so that the patient may recover, if recovery is possible, with a sound heart. Late in the disease such care is imperative, that the patient may recover at all.

Journal of the American Medical Association, December 12, 1908.

Primary and Secondary Syphilis.—A. Ravogli has found in his treatment of syphilis, that in the malignant forms of primary syphilis, the symptoms are much more precocious, the period of incubation is shortened and the constitutional manifestations are hastened. This he explains by the power of the organism to produce antibodies opposing the invading germs. That this occurs in syphilis has been lately demonstrated; in the serum of syphilitics, products are present which are not found in normal serum. A lack of antibodies prevents a pronounced primary reaction and the unimpeded spirochetes are the more free to invade the whole organism. The idea that syphilis constantly follows the lymphatics to invade the system is no longer tenable, for there are many cases in which the infection is very rapid and can be traced to the extension of the virus through the blood vessels. Ravogli refers to several cases illustrating and confirming his views. The treponema, as Hallopeau and Gaston believe, undergoes changes in the organisms in the different stages of the disease, thus accounting for the different symptoms. The germs can also spread through the tissues by continuity, and this may be facilitated by increased virulence, or accounted for by a lack of resistance in debilitated conditions of the system. If the defensive glands have been injured by previous disease, the infection becomes the more dangerous. On the enfeebled condition of the system, the inability of the organism to produce antigens, and the passive condition of the leucocytes depends the factor of malignant syphilis. External injuries and irritations favor the local lesions in this way. According to the views of Hallopeau and Gaston, the persistency and stubbornness of the papulosquamous syphilides of the palms and soles must be due to the hard, thick skin of the part in the interstices of which the germs propagate, and are in a measure protected from the action of remedial agents in the circulation. It is difficult to foresee whether we will ever find an antisyphilitic vaccine, but in mercury we have a remedy that directly attacks the spirochete, and the recent discovery of the specific action of atoxyl on the disease, has, he believes, added another valuable remedy. Whether it is to replace mercury, or be used in conjunction with it, or whether mercury will still be our main resource, only time and experience will tell.

The Spirocheta and the Treatment of Syphilis.—J. F. Breakey finds a partial answer to the question: What advantage is the discovery of the spirochete to the treat-

ment of syphilis? in the recent work of Metchnikoff showing the prophylactic value of calomel ointment inunctions and atoxyl. If further work demonstrates the truth of the claims of the French investigators as to the prophylactic power of atoxyl, given soon after inoculation, such a fact can be made of practical use in one way at least. If all persons who have been exposed to a possible syphilitic infection were to submit themselves for treatment by prophylactic doses of atoxyl, it would be possible to wipe out the disease. The treatment would have to be instituted, however, before the infection had been generally disseminated and before the finding of the spirochete. In general practice, therefore, all suspicious cases would have to be treated alike, but the treatment with the proper dose of atoxyl is harmless. In case of the established disease, the only change in treatment which could be wrought by the discovery of the infecting organism would be to cause an earlier beginning of constitutional treatment, and this would still be open to the objection of possibly causing an early disappearance of symptoms and the production of a false sense of security, leading the patient to abandon the treatment too soon. Breakey quotes, with approval, the conclusions of Paul Salmon, that arsenic is as much a specific as mercury in syphilis, and more reliable as an abortive. As a remedy it is preferable in all stages, and is of special value in the graver and more malignant forms of the disease. It is not contraindicated in the parasyphilitic manifestations, but even ameliorates many symptoms. Syphilis may be aborted by toxyl administered as late as from one to two weeks afeer inoculation. Small doses are ineffective and useless and too large ones cause toxic symptoms. The ordinary dose should be 50 centigrams (7½ grains), which should be given hypodermically at intervals of one or two days and repeated from four to eight or ten times, after which an interval of rest should be taken, or the treatment continued with mercury or iodine.

Hemolysis and Cancer.—G. W. Crile describes the technique used by him for the determination of hemolysis of normal blood corpuscles by the serum of diseased conditions and *vice versa*. The method is somewhat elaborate, great care being taken to avoid injury to the red corpuscles and properly to control temperature. The normal bloods from several individuals are obtained and tested against each other, as well as against the blood of the patient, to avoid error from any possible abnormality, and all the tubes of the entire test are made up in duplicate and one set subjected to a temperature of 55 C., by which the possibility of error from the presence of inorganic hemolysins can be excluded. Inorganic hemolysins, not being influenced by heat, will thus reveal their presence. The test is made by noting the result of suspending the normal red cells in the patient's serum and suspending the patient's cells in normal serum. The results of a study of nearly six hundred cases are given, attention being directed especially toward the reaction in the normal state, in pyogenic infections, in malignant tumors, in benign tumors and in tuberculosis. No hemolysis was observed in normal cases or in cases of benign tumors. Besides a few reactions in miscellaneous cases, apparently not included in the series, hemolysis occurred seven times in 71 cases of pyogenic infections, 130 times in 153 cancer cases, and 48 times in 52 cases of tuberculosis. It appeared, in all of 11 postoperative cancer cases with clinical recurrence, and in none of 37 cases without clinical recurrence. Extracts of malignant tumors uniformly caused total hemolysis, and the reverse was the case with extracts of benign tumors. All cases of tuberculosis showed reverse hemolysis; that is, normal serum hemolyzed the patients' corpuscles. In all cases, serum heated to 55 C. for ten minutes prevented hemolysis. Sudden chilling of the blood, according to the method of Hoover and Stone, caused a marked increase in the hemolytic action. Plasma, obtained by immediately centrifugalizing the serum, caused little or no hemolysis in hemolytic cases. The hemolytic property reaches its maximum about 24 hours after the blood has been drawn. In the cancer group the patients in whom the disease was entirely removed lost their hemolytic property in from twelve to twenty-one days after operation; in those with incomplete removal it continued indefinitely. Crile concludes that hemolysis occurs in a number of diseases. It occurs with great frequency in cancer and tuberculosis, and its action in tuberculosis is the reverse of that in cancer. Clinically it affords evidence that may be used in the diagnosis of these two diseases, but the evidence is not as yet specific.

Air Infection.—C. V. Chapin questions the importance of air infection as a cause of disease. Bacteria are not readily given off from moist surfaces, and the evidence in regard to their retaining their virulence in a dry state, in the form of air-borne dust, is conflicting and difficult to analyze. Spores, of course, retain their virulence, but it is a fact that our most common spore-bearing pathogenic organism, that of anthrax, seems not to be air-borne. There is no theoretical reason why certain germs known to be resistant to drying, like those of tuberculosis, typhoid and diphtheria, may not be air-borne, but the evidence that they can be carried any distance is not conclusive. Some authorities have maintained the possibility of the air connection of smallpox, but this is contrary to facts as observed in this country. The history of surgery is significant as regards this question; at first, air-borne infection was carefully guarded against by the use of the spray, but later experience has taught surgeons to dispense with this safeguard. A number of facts are given in support of his position and his conclusions are summed up substantially as follows: 1. The theory of transmission of disease was developed as a reasonable way of accounting for the propagation of disease. 2. We now have other and more probable explanations. 3. The best medical thought has been steadily restricting the supposed sphere of aerial transmission. 4. Only a few authorities now claim that disease can be carried by the atmosphere outside of dwellings, and this is asserted only of smallpox. 5. Modern bacteriology teaches that most diseases are not likely to be dust-borne, and that they are spray-borne only for two or three feet, a phenomenon that resembles contact infection more than air infection as ordinarily understood. Tuberculosis is the disease most likely to be thus air-borne. 6. Animal experimentation indicates that tuberculosis may be thus conveyed. 7. Pathology does not assume, as is sometimes alleged, that tuberculosis is an air-borne disease. 8. There is no good clinical evidence that the common diseases are transmitted through the air. 9. There is considerable clinical evidence that scarlet fever, diphtheria, smallpox, measles, whooping cough, typhoid, and plague are not easily transmissible through the atmosphere. If these conclusions are correct, we should, he thinks, abandon aerial transmission as a working hypothesis and give more attention to strict medical asepsis. This he has learned by experience we cannot teach people as long as they believe air to be the chief vehicle of infection. Paris hospital experience has shown that there is little danger in neglecting the aerial factor.

The Lancet, December 5, 1908.

Bacterial Contamination of Milk as Illustrating the Connection Between Flies and Epidemic Diarrhea.—J. T. C. Nash exposed some saucers of milk to flies while other saucers were kept under the same conditions, except that they were covered. Analysis of both five hours later showed that the exposed saucer, in which were found the bodies of two flies, contained millions more of gas-forming bacteria than did the covered specimen. General results thus obtained were confirmed in further experiments. The importance of protecting milk from flies is illustrated by these experiments. It can readily be understood that the larger the number of flies the greater would be the pollution. It is not difficult to realize how in a fly-ridden district diarrheal diseases may be in excess unless care is taken to see that food supplies (especially milk) are protected from the contaminating attentions of flies. The experiments were undertaken on the lines of natural conditions obtaining in houses, so as to include the natural factors of symbiosis or antagonism of bacteria already existing in an ordinary milk supply. The number of putrefactive bacteria in milk is of great importance. The chemical changes produced in milk by, say, thousands of putrefactive bacteria may perhaps not be sufficient to cause serious diarrhea, while the chemical changes produced by millions of such bacteria may conceivably be very prejudicial and excite acute diarrhea. The author says that, as to treatment, the foregoing facts indicate the wisdom of early expulsion of the bacteria and their toxic products by a large dose of castor oil which should, in his judgment, be followed by small doses—say, ten grains—of sulphate of soda every two hours dissolved in sterilized (boiled) water. No food should be given for six or eight hours, and then only sterilized whey, commencing with small quantities, gradually increasing same. The utmost care should be taken that all milk used for artificially fed infants should at all times be scrupulously protected from fly contamination, especially in dealing with an infant suffering from or convalescent from epidemic diarrhea.

Prophylaxis of Acidosis Following Anesthesia.—F. H. Wallace and E. Gillespie analyze the phenomenon occurring in connection with three sets of anesthelized patients. In class 1 (127 cases), 32 showed acetone in the urine before operation and 60 after; 69 had primary vomiting and 49 secondary. In class 2, half-dram doses of sodium bicarbonate were given at four hourly intervals (in all, half an ounce), the last dose four hours before operation. Of the 73 cases thus treated, 15 had acetone before operation and 39 after. Primary vomiting occurred in 49 and secondary in 25. In class 3 the bicarbonate was re-

placed by half an ounce of glucose every four hours for six doses; the last, four hours before operation. Of 100 cases, 3 had acetone before and 22 after operation. There were 53 cases of primary and 21 of secondary vomiting. The anesthetics given during these three series were, with few exceptions, either chloroform or C.E. mixture given on a Skinner's mask, or $CHCl_3$ by Junker's inhaler; 32 per cent. were induced by ethyl chloride. The percentage of acetone after the various anesthetics showed very little change. The author could not determine that the time in hospital previous to operation had any bearing on the subject. The average duration of stay was four days previous to operation. The following previous observations were noted and confirmed: (1) the greater liability of children to symptoms; (2) the frequency in which septic cases, especially abdominal, showed symptoms of acidosis, and (3) the length of anesthesia was not a great factor in the production of acetone. General conclusions are (1) that so far as prophylaxis by drugs, glucose has a much greater power in controlling the acetonuria than sodium bicarbonate; (2) that the secondary vomiting is in direct relation to the amount of acetone produced; (3) anesthetics should be given by an open method; (4) that in all cases of vomiting lasting over 12 hours the stomach should be washed out with a solution of sodium bicarbonate, leaving some fluid in that organ.

Latent Persistence and the Reactivation of Pathogenic Bacteria in the Body.—This is the Horace Dobell lecture for 1908, delivered by L. S. Dudgeon, who considers particularly the pneumococcus gonococcus, Klebs-Loeffler bacillus, *B. proteus, B. coli,* and *B. typhosus.* He refers to recent literature on the bacteriology of normal organs and records certain observations in connection with aseptic wounds in one of the London hospitals. Here antiseptics are not included in the surgical technique, and thus bacteriological investigation can be completed under the most favorable conditions. In these observations of 45 cases treated without chemicals the wound surface was sterile on only 26 occasions and in 15 instances the *staphylococcus albus* was cultivated. The skin cut from the edge of the wound at the conclusion of the operation was found to be sterile six times in the first 45 cases, while on 30 occasions the *Staphylococcus albus* was found to be present. The suture, removed at intervals varying from 24 hours to six days after operation, was found to give a growth of the *Staphylococcus albus* on 30 occasions out of a series of 45. The exudate at the time of the removal of the suture gave a growth of the *Staphylococcus albus* on 18 occasions. There was only one case of suppuration in the whole of this series. We thus see that organisms belonging to the staphylococcic group are of frequent occurrence in wounds which heal without suppuration; their presence, however, but for bacteriological investigations would be unknown. It is more than probable that the existence of these organisms in normal tissues is an important source of suppurative inflammation in the healing of wounds. In regard to the pneumococcus, the cells of the upper air passage form the first line of defense and the pulmonary tissues the second. It may enter through the alimentary canal. It is found in the saliva, nose and tonsillar crypts. The gonococcus may remain in the tissues for an indefinite period without apparently producing any ill effect. The persistence of the Klebs-Loeffler bacillus in apparently healthy throats is well known. The proteus group may remain indefinitely without causing tissue change. Wound infection by it may cause gangrene. The *Bacillus coli* is a normal inhabitant of the intestinal tract. It is often found in the urine without symptoms. Its exact relation to typhoid we do not know. It often causes an acute febrile attack indistinguishable from typhoid except by bacteriological observation. In regard to the *B. typhosus*, it is generally now agreed that by the term "typhoid fever" we are to understand certain chemical phenomena which are due to infection with various microorganisms belonging to the typhoid coli group and not necessarily to the specific microorganism, the typhoid bacillus. This fact serves to explain why acute diseases, regarded as typhoid fever on their clinical manifestations, have failed to give a positive typhoid agglutination reaction at any period of the disease, quite apart from those rare instances of true infection by means of the *Bacillus Typhosus* which also fail to give this reaction.

British Medical Journal, November 28 and December 5, 1908.

Pelvic "Blotches" and the Roentgen Rays.—L. H. Harris refers to certain areas which he has frequently noted in pelvic radiograms, referring to them as "blotches." In his experience they have occurred only in males and they always occupy the same area—namely, a line drawn from the spine of the ischium to the symphysis pubis. They may be bilateral or unilateral, and vary in size from a hempseed to a broad bean. It seems most probable that these shadows are cast by calcareous deposits in the vesiculæ seminales, and in a recent case such deposits could be distinctly palpated on making a rectal examination on a case in which these pelvic "blotches" appeared. Frequently such deposits have been found post mortem in the vesiculæ seminales surrounding a cystic dilatation. These shadows might easily be mistaken for vesical calculi, and no doubt have very often been interpreted as such. Such a mistake may be avoided by remembering the constant position of these "blotches," and also the fact that generally vesical calculi occupy a central position.

Rheumatic Origin of Certain Serous Inflammations.—Eustace Smith denies that rheumatic lesions are limited to the pericardium alone, among the serous membranes. He relates the history of appendicitis in a child, with an intercurrent heat murmur. Salicylates promptly cleaned up the abdominal symptoms though the murmur continued. Abdominal illnesses of rheumatic origin may take the shape of a severe general peritonitis and the history of one case is given in which the cause was considered to be rheumatic. A young man with an attack of general peritonitis of apparently the most virulent character was given the salicylates and the whole aspect of the case changed with unlooked-for rapidity. To the author's mind these cases (of which we have mentioned the bare outlines) furnish evidence which cannot be lightly dismissed as to the nature of some attacks of serous inflammation in the abdomen, and suggest, at any rate, the possibility that these may at times have a rheumatic origin. If this be granted, it is advisable, he says, in all cases of appendicitis to begin the treatment with a few substantial doses of the salicylate of sodium, for the rheumatic element cannot be excluded until the result of treatment by this remedy has been ascertained. He has seen many cases of appendicitis in which the question of operation was being considered which underwent such rapid improvement under antirheumatic treatment that all idea of surgical interference was quickly set aside. If the treatment fail—that is, if no improvement be noticed within thirty-six hours of taking the first dose of the salicylate (which should be of substantial quantity and given every three hours)—the assumption of a rheumatic origin for the inflammation may be definitely abandoned.

Abdominal Auscultation as an Aid in Diagnosis.—A. F. Hertz claims that we have in abdominal auscultation a means by which the rate of passage of the contents of the small intestine from the stomach to the cecum can be measured and describes his experience in listening over the cecum while at the same time an *x*-ray examination (the patient having taken bismuth) was made of the abdomen. It was found that the appearance of a shadow in the cecum immediately followed the occurrence of the earliest sounds in the right iliac fossa. In those investigations in which auscultation was practiced without skiagraphy, the first cecal sounds were always heard at about the time that *x*-ray observations had previously shown that the first traces of the food would reach the cecum. Auscultation may therefore take the place of skiagraphy when the latter cannot for any reason be used, in the diagnosis of the rare cases in which constipation is due in part to the slow passage of food through the small intestine. The sounds heard over the cecum are in all probability due to the actual entry of the fluid contents of the ileum into the gas-containing cecum. Their loudness varies considerably in different individuals. When, five or six hours after a meal, the gas is largely replaced by fecal material, the sounds diminish in intensity and become less continuous. At all times they are louder in the upright than in the horizontal position, but for the first few seconds after lying down the sounds are generally loud and almost continuous, owing probably to the movements of the fluid contents produced by the action of gravity.

Bee Stings and Rheumatism.—E. T. Burton presents another letter on this subject and gives the histories of four cases, all of which showed distinct improvement under the stinging treatment. He adds certain practical points regarding the management of the bees, and has even devised a spring forceps with which to hold the insect while it is stinging. The insect is held close to the affected area and a very little pressure will make it sting. In spite of some ridicule, which has been thrown on the procedure, the author declares that every day impresses him more and more with the practical value of this therapy.

A Case of Osteitis Deformans.—S. White reports the case, an excellent photograph of which is added. The patient was a man 59 years of age and of good habits. He denied specific disease. Symptoms apparently began soon after his twentieth year. A full anatomical description of the patient is given and the author passes on to a general discussion of the malady. Very little information

concerning it has appeared since the original description by Paget (after whom the disease is sometimes named) in 1877. This authority regarded it as first, a rarefying osteitis, particularly of the compact bone, and second, the formation of new bone from the periosteum. Paget thought there might be some relationship between this disease and cancer, but analysis of recorded cases does not support this view. Some 100 cases have been reported in the last thirty years. The course is slow, and in the majority of recorded cases the disease does not seem to have shortened life materially. There is no evidence that any plan of treatment hitherto followed has been of any avail.

Some of the Effects of Excessive Smoking.—Nothing new is presented in the paper of J. D. Mann, whose statements are temperate and based on accurate clinical investigation. He describes the familiar cardiac disorders following tobacco excess. He says that it is obvious that with all physiologically active substances the qestion of degree is largely determinative of the results produced by any agency that is capable of affecting the health. Most men, if they choose to smoke, can do so within certain limits without injuring their health; some men can exceed such limits with apparent impunity. The extent of the limitation must be determined by each man for himself, and if he is wise he well keep well within the border-line and will hold to his resolution. Here lies the difficulty; the growth of a habit overrides discretion. The habit of excessive smoking is more insidious in its development than that of excessive drinking, for the results are much less obvious. An alcoholic may be appealed to by his friends or admonished by those in authority; this rarely happens to the adult smoker, unless he consults his doctor about "indigestion and palpitation" and admits that he smokes to excess; then probably the necessary warning will be given.

Physiology of the Fallopian Tube.—J. T. Shirlan says that there are no glands as such in the tube, but glands are, after all, but involutions of a secreting surface in order to increase that surface, and the remarkable foldings of the tubal mucosa may be looked upon as glands, the increased surface of the membrane being brought about by elevation instead of depression. We cannot draw any certain distinction between the epithelial cells of mucous membranes and so-called gland cells. As covering surfaces, they might all be called epithelial cells, and they all probably separate definite materials from the blood. Experiments on rabbits and guinea-pigs have, the author thinks, proved conclusively that there is tubal secretion. No mucus has ever been found in either menstrual or non-menstrual tubes. In studying the act of secretion, one finds that in some cases the cells give up the substances they have eliminated by rupture or deliquescence; while in others there are no signs whatsoever of any changes in the cells, and it is then that the secretion is more liquid, containing very little solid matter, or having it in a state of such perfect solution as to be capable of easy transudation. It appears to the author that the Fallopian secretion is of this second variety, the fluid being clear and watery. The fluid contains albumen, considerable sodium chloride with traces of calcium, phosphorus, and potassium, and is faintly alkaline. Such conditions favor the vigor of the spermatozoa and ova. It is exceedingly probable that the tubal mucosa is continuously moistened by a small quantity of fluid which is poured forth more abundantly during physiological excitement such as the passage of the ovum. The ampulla is the widest part of the tube and its plicæ are more numerous and more folded than in any other part. There is thus a "well" of saline fluid ready to receive the ovum, which in passing through the ostium abdominale sets up a peristaltic contraction of the muscular coat, and closes this orifice. A current is created in the fluid by ciliary motion, and the ovum is swirled along like a cork in a stream towards the uterus. It is absurd to imagine that delicate protoplasmic processes like cilia propel the ovum by direct contact—the cilia of other mucous membranes propel fluids—not bodies. The probability is that when a pregnant ovum remains in the tube, this occurrence is due to one of two things or to a combination of the two: either there has been too little secretion, or there has been a diminution in the lashing movements of the cilia, from a previous salpingitis.

Berliner klinische Wochenschrift, November 30, 1908.

Gastric Ulcer.—Klapp reports a case of ulcer situated in the posterior wall of the stomach and perforated into the pancreas. Clinically, the picture was that of carcinoma, the patient being cachectic and the stomach contents alkaline; no vomiting of blood had occurred. The ulcer was reached from the left outer side, the spleen being removed to allow free access. The operation resulted in the loss of some pancreatic substance and the gland had to be sutured. The ulcer itself was excised. The patient recovered completely though slowly. Klapp thinks this is the first case in which extirpation of the spleen was necessary to reach a gastric ulcer and considers that the loss of this organ is fully repaid by the access to the operative field thus obtained.

Paralysis of Crural Nerves After Operation.—Kurt Mendel and Wolff call attention to the fact that paralysis of the nerves of the lower extremities because of prolonged pressure or stretching during an operation is very much rarer than the same accident with the nerves of the brachial plexus. Only four cases of such paralysis of the crural nerve have been described. They report another case, bilateral paralysis of both nerves having followed a gynecological operation that lasted an hour and a half; the patient's thighs were flexed and abducted during this time. The authors think that the possibility of such an accident should lead to as much care in protecting the nerves of the lower extremities during an operation as is usually exercised in regard to the brachial plexus and its branches.

Deutsche medizinische Wochenschrift, November 26, 1908.

Treatment of General Burns.—Pels-Leusden says that the general symptoms are the most important in burns of any extent. Such symptoms may originate in the brain, in the heart, or in the kidneys. It is possible that the effect of heat upon the skin results in the development of toxins, which affect the general system of the patient. The heart is usually weak and fast, the vessel tone diminished, the temperature may fall and hemolysis may take place. To meet these conditions intravenous injections of heart stimulants may have to be used, and much fluid should be administered to the patients by the mouth and per rectum. There is no contraindication to the use of opiates, for the intense suffering of the patient has a very bad effect upon his condition and must be relieved. The best treatment for the local lesion is that of Tschmarke and consists of cleaning the burned areas as thoroughly as is done for a surgical operation. As a rule either local or general anesthesia is required to accomplish this, the pain being intense. The surface is then covered with abundant layer of gauze, the upper layers of which have to be frequently changed because of the secretion from the wounds. Such cleaning of the burned surface prevents the death of small portions of epithelium lining the glands because infection is prevented and these islands of epithelium become the starting points for the growth of new skin. If infection of burned areas has occurred alcohol compresses and then incision and evacution of pus is indicated. The contractures that often remain after severe burns must he treated by plastic surgical procedures.

Phonometry.—Schlesinger describes under this name a new method of determining the borders of organs. He makes use of a phonendoscope and a tuning fork. The results are exact enough to give very well the differences of heart limits in the various phases of respiration, röntgenological examination showing the same results. The method, too, allows of exact determination of the limits of the lung apices, and may be used to show the presence of very small subpleural foci of tubercular infiltration. The upper border of liver dullness is very exactly determined by the use of the same appliances.

Inflammatory Tumors of the Mesentery.—Haberern says that such tumors usually appear from several weeks to several years after laparotomies and are very difficult to differentiate from real neoplasms. Being inflammatory in character they become quickly adherent to the surrounding structures and are difficult to remove on this account. Haberern reports a case of such a tumor, which proved inaccessible to operative removal, but suppurated in its interior and gradually disappeared after drainage was instituted. Histological examination showed granulation and scar tissue without any sign of malignancy. Such tumors most often follow operations for hernia, the mesentery being exposed to much trauma or infection in these procedures. Operative treatment is but rarely necessary, as resorption of the granulation tissue takes place under usual antiphlogistic measures with the internal administration of potassium iodide. The prophylaxis consists in careful asepsis and in putting any sutures or ligatures necessary in operations for hernia into healthy mesentery and not into inflamed portions of it.

Elimination of Uric Acid in Children.—E. Modigliani gives the results of his estimations of the elimination of uric acid in well and sick children, fed on a diet of milk and bread, and kept in bed during the time of estimation. The elimination varies with body weight in well children, the limits being from 0.61 to 0.168 gr. in children from two to six years of age. In sick children it varies between 0.062 and 0.300.—*Rivista di Clinica Pediatrica.*

Book Reviews.

Genitourinary Diseases and Syphilis. By Edgar G. Ballenger, M.D., Lecturer on Genitourinary Diseases, Syphilis and Uranalysis, Atlanta School of Medicine; Surgeon to Presbyterian Hospital, Atlanta, Ga. Atlanta, Ga.: E. W. Allen & Co., 1908.

The author asserts that this book is for the medical student, and thinks it "may prove of value to the general practitioner." In reality the genitourinary specialist can read it with pleasure and profit. True, it here and there contains a point to which exception might be taken, but considering that in 259 pages the author condenses the essentials of urogenital affections and syphilis, they cannot be covered otherwise than in a somewhat conspectus-like manner. It is regrettable that many of the 86 illustrations are rather crude. The text certainly warrants better drawings. Nevertheless, the very crudities of some of the pictures serve to assist the student, especially in differentiation, as, for instance, between gonococcus and pseudogonococcus. The index of 12 pages could most satisfactorily be elaborated to the advantage of the book and the convenience of the reader. The author describes a method of aborting gonorrhea which consists of injecting an organic silver preparation, which he causes to be retained from two to four hours, by sealing the meatus with zinc oxide adhesive plaster. It is singular that a writer so precise as Ballenger should attribute an old form of the Valentine urethroscope to Fowler. In a short, admirable chapter on bacterins, the author gives a conspectus of the present knowledge regarding the treatment of gonorrhea with opsonins; he is in advance of many in having obtained success therewith in acute gonorrhea, although he recommends daily irrigations, etc., to supplement the vaccine treatment. Barely a page of the work can be read without finding at least one instructive and interesting point. The experienced teacher, the skilled genitourologist, and the learned syphilographer is revealed in every line.

Lehrbuch der Specifischen Diagnostik und Therapie der Tuberculose. Für Ärzte und Studierende. Von Dr. Bandelier, Oberarzt der Dr. Weickerschen Lungenheilanstalt in Görbersdorf; und Dr. Roepke, Dirigierendem Ärzte der Eisenbahnheilstätte in Melsungen. Zweite erweiterte und verbesserte Auflage. Mit 19 Temperaturkurven auf 5 lithographischen Tafeln, 1 farb. lith. Tafel und 4 Textabbildungen. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1908.

The renewed interest in the treatment of tuberculosis by means of the various tuberculins is shown by the demand for a new edition of this monograph within nine months after its first appearance. The book has been improved by the addition of much matter dealing with the recently introduced local tests for tuberculosis and of a colored plate giving the results of positive cutaneous and ophthalmic reactions in tuberculosis. Questions of technique are considered at length and the volume is in general well adapted to the practical needs of physicians. American readers who do not read German are informed that an English translation has been prepared.

Chronischer Magenkatarrh. Von Hofrath Dr. F. Crämer. Munich: J. F. Lehmann, 1908.

The present monograph on chronic gastric catarrh gives a detailed description of this prevalent malady. The acid gastric catarrh met with especially in people using tobacco and alcohol is fully discussed. In the way of treatment the author recommends lavage, a prolonged, strict diet, and a hygienic mode of living. The practitioner will derive much profit from the perusal of the book.

Modern Medicine. Its Theory and Practice. In original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England; formerly Professor of Medicine in Johns Hopkins University, Baltimore; in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal. Assisted by Thomas McCrea, M.D., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. In seven octavo volumes of about 900 pages each, illustrated. Volume IV. Philadelphia and New York: Lea & Febiger, 1908.

This fourth volume of Modern Medicine treats of diseases of the circulatory system, of the blood, and of the spleen, thymus, and lymph glands. The senior editor contributes the chapters on Acute Endocarditis, Diseases of the Valves of the Heart (with Dr. A. G. Gibson); Diseases of the Arteries and Aneurysm. Diseases of the Lymphatic Vessels and Glands, and of the Thymus constitute three excellent chapters from the pen of Dr. Alfred Scott Warthin of Ann Arbor. Dr. Alexander G. Gibson writes on Hypertrophy of the Heart, Insufficiency and Dilatation, and (with Dr. Osler) Diseases of the Valves of the Heart. Dr. Charles F. Hoover contributes a chapter on General Considerations in Cardiovascular Disease, and on Functional Diseases of the Heart. Dr. A. McPhedran writes on Diseases of the Pericardium, and Dr. Robert H. Babcock on Diseases of the Myocardium. The other contributors are Dr. Maude E. Abbott, on Congenital Cardiac Disease; Dr. George Blumer, on Thrombosis, Embolism, Phlebitis; Dr. Richard C. Cabot, on General Pathology of Blood-Forming Organs and Pernicious and Secondary Anemia, Chlorosis, and Leukemia; Dr. Joseph H. Pratt, on Purpura and Hemophilia, and Dr. Irving Phillips Lyon, on Diseases of the Spleen. This is one of the most interesting volumes of the series thus far published, not only because of the importance of the subjects treated, but also by reason of the excellent manner in which the subjects have been handled by the contributors. As a treatise on diseases of the heart and vessels and of the blood this volume will compare most favorably with any published.

Die Lehre von der Kongenitalen Tuberculose. Mit besonderer Berücksichtigung der Placentartuberculose. Von Dr. Anton Sitzenfrey, I. Assistenten der Universitätsfrauenklinik und Privatdozenten für Geburtshilfe und Gynäkologie an der Universität in Giessen. Mit 28 in den Text gedruckten Abbildungen. Berlin: Verlag von S. Karger, 1908.

The author had an exceptional opportunity of observing a number of cases of childbirth in tuberculous women, to examine the placentæ and to follow the fate of many of the children. This has enabled him to present a very interesting study of congenital tuberculosis, illustrated by fine pictures of tuberculous infection of the placental and uterine tissues. He has rounded out his own observations by the consideration of the theories and the experimental work done by other workers on the subject; in addition, he gives a selected bibliography of 190 numbers. The book is well worth the attention of pathologists as well as of practising physicians.

Die Placenta Marginata und Ihre Enstehung. Von Dr. P. Sfameni, Professor und Director der Universitätsfrauenklinik in Perugia. Mit 11 Abbildungen im Text. Berlin: Verlag von S. Karger, 1908.

This monograph considers the anatomy of the placenta marginata, its clinical features and the various theories proposed for the explanation of its formation. The author then states his own view of the matter, according to which the anomaly is caused by disturbed relation between the forces exerted by the growing ovum and the growing uterus. A bibliography of the subject accompanies the volume.

The Handy Reference Handbook of the Diseases of the Skin. By George Thomas Jackson, M.D., Professor of Dermatology, College of Physicians and Surgeons, New York: Consulting Dermatologist to the Presbyterian Hospital, New York, and to the New York Infirmary for Women and Children; Member of the American Dermatological Association and of the New York Dermatological Society. With 99 illustrations and 4 plates. Sixth edition, thoroughly revised. New York and Philadelphia: Lea & Febiger, 1908.

The new edition of this well-known textbook is increased in size by the addition of articles upon several rare lesions of the skin and by the revision of the sections on pathology in the older articles. The alphabetical arrangement has been retained, each name being followed by an extensive list of synonyms that enhance the value of the book for reference purposes and, at the same time, give evidence of the sad lack of uniformity in the nomenclature of the diseases of the skin. The individual articles are surprisingly complete for the size of the book; comparison with more pretentious volumes on dermatology shows that nothing essential has been left out. The book is heartily recommended to students of medicine as well as to practitioners.

Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. XIII. Periodicity, Prussia. Washington: Government Printing Office, 1908.

Among the important titles in this volume are Peritonitis, Pharmacy, Physiology, Pleurisy, Pneumonia, Pregnancy, and Prostate. Besides the catalogue the volume contains a supplementary list of abbreviations of titles of medical periodicals, the original list having appeared in Vol. IX, additions to the same being published in each volume since. This volume includes 7,678 subject-titles of separate books and pamphlets and 40,221 titles of articles in periodicals, in addition to 5,566 author titles. The entire library contains 165,342 bound volumes and 291,346 pamphlets. The catalogue is edited by Major W. D. McCaw, U.S.A.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 3, 1908.

DR. JOHN A. WYETH IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Ophthalmology. The topic for discussion was "The Diseases of the Eye and Orbit Depending on Diseases of the Accessory Sinuses."

The Anatomical Relations of the Orbit to the Accessory Sinuses of the Nose.—Dr. GEORGE S. DIXON read this paper, illustrating it with lantern slides. The bony cavities of the orbits, he said, were somewhat pyramidal in form with their apices behind. The inner walls were approximately parallel, but the others diverged so that the orbital axes were separated in front by about 60 mm. while they coverged to about 35 mm. behind. The depth from base to apex was about 47 mm. in the average adult. The base or outer margins measured about 35 mm. in diameter, and were somewhat quadrilateral in form. The capacity of each orbit was about 24 cc. The roof was arched, and presented the optic foramen behind, the fossa for the lacrymal gland in front, the supraorbital notch or foramen, and a depression for the attachment of the pulley for the superior oblique muscle. The lower wall or floor was directed downward and outward, and presented a groove behind converted into a canal in front for the passage of the infraorbital nerve and artery. The inner wall presented anteriorly the lacrymal groove for the lacrymal sac. The lacrymal sac was continuous with the nasal duct and communicated with the inferior meatus of the nose. The anterior and posterior ethmoidal foramina were found in the upper margin of the inner wall. Surgically the outer wall was least important of all. The orbit with its contents was in close relation with the frontal sinus above, the ethmoidal cells and sphenoidal sinus internally, the maxillary antrum below, and was in communication with the inferior meatus of the nose through the nasal duct, and that inflammation and suppuration in any of these cavities were liable to involve the orbital contents. The maxillary antrum, or antrum of Highmore, was the largest of all the accessory sinuses of the nose, and it might be described as the triangular, pyramidal cavity in each superior maxillary bone, with its base directed toward the nose and its apex toward the malar bone. It varied greatly in size and form in different individuals; the ordinary capacity of each cavity in the dried bone was about 16 cc. The walls were thin, especially the inner or nasal. As the size of the cavity increased the thickness of the walls decreased. Not infrequently thin vertical plates of bone crossed the sinus below and interfered with drainage. So-called dental cysts might protrude into the cavity, with which they might or might not communicate, and one or more bicuspid or molar teeth were likely to enter the sinus. The roof of the antrum was very thin. The ethmoidal cells were composed of a mass of thin-walled cavities. The anterior and middle set of cells drained into the middle meatus, and the posterior set into the superior meatus of the nose. The sphenoidal sinus varied greatly in size and form, and in the dried bone it had a capacity of about 13 c.c. The frontal sinus had the distinction of being even more erratic than the others, and it had been impossible to reach anything like the limit of size, form, and location. All of these cells or sinuses were lined with mucous membrane continuous with that of the nose. The orbital contents received their blood supply through twelve branches from the ophthalmic branch of the internal carotid, and from the infraorbital branch of the internal maxillary artery. The frontal sinus received its supply from the anterior ethmoidal and supraorbital branches of the ophthalmic artery. The maxillary antrum was supplied by branches given off from the infraorbital artery, and sphenopalatine branches of the internal maxillary artery. The sphenoidal sinus was supplied by the external branch of the sphenopalatine. The venous circulation was through the vessels returning principally in the course of arteries supplying the parts. There was no direct communication between the orbit and accessory sinuses of the nose if one made an exception of the lacrymonasal duct. Indirect communication occurred between the orbit and ethmoidal cells through the anterior and posterior vessels, and between the orbit and the maxillary antrum by way of vessels passing between these two cavities through the floor of the orbit. A limited amount of tissue separated the accessory sinuses from the orbital contents. Nature was inclined to be protective always and in the majority of cases barred progress in the direction of the orbit by inflammatory thickening until pressure and necrosis overcame the temporarily increased resistance.

Ocular Complications of Nasal Sinus Disease.—Dr. ARNOLD KNAPP said that the most striking and probably the best known orbital complication of nasal sinus disease was the one due to a dilatation of the sinus without inflammatory signs, the so-called mucocele, which caused a mechanical displacement of the orbital contents. The eyeball was generally involved. The distention which the sinus underwent was associated with a rarefaction of the bone. The only treatment was operation; this was usually simple, consisting in the removal of the lower wall of the frontal sinus and of the entire ethmoidal labyrinth, thus permitting free drainage into the nose. Inflammation of the sinuses was associated with external or orbital inflammatory signs whenever the inflammation invaded the intervening bony wall. In mild cases there was no macroscopic change in the bone but a periostitis was present over the floor of the frontal sinus with swelling and redness of the eyelid or over the ethmoidal os planum, causing exophthalmos. This condition might resolve of itself or yield to intranasal treatment. The orbital contents were generally not involved in these cases beyond slight venous congestion at the optic disc. Subperiosteal abscesses were not infrequent in children, the infection being transmitted by the ethmoid labyrinth. In operating on these cases a curved incision was made along the inner orbital margin and on retracting the periosteum the small collection of pus would be encountered between the periosteum and the bone and usually a small irregular defect in the os planum. The opening in the bone should be slightly enlarged and the contiguous ethmoidal cells curetted. If the orbital periosteum was invaded involvement of the orbital structures resulted, either cellulitis or abscess. The important part played by nasal sinusitis in producing orbital cellulitis and abscess had only been recognized within the last few years. Under these circumstances the usually practiced blind incisions into the orbital cavity were not surgical; treatment should be based on the lines of the orbital operation for nasal sinus empyema. There should be broad exposure by an incision along the orbital margin, careful inspection of the orbital walls, and proper drainage according to the individual case. The reader of the paper was of the opinion that the importance of the maxillary antrum in causing orbital complications had been exaggerated. An important group of ocular complications of nasal sinus disease was that involving the optic nerve. The recent investigations of Onodi had shown that the optic nerve was frequently in close relation to the posterior ethmoidal cells and that the extreme thinness of the intervening wall made the involvement more likely than in the case of the sphenoid. It was of special interest that the optic nerve was involved in the form known as retrobulbar neuritis in which a central scotoma was the charactertistic functional defect. The prognosis of these cases was excellent and now that ophthalmological attention had been focused on this interdependence of the nose and eye, some of the hitherto obscure cases of acute retrobulbar neuritis would be recognized and nasal treatment promptly instituted. Ocular paralyses were not infrequently the only manifestations of

orbital complications. Neuralgia, especially ciliary and retrobulbar, was frequently due to sinus affections and asthenopia was a common symptom. According to Kuhnt muscular asthenopia, accommodative asthenopia, and contractions of the visual field were the functional disturbances observed in nasal empyema in the order of their frequency. There was a group of eye affections comprising iridochoroiditis, glaucoma, and detachment of the retina, with which certain authors had brought sinus disease in etiological relation. This was a subject upon which we required additional information. Kuhnt had stated that he had never seen a case of iritis or choroditis caused by sinus disease, but thought that cyclitis, especially the form chiefly characterized by opacities of the vitreous, could depend on this cause. He had never observed glaucoma to be caused by nasal disease, but believed that in predisposed eyes an attack might be brought on by a sinus affection. The reported cases of detachment of the retina associated with nasal sinus disease were not convincing. He felt sure that the list of ocular disturbances which could be produced by sinus affections was not exhausted and that there was a great deal of careful work still to be done.

The Diseases of the Eye and Orbit Depending on Diseases of the Accessory Nasal Sinuses.—Dr. C. G. Coakley presented this paper in which he discussed the diseases involving each of the sinuses and the diseases of the orbit liable to be produced by them. He first took up the maxillary sinus and discussed suppurative inflammation. He said that infections that caused suppuration reached this sinus through the nose, the ethmoidal cells, and as a result of dental or periodental suppurations. Orbital disease as the result of disease of the maxillary sinus was rather rare. He thought that this was accounted for from the fact that in the neighborhood of the ostium maxillare the nasoantral wall was extremely thin and oftentimes for an area of a cm. was void of any bony support. Consequently secretions from the antrum when held under moderate tension and pressure found their way into the nasal cavity through this thin wall. If this outlet was obstructed by deflected septum, polypi, or other neoplasms the secretion from the antrum might rupture through into the floor of the orbit, thus causing an infective orbital cellulitis. Dentigerous cysts might grow to enormous size and by pressure absorb the bony walls of the antrum, not only the anterior but also the superior, producing a displacement of the orbital contents upward, outward, or forward, according to the portion of the floor of the orbit that was absorbed. When small, these cysts might give rise to neuralgic pains, but when they grew larger there was also a bulging of the anterior wall of the maxillary sinus or the displacement of the globe of the eye in addition to the neuralgia. The contents of the cyst were invariably sterile while the cyst wall was intact. If the cyst became infected either as the result of spontaneous rupture or surgical interference serious orbital cellulitis might arise. Malignant disease of the antrum, although rather rare, might extend to and involve the contents of the orbit either directly from the antrum or indirectly through the ethmoidal labyrinth. Secondly, in disease of the frontal sinus the relation to the orbit was one which resulted in more frequent complications to the orbital contents. If there was suppurative inflammation of the frontal sinus and, for any reason the nasofrontal duct was obstructed, either from tortuosities or enormous swelling of the lining membrance of the canal, or from the presence within the nose of the various pathological conditions such as were mentioned as causing obstruction to the ostium maxillare the secretion under pressure sought an outlet along the lines of least resistance. In case of perforation of the floor of the frontal sinus, two classes of phenomena might be observed. In acute cases, the infected pus might burst through the bone and periosteum and infect the loose cellular tissue of the orbit and a general orbital cellulitis, with sudden oedema and redness of the lids would ensue in the course of a few hours with complete inability to separate the lids, and displacement of the globe of the eye. In the less acute type there was a gradual and progressive bulging of the floor of the orbit with less acute ocular symptoms. The bulging and fistula might occur anywhere along the entire orbital arch from the inner to the outer end. The globe might consequently be displaced in various directions. The diagnosis of acute or chronic involvement of the frontal sinus was comparatively easy with the aids of modern diagnosis available. In a large proportion of the cases the nasofrontal duct was partially patent and the presence of a certain amount of pus in the nose directed the attention of the rhinologist to suppuration in some of the accessory sinuses. In the acute cases the extreme tenderness of the bone of the affected side and the appearance of swelling below the supraorbital arch made it probable that the frontal sinus was affected. In these cases a good skiagraph was a most valuable aid. He had seen some cases, however, where there was such evident involvement of the frontal sinus, accompanied by such manifest orbital cellulitis, that it did not seem advisable to delay operating until a skiagraph could be made. Thirdly, he considered the ethmoidal cells. This region, if diseased, was much more liable to involve the orbit than either the maxillary or the frontal sinuses. Orbital cellulitis occurred more frequently as a result of ethmoidal disease than it did from disease of the frontal sinus. It was very difficult in some instances to differentiate the source of an orbital cellulitis, whether from the frontal, ethmoidal or sphenoidal sinuses. In the severer types of involvement it was seldom that one group of sinuses alone was involved, there was usually a combination and sometimes all of them were involved. The surgeon in operating should invariably investigate all three sinuses, and if they were found diseased, perform a radical operation. Cysts of the ethmoidal region were not uncommon and might result in tumor-like masses which invaded the orbit in various places. Fourthly, Dr. Coakley considered thrombosis of the orbital veins. This thrombosis might involve only a portion of the veins of the orbit or it might involve all the veins and extend backward into the circular sinus. If the thrombus was an infected one a portion might get into the general circulation and all of the symptoms of pyemia develop. If the thrombus was not infected, organization of the clot might occur and the circulation be reestablished. Fifthly, the sphenoidal sinus was considered. This sinus varied greatly in its position in reference to the apex of the orbit. If the sinus was large it might partially or completely encircle the optic nerve as it passed through the foramen. There was a large class of cases of ethmoidal and sphenoidal disease falling under the observation of the rhinologist without any involvement of the optic nerve. In the absence of any visible secretion or any appearance of local inflammatory in the posterior portion of the nares as compared with the anterior portion, the diagnosis of sphenoethmoiditis was difficult. There was no way of satisfactorily detecting the condition of the sphenoid and posterior ethmoid cells without, in a large proportion of cases, removing the entire middle turbinate. Then unless the septum was very markedly deflected the anterior wall of the body of the sphenoid came into view and one might enlarge considerably the sphenoidal opening and the posterior ethmoids so as to inspect the interior. In operating there were two difficulties to contend with, first, the fact that many patients complained of considerable pain even when thoroughly cocainized, so that it was impossible at a single sitting to do all that was necessary and secondly, that in spite of the use of suprarenal extracts the bleeding was often so great as to prevent one getting a proper view of the operative field. If this happened the surgeon would find it impracticable to perform any further surgical work on the patient for a period of about two weeks. From a study of nineteen cases referred to him for retrobulbar neuritis he found that only three of them showed any condition as a result of nasal examination that would make

one suspect any disease of the sphenoid or ethmoid. When operated upon these cases had large sphenoid and ethmoid cavities, the mucous membrane was edematous and considerable secretion existed in the cavities. One case was totally blind in one eye and within a few weeks after operation recovered almost perfect sight. A second case that could barely distinguish light made an almost perfect recovery. A third case was totally blind and had made a perfect recovery. Ten patients with retrobulbar neuritis had their middle turbinates removed and their sphenoidal and ethmoidal cavities opened without finding any disease.

Dr. William C. Posey of Philadelphia said that in recent years an ocular symptomatology of sinusitis had been evolved, which was incomplete by reason of the lack, in nearly all instances, of pathological evidence to prove the dependence of diseases of the eye and orbit upon conditions within the sinuses; nevertheless the changes in the eye caused by sinusitis had been observed by so many writers that it might be said to be now fairly well established. Ophthalmologists realized that the treatment of abscess of the orbit demanded that not only should the pus be liberated from the orbit, but that the origin of the abscess be detected and if possible removed. The question had arisen as to whether this field belonged to the ophthalmologist or to the rhinologist. The proper person was one who combined both ophthalmology and rhinology in his practice, but this association was falling into disuse. He urged upon the ophthalmologist the desirability of a more intimate knowledge of the anatomy and diseases of the sinuses and insisted upon the treatment of these complications by ophthalmologists, or at least in their presence and with their counsel. He did not intend, however, that the rhinologist should be supplanted in the general treatment of sinsusitis. The interest of the ophthalmic surgeon in this branch of surgery had already borne fruit, for the operation devised by Knapp for opening the frontal sinus accomplished all that the Killian procedure designed with less deformity and with conservation of the function of the superior oblique muscle. The involvement of the optic nerve as a consequence of ethmoidal and sphenoidal sinusitis might vary in degree from a simple edema to an active retrobulbar inflammation. As a rule the patient complained of some dimness of vision in one eye, at times of vertigo, headache, and other head symptoms. The ophthalmoscope usually showed the unaffected eye to be normal, while in the fellow eye a slight veiling of the nerves at the edges was seen, with a dilatation of the retinal veins and a choking of the lymphatics around the central vessels. In cases of only slight involvement the patient was usually conscious of dimness in the affected eye. There was a normal vision for form, but a diminution of the light sense. A chief characteristic of neuritis due solely to sinus inflammation was its unilateral character, for although both nerves might be affected in the optic canal by inflammation of both sphenoidal sinuses, such cases were very rare. He referred at length to the changes in the optic nerve from sinusitis as set forth by Birch-Hirschfeld. The speaker and Dr. Packard had treated a number of cases in common and Dr. Packard had summarized his observations from the standpoint of the rhinologist as follows: There were several classes into which cases of ophthalmic disease, resulting from intranasal trouble or disease of the accessory sinuses, might be divided. (1.) Cases of direct extension of suppuration. These cases generally had a long history of intranasal or sinus trouble, as the escape of pus into the orbit was due to necrosis of the bony wall of the involved sinus. (2.) There was a large class of cases in which eye symptoms occurred, and upon rhinological examination there was nothing to account for them except congestion of the sinuses, or possibly an accumulation of nonpurulent secretion within them. (3.) There was a very large class of cases which presented ophthalmic symptoms which were undoubtedly due to old sinus trouble, but in which no pus could be found at the time they were examined by the rhinologist. The history of these cases usually pointed to old catarrhal trouble. (4.) There was a class of cases in which a septal spur or deflection, upon which the swollen turbinate impinged and in which intraocular pains or other symptoms might result which were relieved by a measure directed to enlarging the space between the turbinates and the septum. As indicating the frequency with which orbital inflammation was dependent upon disease of the accessory sinuses Birch-Hirschfeld found that of 684 cases of the former at least 409 depended upon one of the sinuses. In almost all cases the condition was chronic or acute purulent sinusitis which followed rhinitis, influenza, pneumonia, scarlet fever, and diphtheria, or after traumatism. The bacteriology of the eye was practically that of the accessory sinuses of the nose. An original sinusitis might heal while the orbital condition to which it gave rise was progressive, as it could not find drainage.

Dr. Emil Gruening said that the relations between the eyes and the nose had interested him for a long time because he often encountered cases showing ocular symptoms such as lacrymation and photophohia, in which local treatment of the eye and general treatment proved ineffective, while nasal treatment was beneficial. He had read a paper on this subject in 1886 which had been published in the Medical Record. The diseases of the accessory sinuses of the nose causing complications in the orbit came frequently under the observation of the ophthalmic surgeon. He was of the opinion that in many of these cases the intranasal treatment should be supplanted by operations from the orbit. In 1895 and 1896 he had written two articles on "Empyema of the Ethmoidal Cells and Its Operation from the Orbit" and on "Orbital Fistulæ Due to Ethmoidal Disease." At that time he wrote that the good results obtained by surgical procedures from the orbit were so gratifying that it seemed advisable to substitute more frequently the orbital for the intranasal operations. The advantages of the orbital operation over the intranasal were the following: 1. The possibility of more direct inspection and exploration of the ethmoidal spaces. 2. The greater facility of removing granulations and polypi and carious bone. 3. The better chance of securing drainage by a counter opening, *i.e.*, by perforating the floor of the ethmoidal body from above. The resulting scar was hardly visible and did not disfigure the face.

Dr. Robb of Boston and Dr. Robert C. Myles also discussed the papers.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held November 17, 1908.

Dr. Onslow Allen Gordon in the Chair.

The Treatment of Lacerated and Contused Wounds and Compound Fractures.—Dr. Martin B. Tinker of Ithaca, N. Y., read this paper. He said that it was the prevailing practice for the attending surgeon to relegate the treatment of these severe injuries in most cases to the house surgeon. There was a tendency to scarcely appreciate the importance of the careful and skilled treatment of the grave injuries to the limbs. As the result of this neglect, these traumata frequently resulted in death tetanus, malignant edema, spreading gangrene, streptococcus infection, and infection with the bacillus capsulatus ærogenes. To the workingman the mere loss of a finger was a matter of considerable importance, and it was the duty of the surgeon, in the presence of a crushing injury to a finger, to seek to prevent the loss of permanent injury to the member from an osteomyelitis, etc. There was a general dislike for accident surgery. But it was just as creditable to save an arm as to remove a tumor. It was noted that to-day, in spite of the advances of surgery, there was no essential difference in the mthod of handling these cases to the practice that prevailed fourteen years ago. The usual treatment was the scrubbing up of the parts, the irrigation with antiseptics, the institution of

free drainage, and the application of antiseptic dressings. In the process of scrubbing, however, infectious material was frequently rubbed into the wound. Moreover, irrigation did not suffice, for the fluid rarely penetrated into the deeper parts. Bichloride or carbolic solutions, if strong enough to kill bacteria, were likewise effective in destroying the tissues. These when dead were a perfect nidus for the further growth of bacteria. The speaker suggested a modification of the older methods and did not claim originality. He admitted that his methods also had their disadvantages. Before scrubbing up the damaged limb, he covered the lacerated parts with cotton soaked in sterilized oil. This was done with the object of preventing any further infection of the lacerated tissues. It was impossible to remove all the dirt from the latter. The application to the surface of powerful antiseptics like Harrington's solution, pure carbolic acid, or strong formalin solution was permissible. It was necessary to get relatively healthy tissues before closing the wound. After the application of a tourniquet it was advisable to pare off the superficial torn and damaged tissues by means of a sharp curved scalpel. The tendons and nerves were to be spared. After this the wound was to be sutured loosely, with or without drainage, as circumstances dictated. Then abundant and loose dressings were to be applied, so as not to impair the circulation. For wounds in which the dirt was ground in, and in case of badly damaged or crushed parts, swabbing instead of pareing off the surface was to be the procedure. It was then necessary to wait until the line of demarcation appeared. The speaker cited a case in which the toes were mashed to a pulp, and the plantar surfaces of the metatarsal bones were exposed. The parts were swabbed and placed in a bichloride bath. At the end of two weeks the line of demarcation had formed. The two middle toes were dead; the metatarsal bones were shelled out of the outer toes, and the soft parts of the latter were used as flaps in forming a serviceable stump of the foot. By this conservative method of dealing with an injury for which a Syme or a Pirogoff operation was usually performed, it was possible to get a stump capable of bearing the weight of the body. In the processes of swabbing, disinfecting and pareing an anesthetic was necessary. In the presence of profound shock, local anesthesia was preferable. In combating shock the speaker had found morphine invaluable. In combination with a good preparation of myoscine it was most effective. Then cocaine was injected locally. This was best injected in such a manner as to cause a ring of infiltration anesthesia about the main nerve trunk, or if possible, the cocaine was to be injected directly into the nerve itself. Novocaine was better than cocaine. In a solution of 1-500 it was as effective as cocaine, and five times less toxic. This procedure reduced the tendency to shock. Crile had shown that when the main nerve trunk was infiltrated with cocaine, the shock of amputation was markedly diminished. On account of the frequency of death from tetanus following severe injuries, the speaker adopted the additional precaution of giving an immunizing dose of tetanus antitoxin. This was of no avail if injected when the disease was fully developed. For shock the speaker administered one pint of coffee per rectum, and an intravenous saline infusion with adrenalin added to it. The pulse usually flagged as soon as the stimulation was removed. The other aids to the successful tiding over of the dangerous period, as the warmed operating table, etc., were also resorted to. To hold broken bones in place plaster-of-Paris was used. Windows in the east were not necessary in a clean case. The cast was removed at the earliest possible moment. The *x*-rays were to be employed in order to recognize if the fragments were in proper alignment. The patient was to get up early, with the aid of crutches. In the severe injuries it was necessary to suture the tendons and nerves. Primary nerve suture was attended with satisfactory results, while secondary suture was usually unsatisfactory. If necessary, secondary bone suture was to be resorted to. The transplantation of bone from animal to man was not usually successful. It was well to leave all fragments of bone that were still attached to periosteum. Skin grafting and blood-vessel anastomosis were occasionally necessary. The man who could save the blood supply was the one who could save limbs that were usually amputated. In all injuries of the lower extremities, if the blood-vessels were intact, the limbs could be saved. By such conservative methods, which entailed a great deal of care and labor on the part of the surgeon, the results were infinitely more satisfactory.

The Ethics of Our Profession.—Dr. A. Vander Veer of Albany, N. Y., read this paper. He commented on various definitions of ethics, and said that it was not his intention to discuss the codes, but to discuss ethics from the viewpoint of scientific medicine. In particular, his object was to discuss in its ethical relations the attitude of the profession toward its students. He gave an historical résumé of the development of medical education in New York State during the past century, and of the development of legislation relating to it. The tendency of to-day was to demand from the student a preparatory education that was too elaborate for the needs of the majority of practitioners. If the college degree was to be demanded from prospective students of medicine, and if the latter were to spend four years in the study of medicine with the subsequent one or two years of hospital or laboratory work, then the practitioner would not be able to begin his bread-winning until the age of twenty-eight. For the majority of practitioners, particularly those of rural communities, the limited remunerative returns from his practice made this demand for elaborate preliminary preparation too exacting. The combination course of six years of study, as advocated by President Butler and others, which would lead to both of the degrees of of A.B. and M.D., was endorsed by the speaker as the ideal curriculum.

Philadelphia County Medical Society.

At a stated meeting held November 25 a symposium was held on the subject of vaccination. Dr. Alexander C. Abbott presented a communication dealing with "The Rôle of the Bureau of Health in Public Vaccination." He pointed out that outbreaks of smallpox can be prevented by proper enforcement of the law and the universal practice of vaccination. Dr. Jay F. Schamberg read a paper entitled "Smallpox Before and Since the Discovery of Vaccination." He referred to the terrible plagues of smallpox that devastated Europe and England between the fifteenth and eighteenth centuries, when from 85 to 95 per cent. of the population were afflicted with the disease. A remarkable decrease in the prevalence of the disease has been noted in every country in which vaccination has been made compulsory. It has been contended by the opponents of vaccination that the improvement is due to better sanitary conditions, but a like improvement has not been noted with respect to other transmissible diseases. Dr. Wm. M. Welch read a paper entitled "Remarks on the So-called Dangers of Vaccination." He showed that the number of cases in which bad results attend vaccination is small in relation to the large number of persons vaccinated. Complications are almost invariably due to carelessness or want of cleanliness on the part of the physician or the patient. Disease is at the present day rarely if ever transmitted by vaccination. Hampton L. Carson, Esq., submitted a communication entitled "The Legal Aspects of Vaccination." He cited opinions of the Pennsylvania Supreme Court to show that the Legislature in the exercise of the police power of the State has the right to enforce any regulation calculated to conserve the public health. The vaccination law he contended came within the exercise of that right.

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